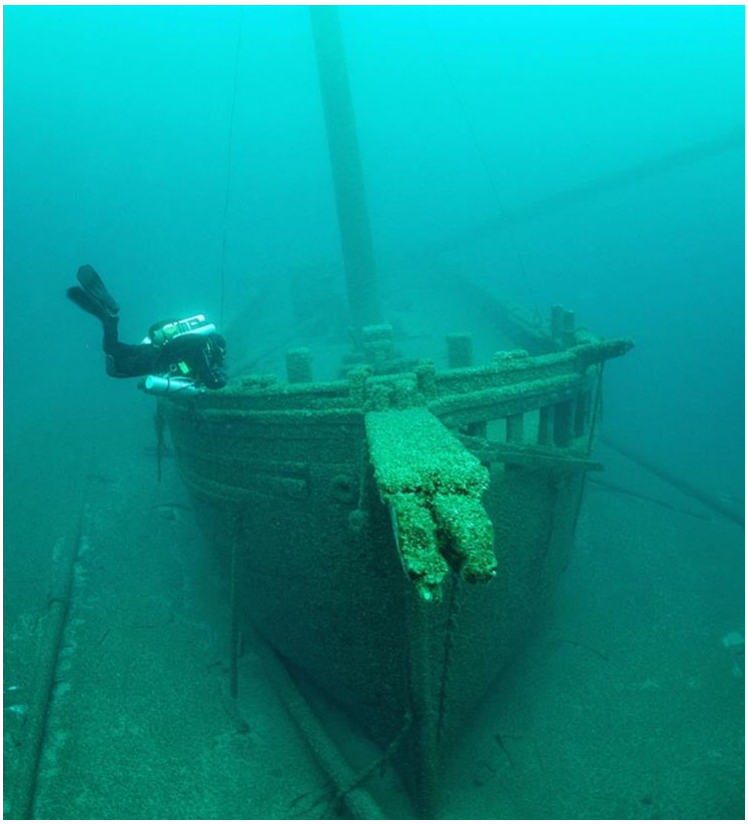
Office of National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Wisconsin Shipwreck Coast
National Marine Sanctuary Designation

Final Environmental Impact Statement and
Final Management Plan



June 2020 | sanctuaries.noaa.gov/wisconsin/

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John Armor, Director

Cover Photos: (top) The schooner *Walter B. Allen* is one of the shipwrecks protected by the new Wisconsin Shipwreck Coast National Marine Sanctuary. (Bottom) A photomosaic shows details of the *Walter B*. *Allen* wreck. Photos: (top) Tamara Thomsen/Wisconsin Historical Society; (bottom) Woods Hole Oceanographic Institution - Advanced Imaging and Visualization Laboratory

ABSTRACT

In accordance with the National Environmental Policy Act (NEPA, 42 U.S.C. § 4321 *et seq*.) and the National Marine Sanctuaries Act (NMSA, 16 U.S.C. § 1431 *et seq*.), the National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries (ONMS) has prepared a final environmental impact statement (FEIS) that analyzes alternatives for the proposed designation of an area of Wisconsin's Lake Michigan as a national marine sanctuary. This action addresses NOAA's responsibilities under the NMSA to identify, designate, and protect areas of the marine and Great Lakes environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or aesthetic qualities as national marine sanctuaries. NOAA has developed five alternatives for the sanctuary designation, and this FEIS evaluates the environmental consequences of each alternative under NEPA. The FEIS also serves as a resource assessment under the NMSA, documenting present and potential uses of the areas analyzed in the alternatives. NOAA's preferred alternative would designate 962 square miles of Lake Michigan to protect a nationally significant collection of historic shipwrecks and associated underwater cultural resources. No significant adverse impacts to resources in the human environment would be expected under any of the alternatives. Long-term beneficial impacts are anticipated if the proposed designation is finalized.

Lead agency: National Oceanic and Atmospheric Administration

For further information, contact: Russ Green, Regional Coordinator, Northeast and Great Lakes Region, at (920) 459-4425 or russ.green@noaa.gov.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of National Marine Sanctuaries
1305 East-West Highway
Silver Spring, Maryland 20910

Dear Reviewer:

In accordance with the provisions of the National Environmental Policy Act (NEPA), we enclose for your review the National Oceanic and Atmospheric Administration (NOAA) Office of National Marine Sanctuaries (ONMS) final environmental impact statement (EIS) and final management plan for the Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS).

NOAA prepared this document to assess the environmental impacts associated with designating the national marine sanctuary under the National Marine Sanctuaries Act (NMSA). The NMSA require that an EIS be prepared for designation of a national marine sanctuary regardless of the significance of the impacts of the proposed action. The final management plan contains the non-regulatory management actions for the sanctuary. NOAA will publish a final rule to establish the boundaries, regulations, and terms of designation for the WSCNMS. Under the NMSA, after the publication of the final rule the designation becomes effective after 45 days of Congressional session. During this time, Congress and the Governor of Wisconsin will review NOAA's designation documents. NOAA will also develop the record of decision and publish in the Federal Register notice of effective date of the designation after the review period is complete.

Although NOAA is not required to respond to comments received as a result of issuance of the final EIS, any comments received will be reviewed and considered for their impact on issuance of a record of decision. Please send comments to the Sanctuary Official identified below by July 6, 2020. NOAA will make the record of decision publically available following final agency action.

Responsible official: John Armor, Director
Office of National Marine Sanctuaries

Sanctuary official: Russ Green, Regional Coordinator
Office of National Marine Sanctuaries
UW Green Bay / Sheboygan Campus
One University Drive
Sheboygan, WI 53081

Sincerely,

John Armor
Director

ABOUT THIS DOCUMENT

This final environmental impact statement (FEIS) analyzes the environmental impacts of a reasonable range of alternatives (including a no-action alternative) associated with the proposed designation of an area of Wisconsin's Lake Michigan as a national marine sanctuary. This document is also a resource assessment document that details the present and future uses of the areas identified for potential designation, and includes a management plan that describes the proposed goals, objectives, and strategies for managing sanctuary resources.

The National Oceanic and Atmospheric Administration (NOAA) prepared this FEIS in accordance with the National Environmental Policy Act of 1969 (NEPA, 42 U.S.C. § 4321 *et seq.*) as implemented by the Council on Environmental Quality regulations (CEQ, 40 C.F.R. parts 1500-1508); NOAA Administrative Order (NAO) 216-6A, which describes NOAA policies, requirements, and procedures for implementing NEPA; and the National Marine Sanctuaries Act (NMSA, 16 U.S.C. § 1431 *et seq.*), which requires preparation of an environmental impact statement for all sanctuary designations.

Accordingly, this document was preceded by a notice of intent to prepare a draft environmental impact statement (DEIS) and initiate a public scoping process (80 Fed. Reg. 60,631 [Oct. 7, 2015]). The public scoping period commenced on October 7, 2015, and ended on January 15, 2016, during which time NOAA held three public meetings. During the scoping period, NOAA received approximately 135 written and oral comments on the concept of designating a sanctuary.

On January 9, 2017, based on public comments received during the scoping period and in consultation with the state of Wisconsin, NOAA published a DEIS, draft management plan, and proposed rule (82 Fed. Reg. 2269 [Jan. 9, 2017]). Together, these documents constituted NOAA's proposal to designate Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS) which would protect shipwrecks and related underwater cultural resources that possess exceptional historic, archaeological, and recreational value.[1]

On January 9, 2017, NOAA opened an 81-day period for public comments on the three detailed proposal documents. This comment period ended on March 31, 2017. NOAA received 566 written comments on the sanctuary proposal. NOAA also held four public meetings in March 2017 in Algoma, Manitowoc, Sheboygan, and Port Washington. Approximately 400 people attended the meetings, with 75 people providing verbal comments.

NOAA is the lead agency for this action. NOAA's Office of National Marine Sanctuaries (ONMS) would be the implementing office for this action

[1] In the 2014 sanctuary nomination submitted to NOAA by the state of Wisconsin and several lakeshore communities, the proposed sanctuary was referred to as "Lake Michigan Wisconsin National Marine Sanctuary." The working name "Wisconsin Lake Michigan National Marine Sanctuary" was used through the publication of the draft environmental impact statement and accompanying documents. In the final environmental impact statement and accompanying documents, NOAA changed the name to Wisconsin Shipwreck Coast National Marine Sanctuary after input from community and state partners. To avoid confusion, the name Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS) is used throughout this document irrespective of the various stages of the sanctuary designation.

RECOMMENDED CITATION

Office of National Marine Sanctuaries. 2020. Wisconsin Shipwreck Coast National Marine Sanctuary Designation Final Environmental Impact Statement. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD.

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ACKNOWLEDGEMENTS

This document was prepared by NOAA's Office of National Marine Sanctuaries, with assistance from the Wisconsin Historical Society, Wisconsin Coastal Management Program, and Wisconsin Department of Natural Resources. A full list of preparers is provided on page 141.

ACRONYMS

ACHP	Advisory Council on Historic Preservation
ALJ	Administrative law judge
ARPA	Archaeological Resources Protection Act of 1979
ASA	Abandoned Shipwreck Act
ASV	Autonomous surface vehicle
AUV	Autonomous underwater vehicle
BCC	Birds of Conservation Concern
BCR	BCC only in Bird Conservation Region
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CON	BCC throughout range
CZMA	Coastal Zone Management Act
DEIS	Draft environmental impact statement
DMP	Draft management plan
ECOS	Environmental Conservation Online System (USFWS)
E.O.	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final environmental impact statement
FR; Fed. Reg.	Federal Register
GIS	Geographic information system
GLERL	NOAA Great Lakes Environmental Research Lab
GLSC	USGS Great Lakes Science Center
GPS	Global Positioning System
IGLD	International Great Lakes Datum
IPaC	Information for Planning and Conservation (USFWS)
LWD	Low water datum
MATE	Marine Advanced Technology Education Center
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of agreement
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NAO	NOAA Administrative Order
NCCOS	NOAA National Centers for Coastal Ocean Science
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NISA	National Invasive Species Act
NMFS	NOAA National Marine Fisheries Service

NMSA	National Marine Sanctuaries Act
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NOVA	Notice of violation and assessment
NPS	National Park Service
NRHP	National Register of Historic Places
OHWM	Ordinary high water mark
ONMS	NOAA Office of National Marine Sanctuaries
RFA	Regulatory Flexibility Act
ROV	Remotely operated vehicle
SAC	Sanctuary Advisory Council
SEAS	Sailing Education Association of Sheboygan
STEAM	Science, technology, engineering, art, mathematics
STEM	Science, technology, engineering, and mathematics
SUP	Special use permit
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USV	Unmanned surface vehicles
UUV	Unmanned underwater vehicles
UW	University of Wisconsin
WCMP	Wisconsin Coastal Management Program
WDNR	Wisconsin Department of Natural Resources
WHS	Wisconsin Historical Society
WPDES	Wisconsin Pollutant Discharge Elimination System
WSCNMS	Wisconsin Shipwreck Coast National Marine Sanctuary

EXECUTIVE SUMMARY

Introduction

NOAA is proposing to establish a national marine sanctuary along Wisconsin's Lake Michigan coast. The proposed sanctuary would be adjacent to Sheboygan, Manitowoc, and portions of Ozaukee and Kewaunee counties in the state of Wisconsin. The proposed sanctuary would protect nationally significant shipwrecks while also enhancing education, recreation, and tourism initiatives within the many communities that have embraced their centuries-long maritime relationship with Lake Michigan, the Great Lakes region, and the nation.

The historic shipwrecks in the proposed sanctuary are representative of the vessels that sailed and steamed this corridor, carrying grain and raw materials east as other vessels came west loaded with coal, manufactured goods, and people. Well-preserved by Lake Michigan's cold, fresh water, shipwrecks and other underwater cultural resource sites in and around the proposed Wisconsin Shipwreck Coast National Marine Sanctuary possess exceptional historical, archaeological, and recreational value. Many of the shipwrecks in the proposed sanctuary are listed on the National Register of Historic Places and retain an unusual degree of archaeological integrity, with several vessels virtually intact.

Establishing a national marine sanctuary in Wisconsin waters would complement and expand existing state-led preservation efforts, research programs, and public outreach initiatives. Because this sanctuary would be in state waters, NOAA is proposing to co-manage the area with the state of Wisconsin. A sanctuary designation would enhance state preservation efforts through its comprehensive management programs and would provide access to NOAA's extended network of scientific expertise and technological resources, enhance ongoing research, and provide an umbrella for the coordination of these activities. A sanctuary would support and build on educational initiatives already in place and provide programming and technology that could reach K-12 and higher education teachers and students, as well as the general public, across the state. A sanctuary designation, the local commitment to the sanctuary, the existing state agency interest, increased national exposure, and NOAA's existing network of affiliated programs has the potential to create significant synergies in the sanctuary and beyond.

Sanctuary Nomination

On December 2, 2014, pursuant to Section 304 of the National Marine Sanctuaries Act (NMSA, (16 U.S.C. § 1431 *et. seq.*) and the Sanctuary Nomination Process (79 Fed. Reg. 33,851 [June 13, 2014]), then-Wisconsin Governor Scott Walker, on behalf of the state of Wisconsin, the cities of Two Rivers, Manitowoc, Sheboygan, and Port Washington, and the counties of Ozaukee, Sheboygan, and Manitowoc, submitted a nomination asking NOAA to consider designating an area of Wisconsin's Lake Michigan waters as a national marine sanctuary.[2]

The nomination focused on protecting and interpreting a nationally significant collection of historic shipwrecks, including 18 shipwrecks listed on the National Register of Historic Places at

[2] See nominate.noaa.gov/nominations/nomination_lake_michigan_wisconsin.pdf.

the time. The nomination cited conservation goals to protect and conserve the nation's cultural heritage as well as opportunities to expand public access, recreation, tourism, research, and education.

Proposed Action

Based upon the state's nomination and input from the public and federal, tribal, state, and local agencies, NOAA proposes to establish a national marine sanctuary along Wisconsin's Lake Michigan coast. In establishing the proposed sanctuary, NOAA would:

- Set a boundary to protect these nationally significant shipwrecks and other underwater cultural resources and to interpret the maritime cultural landscape that surrounds them;
- Create and implement regulations to protect underwater cultural resources; and
- Develop and implement a management plan to provide a comprehensive, long-term plan to manage the sanctuary.

Environmental Analysis

NOAA prepared this final environmental impact statement (FEIS) based on the requirements of Section 304(a)(4) of the National Marine Sanctuaries Act and in accordance with the National Environmental Policy Act (NEPA, 42 U.S.C. § 4321 *et seq*.). This document describes the affected environment, the proposed action and alternatives, and the environmental consequences to the human and natural environment of each of the alternatives.

Alternatives

In this FEIS, NOAA is evaluating the no-action alternative and the four action alternatives for the proposed sanctuary. Under the **no-action alternative**, NOAA would not move forward with the designation of Wisconsin Shipwreck Coast National Marine Sanctuary.

Each of the four action alternatives includes three components: (1) a boundary component, (2) a regulatory component, and (3) a management plan component. Below is a summary of each alternative:

- **Alternative 1:**
    - Boundary Component: NOAA would designate a sanctuary that is 962 square miles and includes a portion of Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee Counties (Figure ES.1).[3] This is referred to as *Boundary A* in the FEIS.
    - Regulatory Component: NOAA would implement regulations to prohibit activities that could damage or otherwise injure underwater cultural resources, including a prohibition on grappling into and anchoring on shipwreck sites where a mooring buoy is present. This is referred to as *Regulatory Option A* in the FEIS.

[3] The northern and southern boundary lines of counties along the Lake Michigan shore extend eastward into Lake Michigan where they meet the Wisconsin/Michigan state line, which divides Lake Michigan longitudinally. However, not all of the eastward county waters of these counties are included in either of NOAA's boundary options. See Figure ES.1.

    - Management Plan Component: The management plan described in Appendix A of the FEIS would be implemented. The management plan outlines a series of management goals and strategies in the areas of sanctuary resource protection, education and outreach, research, and operations. In addition, the sanctuary staff would conduct field operations to implement the regulations and management plan, including vessel operations, research, and the installation of shipwreck mooring buoys.
- **Alternative 2 (Preferred Alternative):**
    - Boundary Component: NOAA would designate a 962 square-mile boundary sanctuary, referred to as *Boundary A* in the FEIS.
    - Regulatory Component: NOAA would implement the same regulations as described for Alternative 1, and add an additional prohibition on grappling into or anchoring on sanctuary shipwreck sites. This is referred to as *Regulatory Option B* in the FEIS.
    - Management Plan Component: Same management plan and associated activities described for Alternative 1.
- **Alternative 3:**
    - Boundary Component: NOAA would designate a sanctuary that is 1,260 square-miles and includes a portion of Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties (Figure ES.1). This is referred to as *Boundary B* in the FEIS.
    - Regulatory Component: NOAA would implement regulations to prohibit activities that could damage or otherwise injure underwater cultural resources, including a prohibition on grappling into and anchoring on shipwreck sites where a mooring buoy is present. This is referred to as *Regulatory Option A* in the FEIS.
    - Management Plan Component: Same management plan and associated activities described for Alternative 1.
- **Alternative 4:**
    - Boundary Component: NOAA would designate the 1,260 square-mile boundary sanctuary referred to as *Boundary B*.
    - Regulatory Component: NOAA would implement regulations to prohibit activities that could damage or otherwise injure underwater cultural resources, and add an additional prohibition on grappling into or anchoring on sanctuary shipwreck sites. This is referred to as *Regulatory Option B* in the FEIS.
    - Management Plan Component: Same management plan and associated activities described for Alternative 1.

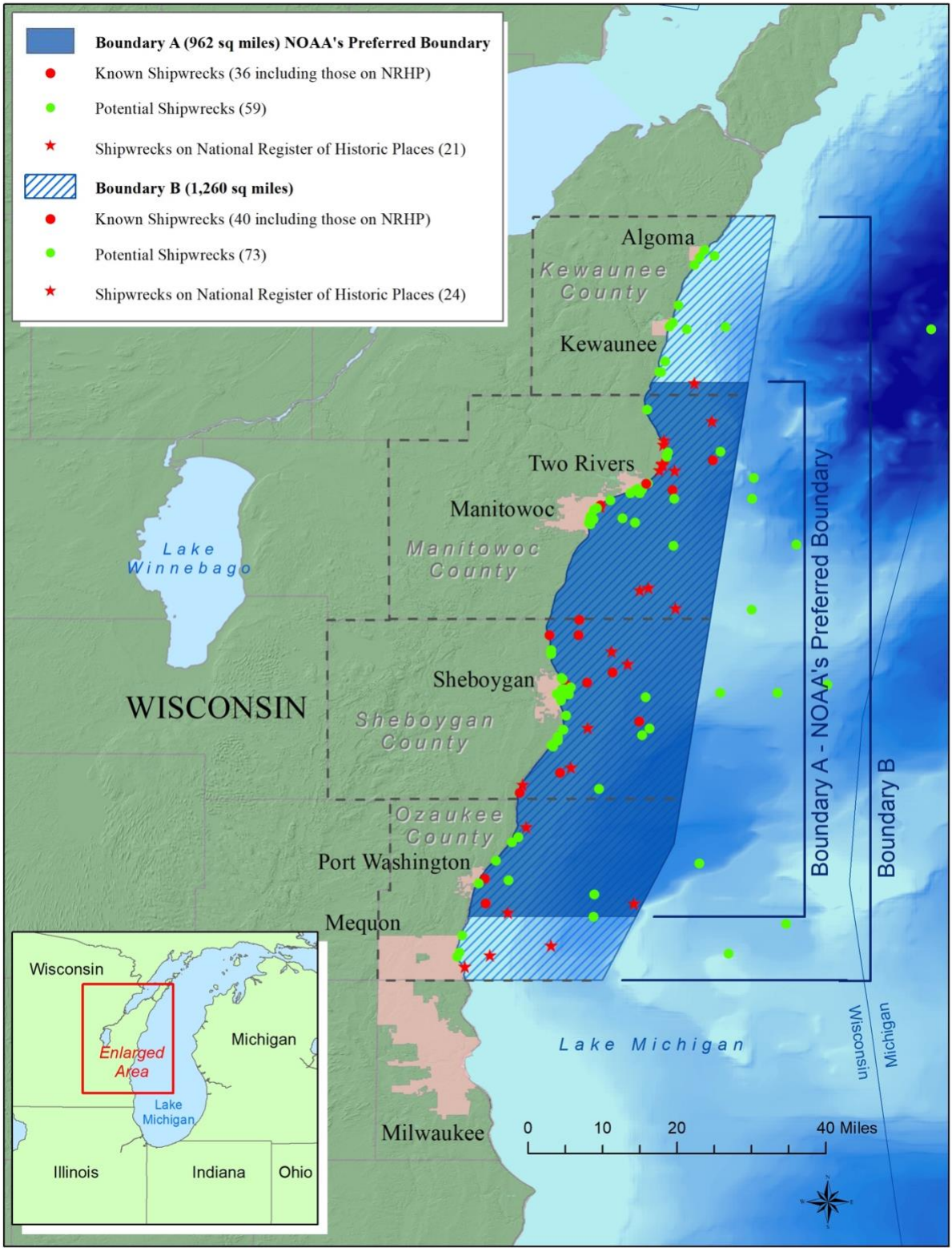

Figure ES.1. Map of the Wisconsin Lake Michigan shoreline showing proposed sanctuary Boundary A (preferred) and the larger Boundary B. Image: NOAA

A summary of the four action alternatives is provided in Table ES.1:

Table ES.1. Summary of the Four Action Alternatives

	Alternative 1	Alternative 2 (Preferred Alternative)	Alternative 3	Alternative 4
Boundary Component	Boundary A	Boundary A	Boundary B	Boundary B
Regulatory Component	Regulatory Option A	Regulatory Option B	Regulatory Option A	Regulatory Option B
Management Plan	Final Management Plan	Final Management Plan	Final Management Plan	Final Management Plan

Affected Environment

NOAA evaluated the impacts of its alternatives on: underwater cultural resources, human uses and socioeconomic resources, physical resources, and biological resources. The central cultural and historical resources analyzed in this document were historic shipwrecks. The human uses and socioeconomic resources analyzed were tourism and recreation, commercial uses, military activities, and population statistics. The major physical resources identified included geology, climate, and water quality. The major biological resources included invertebrates, fish, benthic and pelagic habitat, protected species and their associated habitats.

Summary of Impacts

By establishing the proposed sanctuary, NOAA would protect underwater cultural resources in the sanctuary from injury and disturbances by developing regulations and implementing a long-term, comprehensive management plan. The regulations would prohibit moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess, or otherwise injure a sanctuary resource. NOAA's proposed regulations would complement existing federal and state regulations to provide uniform protection over the entire collection of nationally significant historic shipwrecks within the designated sanctuary. These various regulations enforce the principles of in-situ preservation of the underwater cultural resources in the sanctuary to maintain their long-term integrity.

NOAA would also protect cultural resources by developing a mooring buoy program to prevent potential damage that may be caused by anchoring or grappling directly into the shipwreck structure. The mooring buoy program would also help improve the diving experience and allow recreational divers to more easily locate the wrecks. National visibility and regional coordination of sanctuary messaging and promotion of regional visitor opportunities would likely attract more tourists, including divers interested in viewing shipwrecks.

NOAA does not anticipate any significant adverse impacts to resources and the human environment stemming from sanctuary designation.

Preferred Alternative

Alternative 2 is NOAA's preferred alternative, which includes Boundary A (962 square miles), Regulatory Option B, and implementation of the final management plan and associated field operations. The boundary is consistent with the sanctuary nomination put forth by the state and coastal communities, and the proposed regulations reflect significant input from the state of Wisconsin. It also is responsive to public comments, complements and strengthens current state regulations, and offers a proactive approach to reducing damage to underwater cultural resources. The preferred alternative meets the purpose and need for the action as described in Chapter 2.

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 Introduction

This section places the designation of Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS) into the context of the mission of the Office of National Marine Sanctuaries (ONMS) through the provisions of the National Marine Sanctuaries Act (NMSA), and within the context of related state legislation and preservation programs.

1.2 Office of National Marine Sanctuaries

ONMS serves as the trustee for a network of underwater parks encompassing more than 600,000 square miles (1,553,993 km_2) of marine and Great Lakes waters from Washington state to the Florida Keys and from New England to American Samoa. The network includes a system of 14 national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments (Figure 1.1).

National marine sanctuaries are special areas set aside for long-term protection, conservation, and management, and are part of our nation's legacy for future generations. They contain deep ocean habitats of resplendent marine life, kelp forests, coral reefs, whale migration corridors, deep-sea canyons, and historically significant shipwrecks and other underwater archaeological sites. Each sanctuary is a unique place worthy of special protection. Because they serve as natural classrooms, cherished recreational spots, and places for valuable commercial activities, national marine sanctuaries represent many things to many people.

ONMS works with diverse partners and stakeholders to promote responsible, sustainable ocean uses that ensure the health of our most valued ocean places. A healthy ocean is also the basis for thriving recreation, tourism, and commercial activities that drive coastal economies.

Figure 1.1. NOAA's National Marine Sanctuary System. Image: NOAA

1.3 National Marine Sanctuaries Act

The NMSA (16 U.S.C. § 1431 *et. seq.*) is the organic legislation governing ONMS.[4] The NMSA authorizes the Secretary of Commerce to designate as a national marine sanctuary any discrete area of the marine environment (including the Great Lakes) with special national significance due to its conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or aesthetic qualities. Among the purposes and policies of the NMSA that are applicable to this proposed designation are the mandates 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 (16 U.S.C. § 1431(b)(1));
- Enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment[5] and the natural, historical, cultural, and archaeological resources of the National Marine Sanctuary System (16 U.S.C. § 1431(b)(4));
- Support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas (16 U.S.C. § 1431(b)(5));
- 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 (16 U.S.C. § 1431(b)(6));
- 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

[4] See sanctuaries.noaa.gov/library/national/nmsa.pdf.
[5] The NMSA defines "marine environment" as "those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, including the exclusive economic zone, consistent with international law."

interests concerned with the continuing health and resilience of these marine areas (16 U.S.C. § 1431(b)(7));
- Create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques (16 U.S.C. § 1431(b)(8)); and
- Cooperate with global programs encouraging conservation of marine resources (16 U.S.C. § 1431(b)(9).

The proposed designation of Wisconsin Shipwreck Coast National Marine Sanctuary directly follows these directives from the NMSA.

1.3.1 Long-Term and Comprehensive Management by ONMS

The NMSA includes a finding by Congress that ONMS will "improve the conservation, understanding, management and wise and sustainable use of marine resources" (16 U.S.C. § 1431(a)(4)(A)). The NMSA further recognizes that "while the need to control the effects of particular activities has led to the enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of the marine environment" (16 U.S.C. § 1431(a)(3)). Accordingly, ONMS subscribes to a broad and comprehensive management approach to meet the NMSA's primary objective of resource protection.

Comprehensive sanctuary management serves as a framework for addressing long-term protection of a wide range of living, nonliving, and marine heritage resources, while allowing multiple uses of the sanctuary to the extent that they are compatible with the primary goal of resource protection. The resources managed by ONMS span diverse geographic, administrative, political, and economic boundaries. Strong partnerships among resource management agencies, the scientific community, stakeholders, and the public at-large are needed to realize the coordination and program integration that the NMSA calls for in order to comprehensively manage national marine sanctuaries.

1.4 State Management of Underwater Cultural Resources

The Wisconsin Historical Society (WHS) is the state of Wisconsin's principal historic preservation agency and is charged under state statutes (44.02 and 44.30-44.31) with the research, protection, restoration, and rehabilitation of historic properties within Wisconsin. Under Wisconsin Statute 44.47, the society is also charged with the identification, evaluation, and preservation of Wisconsin's underwater archaeological resources, including submerged prehistoric sites, historic shipwrecks, and aircraft on state-owned bottomlands. The State Historic Preservation Office within the WHS reviews federal, state, and local projects for their effect on historic and archaeological properties.

Recognizing the multiple-use values of underwater archaeological sites to scientists, historians, and recreationalists, these underwater remnants of our past are broadly termed "submerged cultural resources." Submerged cultural resource management goes beyond the scope of traditional historic preservation programs, encountering diverse concerns such as artifact hunting, commercial salvage, or finding compatible-use solutions to mitigate damage that may occur from visiting dive boats and divers. The state of Wisconsin has additional management

responsibilities for submerged cultural resources under federal law, including the National Historic Preservation Act of 1966 and the Abandoned Shipwreck Act of 1987 (Public Law 100-298). State legislation (1991, Wisconsin Act 269) and modifications to state law, in adherence with federal guidelines issued under the Abandoned Shipwreck Act, have provided Wisconsin with a more formalized framework for underwater archaeological resource management. This legislation also authorizes the WHS and the Wisconsin Department of Natural Resources to designate underwater preserves and identify partners for the preservation and recreational development of underwater archaeological sites.

Created in 1988, the State Maritime Preservation and Archaeology Program works to survey, inventory, and evaluate Wisconsin's underwater archaeological resources, develop preservation strategies, administer field management practices, and enhance public appreciation and stewardship for Wisconsin's precious and fragile maritime heritage. The Maritime Preservation and Archaeology Program is within the State Historic Preservation Office.

To encourage preservation and visitation of these unique resources while fostering wider public appreciation for Wisconsin's maritime cultural heritage, the WHS began the Wisconsin Maritime Trails Initiative in July 2001. The maritime trails include four stretches of Wisconsin coastline. They link shipwrecks, lighthouses, historic waterfronts, historic vessels, museums, shore-side historical markers, and attractions. A fifth segment connects Wisconsin's inland waterways, offering a similar set of historic information and highlighting maritime related attractions. The resources highlighted along these trails illustrate the state's diverse maritime heritage and places it in context within the broader Wisconsin and Great Lakes maritime heritage landscape.

1.4.1 National Historic Preservation Act of 1966

The Wisconsin State Historic Preservation Office, which is the designated State Historic Preservation Office for Wisconsin, implements Section 106 of the National Historic Preservation Act of 1966 (NHPA) and is located in the Wisconsin Historical Society. The NHPA, as amended (54 U.S.C. 300101 *et seq.*), is intended to preserve historical and archaeological sites in the United States of America. The act created the National Register of Historic Places, the list of National Historic Landmarks, and the state historic preservation offices. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP (36 C.F.R. part 800).

1.5 Overview of the Sanctuary Nomination and Environmental Review Process

Below is an overview of the Sanctuary Nomination Process and subsequent environmental review process, as required under NEPA and the NMSA.

1.5.1 History of the Sanctuary Nomination for the Proposed Wisconsin Shipwreck Coast National Marine Sanctuary

On December 2, 2014, pursuant to Section 304 of the NMSA and the Sanctuary Nomination Process (79 Fed. Reg. 33,851 [June 13, 2014]), Wisconsin Governor Scott Walker, on behalf of the state of Wisconsin, the cities of Two Rivers, Manitowoc, Sheboygan, and Port Washington, and the counties of Ozaukee, Sheboygan, and Manitowoc, submitted a nomination for NOAA to consider designating an area of Wisconsin's Lake Michigan waters as a national marine sanctuary.

The 875-square-mile nomination focused on protecting and interpreting a nationally significant collection of 37 shipwrecks, including 18 shipwrecks listed on the National Register of Historic Places at the time of the nomination. The nomination cited conservation goals to protect and conserve the nation's cultural heritage as well as opportunities to expand public access, recreation, tourism, research, and education. The nominators of the proposed Wisconsin Lake Michigan National Marine Sanctuary defined six major goals, including to:

1. Preserve and expand on the 30-year investment the citizens of Wisconsin have made in the identification, interpretation, and preservation of shipwrecks and other maritime resources. Expand and deepen existing cooperative partnerships with communities, state and federal agencies, education institutions, advocacy groups, and professional organizations to study, interpret, and preserve these nationally significant archaeological and historic resources.
2. Promote a regional approach in establishing a Wisconsin national marine sanctuary. The state of Wisconsin's proposal is built on an existing foundation of regional collaboration. The cities of Port Washington, Sheboygan, Manitowoc, and Two Rivers have strengthened this collaboration by working with the state of Wisconsin on the development of this proposal, which has important socioeconomic and cultural benefits to each city and county and to the region.
3. Promote the value and create a heightened appreciation of the Great Lakes' maritime heritage resources. Increase both physical and virtual access to the proposed sanctuary's maritime heritage resources and promote their recreational use.
4. Build and expand on state and local tourism initiatives and enhance opportunities for job creation. This would be accomplished in part by strengthening existing partnerships with the Wisconsin Department of Tourism, Wisconsin Harbor Towns Association, convention and visitor bureaus, and local chambers of commerce and tourism offices to promote Wisconsin's maritime heritage.
5. Build on NOAA's Office of National Marine Sanctuaries' presence in the Great Lakes and develop long-term sustainable partnerships with Thunder Bay National Marine Sanctuary and future Great Lakes sanctuaries through collaborative and active participation in the sharing of ideas, resources, and expertise. Build on NOAA's federal investment and expertise in the state of Wisconsin through the University of Wisconsin Sea Grant Institute and the Wisconsin Coastal Management Program to sustainably manage Wisconsin's maritime heritage resources and stewardship of the Great Lakes.
6. Enhance educational programming and public outreach through partnerships with local, state, and regional agencies and organizations to create innovative maritime heritage

and Great Lakes educational programs, including curriculum development; on-site field experiences; internships; job training; and science, technology, engineering, and math (STEM) focused initiatives that are a critical component of water-related research and employment opportunities for the 21st century.

1.5.2 Initiation of Scoping and the Environmental Review Process Under NEPA

On October 7, 2015, President Obama announced that NOAA would initiate the sanctuary designation process for a Wisconsin national marine sanctuary (80 Fed. Reg. 60,631 [Oct. 7, 2015]). That announcement initiated a public environmental review required under NEPA. The first step of the environmental review process included the issuance of a notice of intent to conduct scoping and prepare an environmental impact statement on October 7, 2015. Scoping included a 90-day public period during which NOAA solicited public comments related to the scale and scope of the proposed sanctuary, including ideas presented in the community nomination. In addition, NOAA hosted three public meetings in November 2015 and accepted comments through a web-based portal and by traditional mail until January 15, 2016.[6] All comments received – through any of these formats – were made available to the public through the www.regulations.gov web portal.

During the scoping period, approximately 135 individuals provided input. In general, comments were strongly supportive of the goals of sanctuary designation, including the rationale for conservation of nationally significant resources, considerations that enhance public use and recreation, considerations that enhance tourism and the local economy, and the site as a venue for education, science, and interpretation as described in the community nomination.

The comments underscored the need for conservation and interpretation, particularly the importance of educating users about the importance of the Great Lakes and the role that shipbuilding and shipping commerce has played — and continues to play — in the history of the region and our nation. Local communities, governments, and organizations expressed strong support in favor of designating a sanctuary and offering opportunities to partner for education, research, outreach, and other activities.

Several commenters who support sanctuary designation did so with the expressed condition that designation should not in any way disrupt existing lake commerce. Specific concerns focused on the need to continue to maintain and dredge ports and for ships to be able to exchange ballast water in port and in open water.

The few commenters opposed to a sanctuary designation were concerned about the cost of implementation, the possibility that designation would make metal detecting illegal, and that the designation would be an unneeded level of government intervention.

Several commenters requested NOAA to consider expanding the proposed boundaries from the 875-square-mile sanctuary that was included in the initial nomination. Several comments

[6] The web portal is available at regulations.gov/#!docketDetail;D=NOAA-NOS-2015-0112.

suggested expanding the proposed boundary north to include reported shipwrecks in Kewaunee County, and one commenter requested inclusion of Green Bay.

1.5.3 Issuance of the Draft Environmental Impact Statement and Public Comment Period

On January 9, 2017, based on public comments received during the scoping period and in consultation with the state of Wisconsin, NOAA published a draft environmental impact statement (DEIS), draft management plan (DMP), and proposed rule (82 Fed. Reg. 2269 [Jan. 9, 2017]). Together, these documents constituted NOAA's preferred alternative to designate a 1,075-square-mile Wisconsin Shipwreck Coast National Marine Sanctuary that would protect 37 shipwrecks and related underwater cultural resources that possess exceptional historic, archaeological, and recreational value. The area was increased from the 875-square-mile boundary originally nominated in response to public scoping comments, consultation with the state of Wisconsin, and updated shipwreck location information from the state.

On January 9, 2017, NOAA opened an 81-day comment period on the DEIS, DMP, and proposed rule, which closed on March 31, 2017, and resulted in 566 written comments. NOAA held four public meetings during the week of March 13, 2017, in the Wisconsin towns of Algoma, Manitowoc, Sheboygan, and Port Washington. Approximately 400 people attended the meetings, with 75 people providing oral comments. Four petitions were submitted to NOAA including:

- One petition with 163 signatures of individuals supporting the Wisconsin sanctuary proposal exclusively;
- One petition with 128 businesses supporting both the Wisconsin and Maryland[7] sanctuary proposals; and
- Two petitions with 51 total signatures in opposition to the Wisconsin sanctuary.

Many public comments on the DEIS expressed support for increased resource protection and preservation efforts, as well as increased research capacity and opportunities for regional and national researchers. Many commenters also supported the opportunity to promote tourism in the coastal communities. Commenters stated that a national designation and the cooperation among the communities would result in increased visitors to the region. Other comments indicated support for educational opportunities, highlighting the opportunity to work with local museums, school districts, and other partners to engage the public in Wisconsin's maritime history and the Great Lakes conservation.

With regard to concerns about the proposed sanctuary, many commenters expressed concern that the state would be giving up ownership of shipwrecks, state bottomlands, and/or beaches, or more generally "control of the lake." Some commenters were concerned that designation would give NOAA the right to regulate a broad range of activities, including commercial and recreational fishing and other activities. Other commenters suggested more generally that the

[7] At that time, ONMS was also considering the designation of Mallows Bay-Potomac River National Marine Sanctuary, located in Maryland.

federal designation should not impact commercial shipping operations and commercial fishing operations.

Many commenters were concerned that sanctuary designation would override state law regarding riparian rights of landowners along the lakeshore, and that the designation would create public access to areas where riparian owners have exclusive use. Commenters were likewise concerned that the sanctuary's proposal to use the state-recognized ordinary high water mark (OHWM) as its landward boundary would interfere with riparian rights.

Some commenters noted that the state of Wisconsin already protects shipwrecks, or, more generally, that this is something the state can or should do on its own.

NOAA's responses to all public comments are in Appendix B of this document, and published with the final rule.

1.5.4. Revisions from DEIS to FEIS

NOAA drafted the FEIS based on input received from federal, state, and local agencies, public comments, and newly available information (e.g., updated shipwreck locations). A summary of these changes is provided below. For changes made in response to public comments, NOAA's complete responses to public comments can be found in Appendix B and in the final rule. As noted in Section 1.5.5, NOAA consulted with the state of Wisconsin regarding revisions between the DEIS and FEIS.

1. **Overview of the sanctuary nomination and environmental review process (Section 1.5).** This section has been updated to include a summary of the public comment period, consultation with the state that took place after publication of the DEIS, and revisions to the FEIS.
2. **Definition of "sanctuary resource" and "shipwreck site" (Section 3.3.3.3.3).** In response to public comments, NOAA modified these definitions for increased clarity.
3. **Revised description of the alternatives (Chapter 3).** In response to public comments, NOAA added an overview and additional descriptions of the four action alternatives for increased clarity and readability.
4. **Revised proposed boundary (Section 3.3 and Figure 3.1).** In response to public comments, NOAA changed its preferred boundary (Boundary A) from 1,075 square miles to 962 square miles and adopted the low water datum (LWD) rather than the ordinary high water mark as the sanctuary's landward/western boundary. Corresponding changes were made in the final rule that would establish the sanctuary designation. This modified preferred alternative includes 36 known shipwrecks and the potential for approximately 59 new sites to be discovered.
5. **Excluded federally authorized areas (navigation channels) from the proposed sanctuary (Section 3.3.2.3.1 and Figure 3.4).** In response to public comments, this section has been updated to describe how NOAA would exclude all federally authorized navigation channels from the sanctuary boundary.
6. **Added language suggested by the U.S. Army Corps of Engineers related to commercial activities in the proposed sanctuary (Section 3.3.2.3.1).** In response to public comments, NOAA has included in the FEIS language suggested by the

United States Army Corps of Engineers (USACE) to better describe commercial activities in the proposed sanctuary that support commercial shipping.

7. **Added state of Wisconsin definition of "archaeological site" (Section 3.3.1.2.2).** This definition was added to show alignment between NOAA's definition of "sanctuary resources" and the state's definition of "archaeological site."
8. **Added commercial shipping and anchoring concerns (Section 3.3.3.3.1).** This section was expanded to describe how NOAA is addressing concerns described by the Lake Carriers' Association.
9. **Delayed implementation of the no-anchoring prohibition and future consideration of a permit to allow divers to attach moorings to some shipwreck sites (Section 3.3.3.2.2).** This section was added to describe why NOAA is delaying implementation of its no-anchoring prohibition, and why NOAA would consider allowing permits for otherwise prohibited activities to facilitate public access to certain shipwrecks.
10. **Affected environment shipwreck-specific information (Section 4.2.1).** NOAA updated the description of known and potential shipwrecks within the proposed sanctuary based on newly identified shipwrecks in the area, confirmation of suspected sites, or confirmation of a vessel's name.
11. **Added additional maritime heritage sites, historic and prehistoric site potential, and the maritime cultural landscape (Section 4.2.3).** NOAA provided additional information regarding maritime heritage sites, the historic and prehistoric site potential, the maritime cultural landscape, and a fuller discussion on the nearshore environment.
12. **Expanded on military use of the R-6903 overwater range (Section 4.3.4).** NOAA expanded this section based on comments from the Wisconsin Air National Guard.
13. **Updated information on protected resources (Section 4.5.4).** This section was updated with information from the U.S. Fish and Wildlife regarding species and designated critical habitat protected by the Endangered Species Act and with information from Wisconsin Department of Natural Resources stating that there are no state endangered species within the proposed area.
14. **Updated consultations (Section 6.1).** This section is updated to reflect consultations completed before publication of FEIS.
15. **Revised the consequences analysis (Chapter 5).** NOAA updated Chapter 5 to include the impacts from implementing portions of the management plan, which were "less than significant" for all resource areas. In addition, NOAA reformatted Chapter 5 for increased clarity and readability.

As described in more detail in Chapter 3, the above changes do not result in a substantial change to the proposed action that are relevant to environmental concerns or impacts. The impacts of the changed proposed boundary are within the range of impacts of the alternatives analyzed in the DEIS. Therefore, there is no need to issue a supplemental DEIS.

1.5.5 Consultation with the State of Wisconsin

From the Sanctuary Nomination Process through issuance of the FEIS, NOAA and the state of Wisconsin collaborated closely on the sanctuary designation. A state agency working group was formed to ensure communication on the designation process. The group consisted of: WHS, Wisconsin Coastal Management Program (WCMP), Wisconsin Department of Natural Resources (WDNR), Wisconsin Department of Tourism, Wisconsin Department of Transportation, Wisconsin Public Service Commission, and the Wisconsin Board of Commissioners of Public Lands. In developing the DEIS and FEIS, NOAA worked in particular with WHS, WCMP, and WDNR.

In addition, NOAA consulted with the state regarding Section 106 of the NHPA and the Coastal Zone Management Act (CZMA). In regards to Section 106 of the NHPA, on May 1, 2017, NOAA sent a letter to the state historic preservation officer indicating that the proposed federal undertaking would have no adverse effect on one or more historic properties located within the project area of potential effect, as defined under 36 C.F.R. § 800.5. By letter dated May 30, 2017, the state historic preservation officer concurred with NOAA's finding that the proposed federal undertaking would have no adverse effect on historic properties.

On February 16, 2018, NOAA sent a letter to the Wisconsin Coastal Management Program stating NOAA's determination that the proposed sanctuary would be consistent with the enforceable policies of the federally-approved Wisconsin coastal zone management program. NOAA has presumed the state's concurrence pursuant to 15 C.F.R. § 930.41(a), whereby a federal agency may presume concurrence if a response is not received within 60 days. For additional consultations and regulatory background, see Section 6.1.

1.6 Organization of this Environmental Impact Statement

This environmental impact statement is organized as follows:

Chapter 1: Provides background on the National Marine Sanctuary System, state partners, and the public process leading up to the publication of the FEIS. In addition, this chapter provides context regarding the relevant missions of NOAA and ONMS, the provisions of the NMSA, and related federal and state legislation and preservation programs that would complement the proposed sanctuary.

Chapter 2: Outlines the purpose and need for designation of the area as a national marine sanctuary.

Chapter 3: Provides a description of a range of alternatives under consideration, as well as the process used to develop each alternative. NOAA is considering a no-action alternative and four action alternatives.

Chapter 4: Describes the environment affected by a marine sanctuary designation, including an overview of shipwrecks, the cultural maritime landscape, and human uses within the proposed sanctuary.

Chapter 5: Provides an analysis of the potential environmental impacts of each alternative.

Chapter 6: Describes consultation and environmental compliance, environmental justice, relationship of short-term and long-term productivity, and irreversible or irretrievable commitment of resources per 40 C.F.R. § 1502.16.

CHAPTER 2

PURPOSE AND NEED FOR ACTION

2.1 Proposed Action

The proposed action is to designate an area of Wisconsin state waters within Lake Michigan as a national marine sanctuary, and is based on an evaluation of boundary and regulatory alternatives. The proposed designation would help conserve a nationally significant collection of historic shipwrecks and other underwater cultural resources through the implementation of a management plan that includes both regulatory and nonregulatory actions.

The proposed sanctuary would be co-managed by NOAA and the state of Wisconsin. Additionally, NOAA would form a Sanctuary Advisory Council representing a broad coalition of community groups to provide advice to the sanctuary superintendent regarding the evolving priorities for site management and community requirements.

2.2 Purpose of Action

The purpose of the proposed action is to fulfill the purposes and policies of the NMSA, which are to identify and consider areas of the marine environment for proposed designation as a national marine sanctuary, to conserve and manage the nationally significant underwater cultural resources while enhancing public awareness and appreciation, and to facilitate, to the extent compatible with the primary objective of resource protection, all public and private uses, including recreation and tourism as directed by the NMSA. The NMSA authorizes the Secretary of Commerce to designate and manage discrete areas of the marine environment as national marine sanctuaries (16 U.S.C. § 1433). Such designation is based on attributes of special national significance, including conservation, recreational, ecological, historical, scientific, cultural, archaeological, education, or aesthetic qualities. The NMSA provides NOAA with the authority for comprehensive and coordinated management that complements existing regulatory authorities and directs NOAA to manage these areas in a way that enhances “public awareness, understanding, appreciation, and wise and sustainable use” (16 U.S.C. § 1431(b)(4)). The purpose of the proposed action is also to further NOAA’s mission to conserve and manage coastal and marine ecosystems and resources.

This action would increase protection of nationally significant underwater cultural resources along Lake Michigan, as articulated in the nomination for WSCNMS. The NOAA Sanctuary Nomination Process establishes comprehensive criteria for designating new national marine sanctuaries, including requiring nominators to demonstrate the need for new or enhanced resource protection, and to articulate how an ONMS resource protection framework and associated regulations would supplement and/or enhance any existing framework (see Need for Action, Section 2.3). In the WSCNMS proposal, the state of Wisconsin and a network of coastal communities drive the call for increased resource protection, with broad support from local government and non-government organizations.

The proposed action in this FEIS would provide long-term resource protection and comprehensive management for 36 known historic shipwrecks of national significance, and

other underwater cultural resources located within the proposed sanctuary. The proposed action would also provide protection for over 59 potential historic shipwrecks yet to be discovered. Additional underwater cultural resources, such as submerged aircraft, docks, piers, and isolated artifacts, also exist, as does the potential for prehistoric sites and artifacts. NOAA's proposed action would apply specific regulations under the NMSA, as tailored for Wisconsin Shipwreck Coast National Marine Sanctuary, to the areas included in the preferred alternative. As stated in the Wisconsin Historical Society's 2008 report *Wisconsin's Historic Shipwrecks: An Overview and Analysis of Locations for a State/Federal Partnership with the National Marine Sanctuary Program*, "[p]reserving Wisconsin's Maritime Cultural Landscapes through a State-Federal sanctuary partnership will provide economic and social benefits and help secure Wisconsin's investment in the long-term preservation of the lakes."

Meeting this purpose would supplement current Wisconsin state regulations and resource protection efforts in a way that would ensure long-term protection. Managed to protect and conserve their resources while allowing uses that are compatible with the primary objective of resource protection, sanctuaries are especially well-suited to meet the collaborative management opportunities identified in the sanctuary nomination. Long-term resource protection is also an important part of NOAA's Next Generation Strategic Plan (2010), which includes the goal of "resilient coastal communities and economies."[8] Cultural resources are identified specifically in this goal's underpinning coastal management and planning:

> While an increasing range of users will allow coastal communities to create diverse economies, care must be taken to ensure continued access to coastal areas, sustained ecosystems, maintained cultural heritage, and limited cumulative impacts.

Notably, the protection of nationally-significant underwater cultural resources is deeply embedded in the NMSA's origin and subsequent application. The Civil War ironclad USS *Monitor* became the nation's first national marine sanctuary in 1975. In 2000, Thunder Bay National Marine Sanctuary, which is exclusively maritime heritage based, became the thirteenth marine sanctuary and the only sanctuary in the Great Lakes. In 2014, driven by interest from outlying coastal communities and a clear resource protection need, Thunder Bay National Marine Sanctuary was expanded from 448 to 4,300 square miles. In 2019, the heritage-based Mallows Bay-Potomac National Marine Sanctuary became the 14th and most recent national marine sanctuary. Also in 2019, NOAA began the process to consider a new heritage-focused national marine sanctuary in Lake Ontario off western New York, further underscoring the importance NOAA places on the long-term protection of our nation's cultural heritage.

2.3 Need for Action

This section identifies resource management needs that would be addressed by designating WSCNMS. Addressing these needs would lead to increased protection and enhanced management of nationally significant underwater cultural resources. The Wisconsin Shipwreck Coast National Marine Sanctuary Final Management Plan (Appendix A) contains specific strategies that would be implemented by the sanctuary to meet these needs.

[8] NOAA's Next Generation Strategic Plan is available at performance.noaa.gov/ngsp/.

2.3.1 Establishing a Federally-Supported, Comprehensive Management Framework for Cultural Resources that Have Been Determined to Be Nationally Significant

Twenty-one shipwreck sites within WSCNMS are listed on the National Register of Historic Places (NRHP). Based on a set of national standards and review by the National Park Service (NPS), a listing on the NRHP recognizes and validates the historical, archaeological, and cultural value of these sites, and helps to establish state ownership of historic shipwrecks via the Abandoned Shipwreck Act. An NRHP listing does not, however, constitute a comprehensive resource management framework or bring financial, staff, or other material resources to the management of historic sites.

With their national significance established under federal criteria, these 21 sites would benefit from the research, resource protection, education and outreach, and enhanced public access afforded by the National Marine Sanctuary System. Research suggests that most, if not all, of the remaining known shipwreck sites in the preferred alternative are eligible for inclusion on the NRHP. Additionally, archival research indicates that approximately 59 potential historic shipwrecks are yet to be discovered, and many of these too, would have a high likelihood of being nationally significant.

The state of Wisconsin has identified the need to seek a NRHP "district listing" for the proposed sanctuary area to include all shipwrecks, and views sanctuary designation as an important step in achieving this. Additionally, the state of Wisconsin has identified a national marine sanctuary designation and co-management arrangement as a critical step in managing these nationally significant historic sites into the future.

2.3.2 Addressing Threats to Resources

Threats to these nationally significant sites include both natural processes and human activities. Natural processes include the damaging impacts of wind, waves, currents, storms, ice, and invasive species such as zebra and quagga mussels, which today cover most Lake Michigan shipwrecks. Human threats to underwater cultural resources include looting of artifacts and associated damage to sanctuary shipwreck sites, and damaging sites by anchoring/grappling.

Together, these processes threaten the long-term sustainability of historic shipwrecks and other underwater cultural resources, and negatively impact their recreational and archaeological value. These impacts include: anchor damage from visiting dive boats, damage due to unpermitted and poorly attached mooring lines, artifacts being looted, artifacts being moved within a shipwreck site, remotely operated vehicle tethers entangled within a shipwreck, fishing gear entangled within a shipwreck, increased invasive mussel coverage, and the human disturbance and natural deterioration of newly uncovered shipwrecks in both the boundary's large swaths of shallow, sandy lake bottom, and deeper areas where intact shipwrecks may be discovered.

Understanding and eventually mitigating negative human and natural impacts at underwater cultural sites begins with field research and baseline data aimed at supporting long-term monitoring. Wisconsin's Maritime Preservation and Archaeology Program has established

baseline data at many sites within the preferred alternative, though due to limited resources is unable to effectively conduct comprehensive monitoring. A national marine sanctuary designation would substantially enhance the state's goal of developing a systematic monitoring program with a quantitative component for shipwreck and other underwater cultural resources. Monitoring and evaluating negative impacts at sites is an essential first step toward mitigation and informs a range of resource protection measures including: permanent mooring buoy placements, anchoring best management practices, increased and/or targeted law enforcement, interpretive enforcement,[9] targeted education and outreach, and prioritizing future site documentation and potential physical interventions (e.g., recovering vulnerable artifacts). Because long-term monitoring data provide resource managers with the information necessary to identify resource changes over time, monitoring is a well-established element of national marine sanctuaries.

Finally, historical research by WHS indicates that there may be as many as 59 shipwrecks yet to be discovered in the proposed sanctuary. Although avocational wreck hunting takes place across all of the Great Lakes, and in many instances new discoveries are made known to appropriate state and federal resources managers, there exists potential for looting and damage at newly discovered sites. Locating these shipwrecks through various remote sensing survey techniques (e.g., sonar, magnetometer surveys) is an essential step in fully characterizing and managing the area. A national marine sanctuary can provide and attract resources and partners to accomplish these surveys, thereby enhancing proactive management of underwater cultural resources. The WHS has identified this as a need that cannot be met within its existing capacity.

2.3.3 Enhancing Current Federal Protections with a Comprehensive Long Term Management Framework

Enhanced regulations complement research, resource protection, and monitoring efforts. Currently both federal and state regulatory authorities assist in the preservation of the historic shipwrecks and other cultural features in the proposed sanctuary. WSCNMS would address gaps in federal regulations aimed at protecting cultural resources.

From a federal perspective, the Archaeological Resources Protection Act, NHPA, and NEPA create a public process whereby federal agencies must assess alternatives or mitigation measures to minimize impacts to a resource by any federal action that is undertaken, licensed, or permitted by a federal agency, or funded with federal dollars. However, preservation provisions in these laws apply to federal actions only, are project-specific, and do not provide a comprehensive, long term resource management framework.

2.3.3.1 Archaeological Resources Protection Act of 1979

The Archaeological Resources Protection Act of 1979 (ARPA, 16 U.S.C. § 470aa *et seq.*) may establish some layer of federal protection to underwater cultural resources in the proposed sanctuary, though it is triggered and wholly dependent on state or local law. ARPA does not

[9] "Interpretive enforcement" refers to law enforcement approaches geared toward the widespread voluntary compliance of sanctuary regulations through education and outreach; it is often called "soft" enforcement.

provide comprehensive resource management; a national marine sanctuary would address this need.

ARPA establishes a permit system designed to address anthropological threats to archaeological resources located on public lands (owned and administered by the United States)[10] and on the lands of federally recognized Indian tribes.[11] While the ARPA permit system was primarily established to address the domestic preservation of archaeological resources in the terrestrial environment, ARPA Section 6(c) serves as a catch-all to reinforce state and local laws protecting such resources regardless of where the resources are located. ARPA Section 6(c) further provides that "[n]o person may sell, purchase, exchange, transport, receive, or offer to sell, purchase, or exchange, in interstate or foreign commerce, any archaeological resource excavated, removed, sold, purchased, exchanged, transported, or received in violation of any provision, rule, regulation, ordinance, or permit in effect under State or local law" (see 16 U.S.C. § 470ee(c)). This provision has been used to prosecute the attempted sale of archaeological resources stolen from private land, to enforce the illicit sale of artifacts stolen from a foreign state, and to protect maritime heritage (particularly the RMS *Titanic*). Section 6(c) is implicated when an illicit sale or attempted sale of archaeological resources is conducted in interstate or foreign commerce and the action violates state or local law.

2.3.3.2 National Historic Preservation Act of 1966

The NHPA (54 U.S.C. 300101 *et seq*.) also affords a level of federal protection, but only to those 21 known vessels in the study area that are currently listed or eligible in the National Register of Historic Places. While NOAA believes many of the unlisted vessels are eligible for listing, vessels not eligible would only be subject to protection under state law as described above. A sanctuary would afford federal protections for those shipwrecks not currently listed on the NRHP, and, importantly, would provide comprehensive resource management not found in the NHPA.

The NHPA establishes a federal historic preservation program designed to avoid or minimize impacts to historic properties. The NHPA requires all federal agencies to consider whether their activities or undertakings will have an adverse effect on historic properties and to have preference for those that avoid or mitigate those effects. Section 106 of the NHPA specifically requires federal agencies to take into account the effects of any proposed federal undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP. Section 106 of the NHPA does not prevent the undertaking from occurring and may not ultimately prevent an adverse effect; however, it does require a process, including consultation, that resolves those adverse effects through avoidance, minimization, or mitigation. The NHPA does not apply to private activities; the act only applies to federal undertakings.

The National Marine Sanctuaries Act (NMSA) would complement the protections provided by ARPA and NHPA if Wisconsin Shipwreck Coast National Marine Sanctuary is designated, because it would afford uniform protection to the underwater cultural resources regardless of whether such sites are listed on the NRHP, and the related NMSA regulations would apply to

[10] While national marine sanctuaries do not meet ARPA's definition of public lands, sanctuary regulations require that the management of historical resources "shall be consistent, to the extent practicable" with ARPA. 15 C.F.R. § 922.2(e).
[11] Although the sanctuary would be jointly managed by NOAA and the state of Wisconsin, ownership of bottom lands and resources remains with the state.

both private activities and federal undertakings. As mentioned above, neither ARPA, NHPA, nor an NRHP listing constitutes a comprehensive management regime for historic resources; the sanctuary would serve that purpose.

2.3.3.3 Abandoned Shipwreck Act of 1987

The Abandoned Shipwreck Act (ASA) was enacted in 1987 to clarify ownership over abandoned shipwrecks and ensure proper management of historic shipwrecks. Although the ASA confers title to most abandoned shipwrecks in state waters to the relevant state, it does not provide long-term comprehensive management of these cultural resources. A national marine sanctuary would address this need by bringing a federal co-manager and its comprehensive programs to the management of historic shipwrecks in Wisconsin.

Under the ASA, the U.S. government asserts title to three categories of abandoned shipwrecks: (1) those embedded in the submerged lands of a state; (2) those embedded in the coralline formations protected by a state on the submerged lands of a state; and (3) those on submerged lands of a state that are included (or eligible for inclusion) in the NRHP. The ASA then transfers title of those shipwrecks to the respective states for management of the submerged cultural resources (43 U.S.C. § 2105).

Pursuant to the ASA, states manage a broad range of living and nonliving resources in state submerged lands and waters, including abandoned shipwrecks. An underlying policy of the ASA is for states to develop appropriate and consistent policies so as to protect resources and habitats, guarantee recreational exploration of sites, and allow "appropriate" public and private recovery of shipwrecks. The ASA further encourages states to create underwater parks and areas to protect such resources. Funds are available to states for the study, protection, and preservation of shipwrecks from the Historic Preservation Fund (43 U.S.C. § 2103); these are limited.

The ASA also directs the Secretary of the Interior, acting through the NPS, to develop federal guidelines to assist states and federal agencies in managing the shipwrecks in accordance with their responsibilities under the act. The ASA guidelines are intended to aid states in maximizing the enhancement of cultural resources, fostering partnerships among interested stakeholders, and facilitating recreational access, in addition to recognizing the interests of wreck discoverers and salvors consistent with the protection of the site's historical values and environmental integrity. However, the ASA guidelines are only advisory.

There are two exceptions to this transfer of title from the United States to the individual states: (1) the United States retains title to any abandoned shipwreck located in or on federal land; and (2) the ASA recognizes that an Indian tribe (as the term is defined in the Archaeological Resource Protection Act of 1979) retains title to any abandoned shipwreck located in or on Indian lands (i.e., lands of an Indian tribe or Indian individual held in trust by the United States or subject to a restriction against alienation imposed by the United States).

The U.S. Congress passed the ASA in response to the need to protect underwater cultural heritage and address the destruction resulting from treasure hunting and the law of salvage and finds. Congressional findings support the view that the states already had the authority to

manage the underwater cultural heritage pursuant to the Submerged Lands Act, and that the ASA merely codified this minority view of admiralty cases.

2.3.4 Complementing State Regulations

Wisconsin state regulations designed to protect underwater cultural resources would be complemented by sanctuary-specific regulations and guidelines, including a prohibition on anchoring and grappling into shipwreck sites, and the potential for greater civil penalties for resource damage. The provisions laid out in Wisconsin Statutes Section 44.47 and Section 157.70 offer limited protections for underwater cultural resources. Wisconsin Statute Section 44.40 parallels the NHPA, but is less comprehensive.

The intention of the state statute is to strengthen underwater cultural resource protection in ways similar to a national marine sanctuary. However, for a variety of reasons, this resource protection approach has not been fully adopted in the proposed sanctuary area. Designation of a national marine sanctuary could ensure a stronger version of this comprehensive resource protection approach. Sanctuary designation would strengthen and accelerate documentation and characterization of underwater cultural resources in the sanctuary area. This is fundamental to resource protection and monitoring, but the state's work is necessarily limited in the sanctuary area, given that it also manages all underwater cultural resources state-wide. Wisconsin Statute Section 44.47(1)(a), which addresses field archaeology, provides that "the state historical society shall prepare maps of the archaeological resources of this state." Importantly, national marine sanctuaries also serve as attractors for a variety of federal, university, private, and non-profit resources and expertise; participation by these partners increases resource protection, as well as other benefits. This has been demonstrated at maritime heritage focused marine sanctuaries such as Thunder Bay National Marine Sanctuary and Monitor National Marine Sanctuary, where research and resource protection efforts have been substantially accelerated via partnerships, joint grant proposals, and in-kind support. The 2013 Thunder Bay National Marine Sanctuary condition report chronicles these types of partnerships and positive research and resource protection outcomes; similar initiatives would be undertaken in WSCNMS.[12]

From a non-regulatory perspective, a national marine sanctuary designation could fulfill a state-identified desire to create a bottomland preserve to protect historic shipwrecks. Wisconsin Statute Section 44.47 (5m)(c) provides for the establishment of state bottomland preserves: "The historical society and department of natural resources may, by rule, designate areas of the bed of any stream or lake as bottomland preserves for the purpose of enhancing preservation, management and public use of any submerged cultural resources within the bottomland preserve. A bottomland preserve may encompass more than one object or archaeological site." Wisconsin statutes further provide that "the historical society may enter into agreements with federal and state agencies…regarding the preservation, management and use of submerged cultural resources and the management of bottomland preserves." Additionally, supporting provisions in Wisconsin Statute Section 44.47(5m)(d)(4) require the state historical society to consider "[t]he existence of an entity that will assume responsibility for the management of the bottomland preserve." Designation as a national marine sanctuary satisfies this provision, as

[12] See sanctuaries.noaa.gov/science/condition/tbnms/.

well as others that require the state historical society to consider a resource inventory and management plan. A national marine sanctuary would serve the fundamental administrative purposes of a bottomland preserve, while adding the many benefits derived from a nationally-recognized program.

2.3.5 Complementary Permitting and Law Enforcement

The NMSA gives NOAA the authority to establish site-specific use regulations to protect sanctuary resources, such as prohibitions on anchoring or grappling directly into a shipwreck site.[13] Other measures aimed at compatible use, such as permitting the attachment of mooring lines directly to certain shipwrecks, could also be considered by the state and NOAA, and custom tailored to management needs and public access efforts of the sanctuary.

NOAA would assist the state in proactively managing research activities and mitigating potential injury to sanctuary resources through the existing state permitting system. NOAA could provide additional value through consultation with the state on best practices and injury avoidance measures that could be applied as terms and conditions on state permits. For example, although researchers would not need a sanctuary permit to conduct remote sensing activities, the state can issue permits for these activities because they have the potential to damage underwater cultural resources (e.g., a towed sonar array becoming entangled in a shipwreck). As such, NOAA could work with the state in developing specific permit conditions on the use of towed sonar arrays or providing permittees with site-specific information to avoid particularly sensitive areas of a shipwreck during remotely operated vehicle operations. This approach would reinforce Wisconsin Statute Section 44.47(5), which reserves to the state of Wisconsin "…the exclusive right and privilege of field archaeology on state sites," and establishes that field archeology on public lands must be carried out via state permit. Collaborating with the state on the conditions of a state permit is viewed as a proactive way to mitigate the impacts of some research activities, which was a concern raised by the state of Wisconsin.

In addition, the education and outreach mandate of the NMSA enables NOAA to engage in a companion outreach effort to improve public awareness of the federal and state regulations and permitting programs, which can increase voluntary compliance. The overarching aim is to encourage research efforts that are aligned with the broader sanctuary research community and resource protection program.

Sanctuary designation also provides additional enforcement authorities to protect resources. The NMSA authorizes NOAA to assess civil penalties for violations of the NMSA or its implementing regulations and damages against parties that injure sanctuary resources. NMSA Section 307 provides enforcement authority to pursue civil action in the event of a violation of the NMSA or sanctuary regulations. NOAA enforcement tools range from a written warning to a notice of violation that could result in a fine. Fines range in size and are based on a number of factors including the severity of the damage to the sanctuary resource. NMSA Section 312 is a

[13] Because the sanctuary would seek to promote and increase public access, while also ensuring sound resource protection, an initial focus of the five-year management plan would be the installation of permanent mooring systems at prioritized sanctuary shipwreck sites. The U.S. Coast Guard-permitted moorings would provide a secure and convenient anchoring point for users, eliminating the need for grappling, which can damage shipwrecks. At sites where moorings are not yet installed, NOAA would publish guidelines with best practices for anchoring near shipwrecks sites.

liability provision that authorizes NOAA to seek damages from those responsible for injuring sanctuary resources. As a trustee for sanctuary resources, NOAA can pursue civil action against any person or vessel who destroys or injures sanctuary resources, including a claim for recovery of the costs of response and assessment, restoration of the injured site, and compensatory damages.

2.3.6 Increasing Outreach and Education

Lastly, there is a need to expand education and outreach efforts directed at long-term preservation of shipwrecks, and to promote responsible use of sanctuary resources and help reduce human impacts to these resources. Because shipwrecks and other maritime heritage sites in Wisconsin are held in public trust by the state for all citizens, cultural value in this context embodies recreational and educational use; in short, a compatible use conservation strategy must ensure that public access and recreation do not result in negative human impacts that diminish the historical and archaeological value of these sites. Further, as in sanctuaries like Thunder Bay National Marine Sanctuary, sanctuary designation encourages and fosters a wide range of tangential positive educational and community impacts, including enhanced STEM education opportunities and increased heritage tourism, among others.

CHAPTER 3

ALTERNATIVES

3.1 Introduction

This chapter includes descriptions of the alternatives NOAA is considering, as well as the process used to develop each alternative. NOAA developed its reasonable range of alternatives based on the requirements defined within the Council on Environmental Quality's (CEQ) regulations implementing NEPA (see 40 C.F.R. §§ 1502.14 and 1505.1(e)). This FEIS also complies with NOAA's Companion Manual to Administrative Order 216-6A, which states that an environmental impact statement will consider alternatives to the proposed action and alternatives available for reducing or avoiding adverse environmental effects.

For this FEIS, NOAA is considering a no-action alternative and four action alternatives. Under the no-action alternative, NOAA would not move forward with the designation of Wisconsin Shipwreck Coast National Marine Sanctuary.

Each of the four action alternatives are comprised of three components:

Boundary Component:

- Boundaries of the proposed sanctuary, including the boundary within Lake Michigan and the westward boundary where Lake Michigan meets the shoreline.

Regulatory Component:

- Regulations NOAA would implement to manage the proposed sanctuary.

Management Plan:

- Activities outlined in the management plan, such as education, outreach, and research, that NOAA would implement to manage the sanctuary.

3.2 No-Action Alternative

Under the no-action alternative, NOAA would not designate Wisconsin Shipwreck Coast National Marine Sanctuary. The long-term protection and management of Wisconsin's underwater cultural resources would remain under existing state and federal authorities and programs. Under this alternative, existing legal protection now provided by Wisconsin Statute Section 44.47 would not be strengthened by complementary sanctuary regulations. Without the designation of Wisconsin Shipwreck Coast National Marine Sanctuary, NOAA resources would not be available to strengthen partnerships that assist in the comprehensive management of underwater cultural resources and to provide additional resources for education, research, monitoring, and enforcement.

3.3 Action Alternatives

As noted above, NOAA considered four action alternatives. Each action alternative includes three components: (1) boundary component, (2) regulatory component, and (3) a management plan and field operations that contain non-regulatory programs.

Component 1: The **sanctuary boundary component** includes either Boundary A or Boundary B, as summarized below:

Boundary A (Included in the Preferred Alternative)

- 962 square miles
- a portion of Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties; Figure 3.1[14]
- 36 known shipwrecks and approximately 59 yet to be discovered

Boundary B

- 1,260 square-miles boundary
- a portion of Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties; Figure 3.1
- compared to Boundary A, this boundary includes additional waters off Ozaukee and Kewaunee counties
- 40 known shipwrecks and approximately 73 yet to be discovered

[14] The northern and southern boundary lines of counties along the Lake Michigan shore extend eastward into Lake Michigan where they meet the Wisconsin/Michigan state line, which divides Lake Michigan longitudinally. However, not all of the eastward county waters of these counties are included in either of NOAA's boundary options. See Figure 3.1.

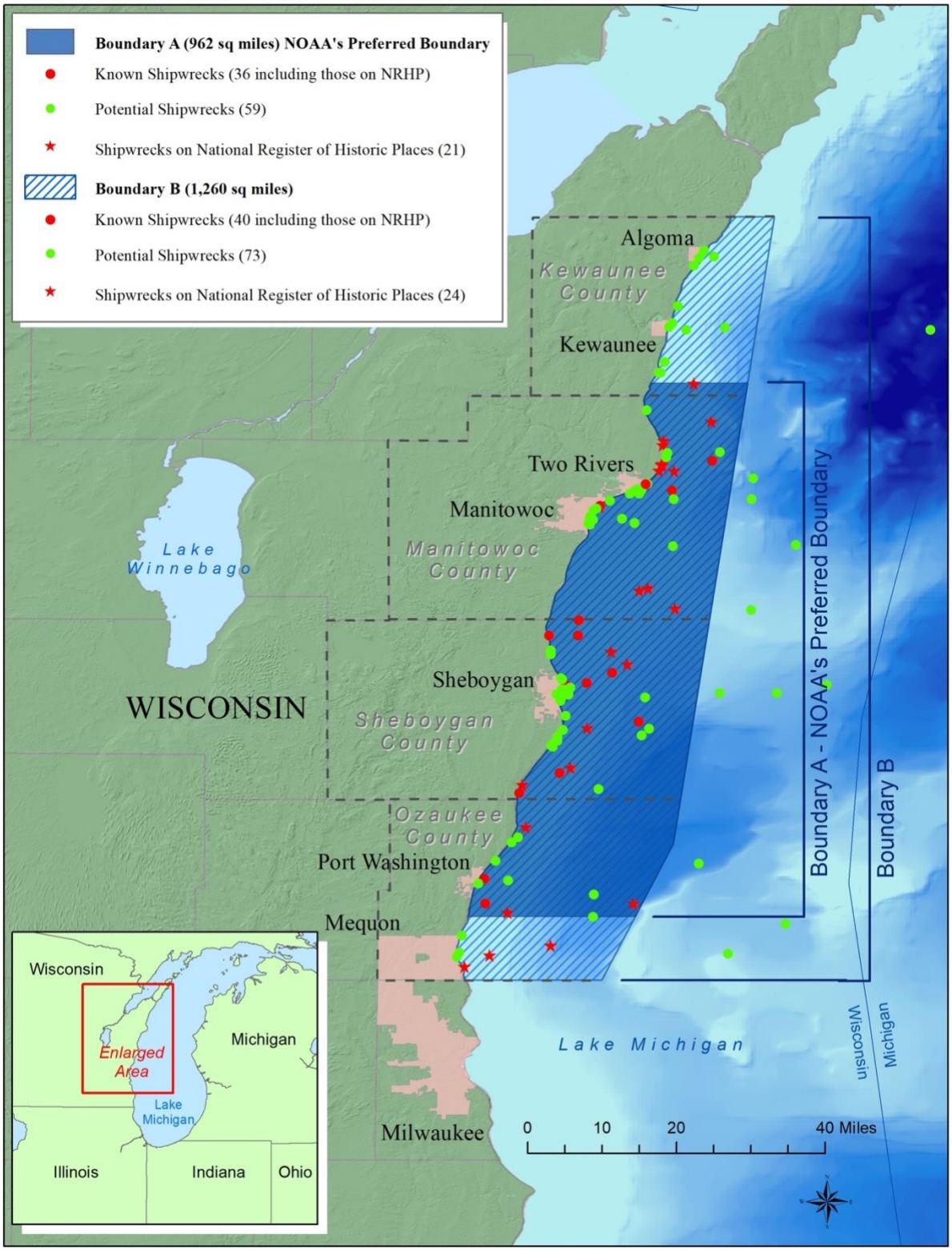

Figure 3.1. Map of the Wisconsin Lake Michigan shoreline showing proposed sanctuary Boundary A (Preferred) and the larger Boundary B. Image: NOAA

Component 2: The **sanctuary regulatory component** includes either Regulatory Option A or Regulatory Option B, as summarized below:

Regulatory Option A

- prohibit activities that could damage or otherwise injure underwater cultural resources
- prohibit grappling into and anchoring on shipwreck sites where a sanctuary mooring buoy is present
- prohibit activities that could interfere with enforcement of the NMSA

Regulatory Option B (Included in the Preferred Alternative)

- prohibit activities that could damage or otherwise injure underwater cultural resources
- prohibit grappling into and anchoring on shipwreck sites, regardless of whether a sanctuary mooring buoy is present
- prohibit activities that could interfere with enforcement of the NMSA

Component 3: For all action alternatives, NOAA would implement non-regulatory actions as detailed in the WSCNMS final management plan (Appendix A). The management plan outlines a series of management goals and strategies in the areas of sanctuary resource protection, education and outreach, research, and operations. In addition, the sanctuary staff would conduct field operations to implement the regulations and management plan, including vessel operations, research, and the installation of shipwreck mooring buoys.

The four action alternatives included each combination of the boundary and regulatory components, as summarized below in Table 3.1:

Table 3.1. Summary of the Four Action Alternatives

	Alternative 1	**Alternative 2 (Preferred Alternative)**	**Alternative 3**	**Alternative 4**
Boundary Component	Boundary A	Boundary A	Boundary B	Boundary B
Regulatory Component	Regulatory Option A	Regulatory Option B	Regulatory Option A	Regulatory Option B
Management Plan	Final Management Plan	Final Management Plan	Final Management Plan	Final Management Plan

3.3.1 Development of the Action Alternatives

NOAA used the 2014 sanctuary nomination (described in Section 1.5.1) as a starting point for developing alternatives. A public scoping period followed in 2016, in which NOAA received public comments on the concept of a national marine sanctuary in Wisconsin's mid-Lake Michigan waters. NOAA used these public comments and input from the state of Wisconsin to

develop the proposed boundary and regulations published in the 2017 DEIS.[15] Additionally, as described in Section 1.5.5, a state agency working group was formed to ensure state input and alignment with the proposal. Input from the WHS, WCMP, and the WDNR was essential to refining the proposed alternatives presented in the DEIS.

3.3.1.1 Development of the Proposed Boundary

3.3.1.1.1 Boundaries Described in the Sanctuary Nomination

The sanctuary nomination recommended an 875-square-mile boundary (Figure 3.2). The 875-square-mile nomination focused on protecting and interpreting a nationally significant collection of 37 shipwrecks, including 18 shipwrecks listed on the NRHP at the time of the nomination. See Section 1.5.1 for additional information regarding the sanctuary nomination.

3.3.1.1.2 Boundary Options Presented in the Draft Environmental Impact Statement

For the DEIS published in 2017, NOAA developed two boundary options (Figure 3.3) based on the sanctuary nomination and input from the public, State, and other stakeholders during the scoping period. In addition, NOAA also considered information presented in two 2008 reports written by the Wisconsin Historical Society: *Wisconsin's Historic Shipwrecks: An Overview and Analysis of Locations for a State/Federal Partnership with the National Marine Sanctuary Program*, and *Wisconsin's Historic Coastlines: An Overview and Analysis of Near Shore Archaeological and Historic Sites for a State/Federal Partnership with the National Marine Sanctuary Program*.

Specific considerations for each boundary included:

Boundary A (1,075 square-miles; included in NOAA's preferred alternative). Based on consultation with the state of Wisconsin, NOAA proposed the Manitowoc/Kewaunee county line for the northern boundary, and the Ozaukee/Milwaukee County line for the southern boundary of the proposed sanctuary. NOAA modified this boundary from the initial nomination based on input from the state to use more easily recognized county lines as boundaries rather than specific shipwreck locations. This boundary contained 38 known shipwrecks and the potential for 62 shipwrecks yet to be discovered.

Boundary B (1,260 square-mile). This boundary option was developed in response to comments received during the public scoping period, and included a greater portion of Kewaunee County water than NOAA's preferred alternative boundary. There was strong public support to include all the waters off Kewaunee County as part of the national marine sanctuary. Compared to the sanctuary nomination, this added 385 square miles to the proposed sanctuary area. This boundary contained 39 known shipwrecks and the potential for 74 shipwrecks yet to be discovered. However, given that there is currently only one known shipwreck in Kewaunee County waters (*America*), NOAA determined that adding only the shipwreck *America* to the sanctuary was an appropriate action at this time and selected Boundary A as its preferred alternative.

[15] The public comment process and brief summary is described in Section 1.5.3 of this FEIS. NOAA's responses to all public comments can be found in Appendix B. These responses are also published in NOAA's final rule.

Areas that Apply to Both Boundary A and B. For both Boundary A and B, NOAA set the OHWM for the proposed sanctuary's landward/western boundary. (A demarcation for the landward boundary was not indicated in the sanctuary nomination.) NOAA selected the OHWM based on input from the state of Wisconsin, and because the OHWM would make the sanctuary boundary consistent with the state's management of underwater cultural resources.

Additionally, NOAA excluded all ports, marinas, and harbors from the proposed sanctuary so that those areas could be dredged or otherwise maintained without any unanticipated conflicts with sanctuary regulations.

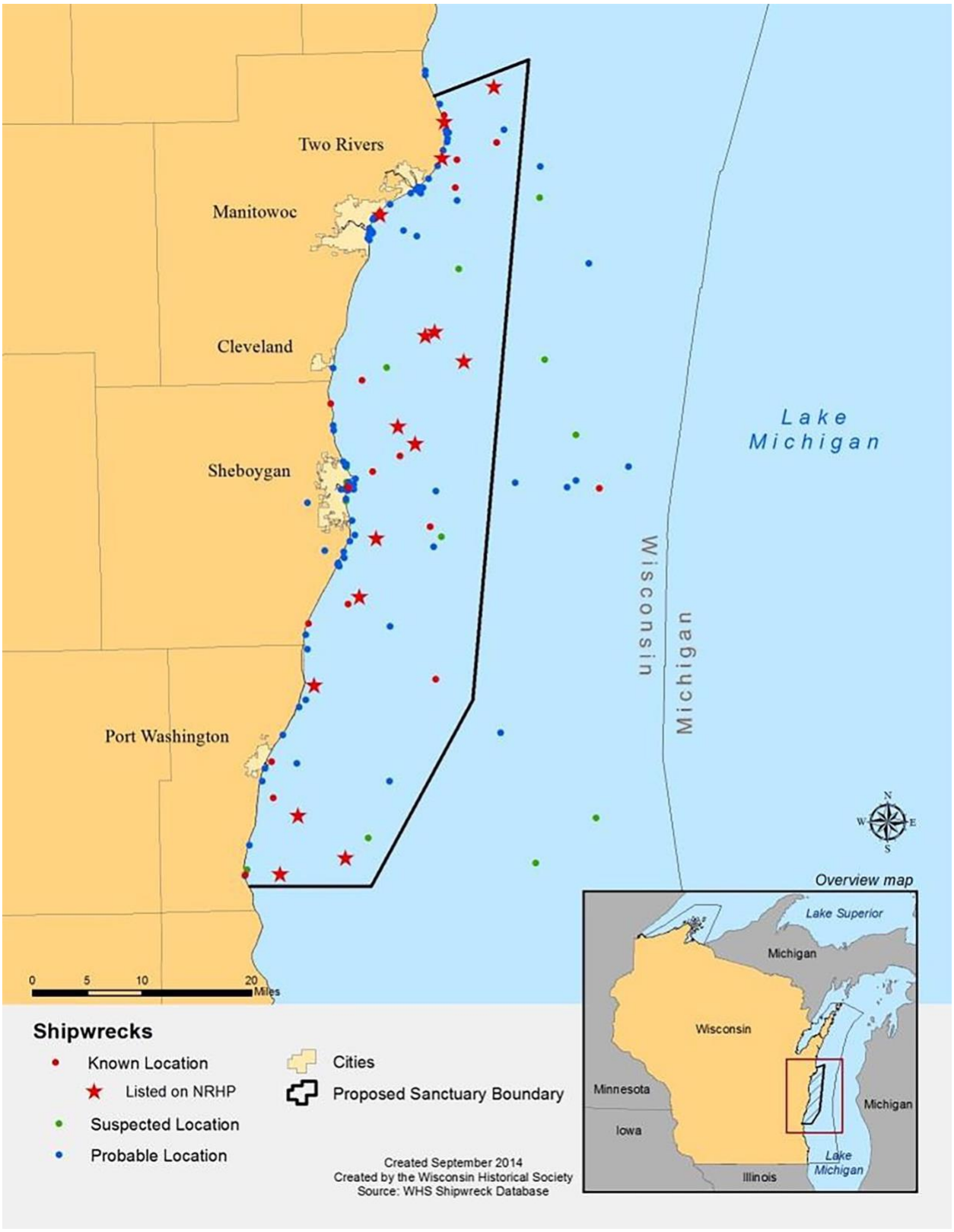

Figure 3.2. The 875 square-mile sanctuary boundary as proposed in the 2014 nomination. Image: NOAA

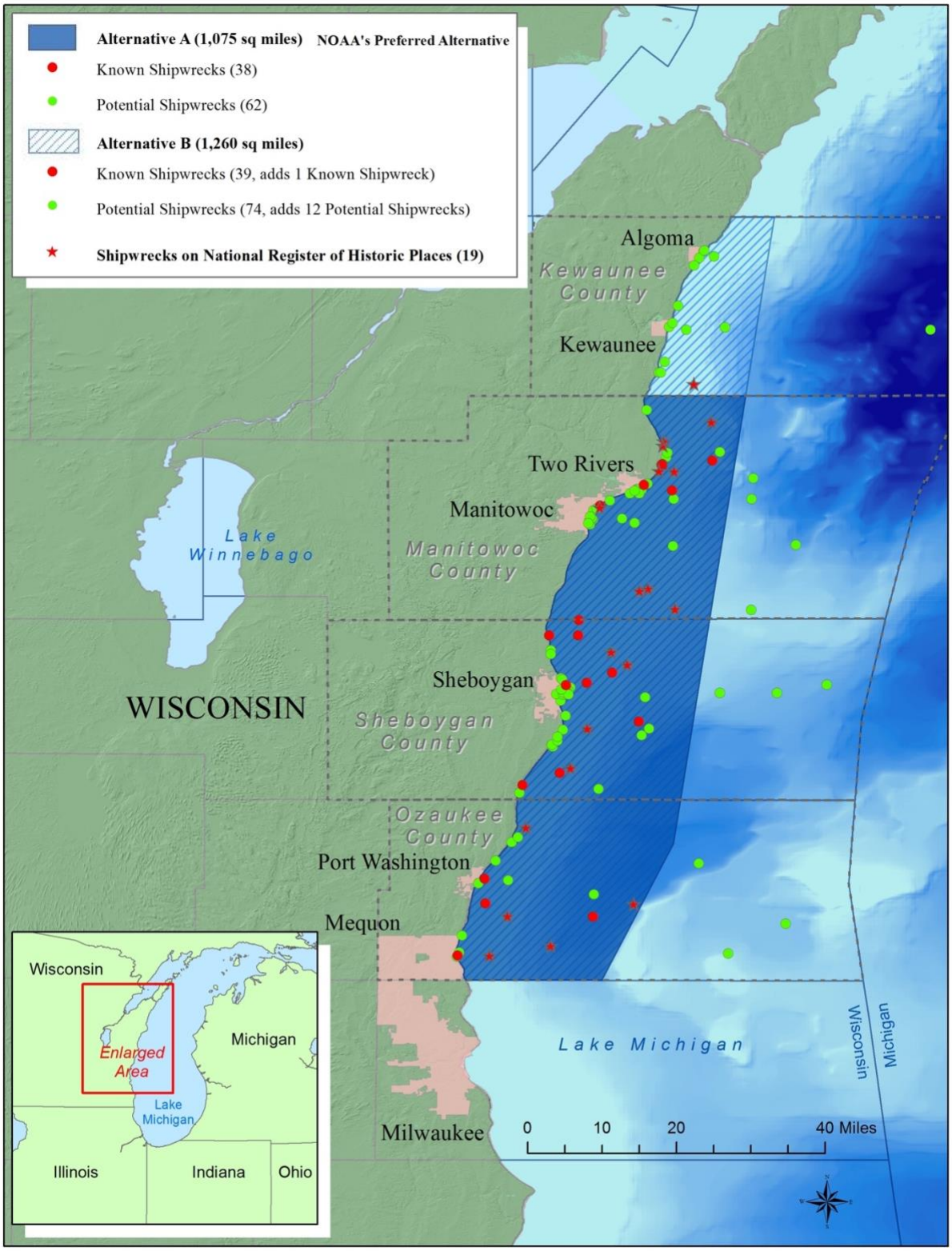

Figure 3.3. The two boundary options presented in NOAA's 2017 draft environmental impact statement. The smaller Alternative A was NOAA's preferred boundary. Image: NOAA

3.3.1.1.3 Revisions to the Boundary Options in the FEIS

Boundary A (962 square miles; included in the preferred alternative). NOAA decreased the size of Boundary A from 1,075 to 962 square-miles in response to comments from the public and the state on the DEIS. The basis for these changes is summarized below:

1. NOAA revised the western (shoreline) sanctuary boundary from the OHWM to the LWD. NOAA changed the western boundary in response to public comments expressing potential conflicts between sanctuary regulations and shoreline landowner property rights. This change also addressed concerns from Lake Carriers' Association and the *Badger* carferry regarding the practice of placing dredge spoil on the beach (beach nourishment), which may occur below the OHWM. See NOAA's Response to Public Comments in Appendix B for details. NOAA is proposing this boundary modification for the following reasons:
    - The LWD is more lakeward than the OHWM, thereby removing much of the beach from NOAA jurisdiction and alleviating riparian rights concerns.
    - The LWD is fixed at an elevation (577.5 feet), as determined by the U.S. Army Corps of Engineers. Because the LWD is a constant elevation that follows the entire Lake Michigan shoreline, it provides a known and consistent "line" upon which the sanctuary boundary would be defined.
    - The lowest recorded water level on Lake Michigan is 576.02 feet, which is very close to the set elevation for the LWD. This would effectively place the sanctuary boundary nearly at the all-time low water level mark for Lake Michigan. Since riparian owners have exclusive use of the beach between the OHWM and the water's edge, using the LWD effectively would place the sanctuary boundary at the most lakeward extent of this area.
    - The shoreline boundary of the Thunder Bay National Marine Sanctuary in Lake Huron is the OHWM, which under Michigan law is defined by an elevation of 581.5 feet (International Great Lakes Datum [IGLD] 1985). This is a successful precedent for using an elevation as a sanctuary boundary in the Great Lakes.
    - Public comments from Lake Carriers' Association and the SS *Badger* carferry (in Manitowoc) asked that NOAA use the LWD. They reason that doing so would eliminate potential interference by the sanctuary with the current practice of placing dredge spoil on the beach (beach nourishment).
    - Many public comments suggested using the water's edge as the sanctuary boundary. However, this is problematic because it creates a very dynamic boundary. The LWD offers an alternative that is as far lakeward as practical, without actually being the water's edge.
    - The state of Wisconsin defines the OHWM as "the point on the bank or shore up to which the presence and action of the water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation or other easily recognized characteristic." Thus, the OHWM can change over time, as water levels at any point in time leave a visible mark on the shoreline. The LWD, though not "visible," does provide a more fixed demarcation.

- There are no known shipwrecks that would be excluded from the sanctuary as a result of changing the boundary from the OHWM to the LWD. The area up the OHWM would continue to be subject to the state's regulatory authority.

2. NOAA revised the southern sanctuary boundary. NOAA has set the preferred southern sanctuary boundary approximately 650 feet south of the shipwreck *Northerner*, rather than the Ozaukee/Milwaukee County line as proposed in the DEIS. As compared to the DEIS, this boundary change would result in a 132 square mile reduction of the sanctuary, and exclusion of four shipwrecks, *Island City*, *J.M. Allmendinger*, *Tennie and Laura*, and *Linda E,* from the sanctuary. This boundary puts the southern sanctuary boundary closer to the City of Port Washington, which was one of the four cities that nominated the sanctuary, and is responsive to public comments and a request from the state of Wisconsin.
3. NOAA revised the northern boundary from the Kewaunee/Manitowoc county line to the shipwreck *America*. *America* is currently the only known shipwreck in Kewaunee County, is listed on the NRHP, and is close to the Kewaunee/Manitowoc County line. This modification is responsive to public comments in favor of including Kewaunee County in the sanctuary, as well as input from the state of Wisconsin. Including this site would add 19 square miles to the sanctuary's northern boundary as proposed in the DEIS, and would afford enhanced management of the *America* shipwreck site.
4. The eastern sanctuary boundary remains relatively unchanged from the DEIS, except for extending slightly northward to include the shipwreck *America*, as described above.

Boundary B. Boundary B in this FEIS is the same as presented in the DEIS, other than the changes applicable to both Boundary A and B, described below.

Areas that Apply to Both Boundary A and B. In the FEIS, NOAA excluded all federally authorized navigation channels from the proposed sanctuary for both boundary options. This differs from the DEIS, where only ports, harbors, and marinas were excluded from the sanctuary. This change is responsive to comments from the commercial shipping industry expressing concerns that sanctuary regulations may impact the ability to dredge the entirety of federal navigation channels.

3.3.1.2 Development of Sanctuary Regulations

NOAA used the Thunder Bay National Marine Sanctuary regulations as a starting point for developing prohibitions and definitions for the proposed WSCNMS.[16] NOAA considered the Thunder Bay regulations an appropriate model because that sanctuary contains similar cultural resources (i.e., shipwrecks) and faces similar threats as the proposed WSCNMS. Specifically, the purpose of the regulations at Thunder Bay is to prevent harm and injury to submerged cultural resources, primarily from recreational users. In addition, NOAA has managed Thunder Bay National Marine Sanctuary for over 20 years and has determined that the regulations at that sanctuary are effective for protecting shipwrecks and other cultural resources.

[16] Thunder Bay National Marine Sanctuary regulations can be found at https://thunderbay.noaa.gov/media/archive/pdfs/tbnmsregs.pdf.

3.3.1.2.1 Development of Prohibitions

General Prohibition to Protect Cultural Resources

In order to protect shipwrecks and other cultural resources in the proposed WSCNMS, NOAA would prohibit any person from moving, removing, recovering, altering, destroying, possessing or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess or otherwise injure a sanctuary resource. This prohibition is similar to that at Thunder Bay National Marine Sanctuary. This sanctuary prohibition supplements existing Wisconsin laws that prohibit damaging shipwrecks. For example, Wisconsin state statute (Wis. Stat. § 44.47), which has been in effect since 1991, prohibits destroying, displacing, or removing any archaeological object belonging to the state. This regulation currently applies to the area and would continue to apply to these resources if the sanctuary is designated.

Specific Prohibition to Prevent Anchor Damage

To further address the threats at WSCNMS, NOAA consulted the state of Wisconsin, particularly the Wisconsin Historical Society. During these consultations, it became clear that preventing anchor damage to shipwreck sites is an important priority. Consequently, NOAA developed regulatory options that prohibit the use of grappling into or anchoring on shipwreck sites to protect fragile shipwrecks within the sanctuary from damage, as described in Section 3.3.3.

Additional Considerations

The third proposed prohibition would prohibit activities that could interfere with enforcement of the NMSA within WSCNMS. This prohibition would mirror those in other national marine sanctuaries.

3.3.1.2.2 Development of Definitions

Development of "Sanctuary Resource" and "Shipwreck Site" Definitions

NOAA used the "sanctuary resource" definition for Thunder Bay National Marine Sanctuary as a starting point for developing a sanctuary resource definition for WSCNMS. The definition was further honed during consultation with the state of Wisconsin, and ultimately published in the 2017 DEIS and proposed rule. In response to public comments on the DEIS, NOAA revised the definitions of "sanctuary resource" and "shipwreck site" for better clarity and to align better with similar state definitions.

In the DEIS and proposed rule, NOAA defined "sanctuary resource" as "prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including but not limited to, all shipwrecks and related components." In the FEIS and final rule, NOAA deletes "including but not limited to, all shipwrecks and related components" and replaces it with "including all shipwreck sites," thus revising the site-specific definition of "sanctuary resources," located in 15 C.F.R § 922.211(a)(1), to now mean "all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwreck sites." NOAA made this revision to clarify this sanctuary's emphasis on the protection of shipwrecks and shipwreck sites.

Additionally, the DEIS and proposed rule broadly defined "shipwreck site" to mean any sunken watercraft, its components, cargo, contents, and associated debris field (§ 922.211(a)(2)).

However, in the FEIS and final rule, NOAA revises the definition in section 922.211(a)(2) for "shipwreck site" by adding "historic" to clarify that NOAA is focused on historic shipwrecks (i.e., not all shipwrecks, but those that demonstrate an important role in or relationship with maritime history). This addition is specifically added to respond to concerns about defining recent or contemporary sunken craft or objects as sanctuary resources. For the purposes of this FEIS and rule, "historic" takes its definition from "historical resource" located in Section 922.3 of the national marine sanctuaries regulations. Section 922.3 reads:

> Historical resource means any resource possessing historical, cultural, archaeological or paleontological significance, including sites, contextual information, structures, districts, and objects significantly associated with or representative of earlier people, cultures, maritime heritage, and human activities and events. Historical resources include "submerged cultural resources," and also include "historical properties," as defined in the National Historic Preservation Act, as amended, and its implementing regulations, as amended.

Finally, NOAA's definitions of "sanctuary resource," "shipwreck," and "shipwreck site" now align with the following state definitions in Wisconsin Statute 44.47: "Archaeological site" means any land or the bed of any stream or lake where there are objects or other evidence of archaeological interest, aboriginal mounds and earthworks, ancient burial grounds, prehistoric and historical ruins, Indian mounds, historic and prehistoric watercraft and associated objects, aircraft, or other archaeological and historical features. "Submerged cultural resource" means an archaeological site or historic property that is located beneath the surface of a lake or stream.

3.3.2 Description of Sanctuary Boundary Options

3.3.2.1 Boundary A: 962 Square Miles (Included in the Preferred Alternative)

Boundary A is included in Alternatives 1 and 2 (NOAA's preferred alternative). Under this alternative, NOAA would designate a 962-square-mile area of Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, Kewaunee counties as a national marine sanctuary (Figure 3.1).

Within Boundary A are 36 known shipwrecks, including 21 shipwrecks that are listed on the NRHP. Historical records and other information suggest that approximately 59 shipwreck sites may occur within the proposed Boundary A, but additional research is needed to verify and describe these shipwrecks. See Section 4.2 for additional information regarding the historical and cultural importance of these shipwrecks.[17]

Boundary A: Western (Shoreline) Boundary: The Low Water Datum

Under Boundary A, NOAA would set the western (shoreline) sanctuary boundary at the low water datum (LWD). The LWD is set at a fixed elevation of 577.5 feet above sea level and is lakeward of the ordinary high water mark (OHWM). The LWD is determined by the U.S. Army Corps of Engineers and is the chart datum to which soundings are referenced for NOAA charts

[17] In both boundary options, the number of known and potential shipwrecks and some related vessel information has changed between the DEIS and FEIS. This is due to boundary changes, but also to new information, including newly identified shipwrecks in the area, confirmation of suspected sites, and/or confirmation of a vessel's name. Chapter 4 describes the current understanding of known and potential shipwrecks sites as of the drafting of this FEIS.

in the Great Lakes. The LWD is also well understood internationally since it is a fixed datum for each lake relative to the International Great Lakes Datum 1985.

Boundary A: Northern, Southern, and Eastern Boundaries

Under Boundary A, the northern boundary would be approximately 650 feet north of the shipwreck *America*[18] and the southern sanctuary boundary would be approximately 650 feet south of the shipwreck *Northerner*.

The eastern (lakeward) sanctuary boundary would include all known shipwrecks between the north and south boundaries. The extent of the eastern boundary would be defined by the easternmost known shipwrecks of *Vernon* (to the north) and *Senator* (to the south). A north/south line is essentially drawn between these two shipwrecks to form the eastern boundary. The sanctuary would extend 16 miles offshore at its greatest extent.

3.3.2.2 Boundary B: 1,260 Square Miles (Includes a Greater Portion of Kewaunee County and Ozaukee County Waters)

Boundary B is included in alternatives 3 and 4. Under Boundary B, NOAA would designate the 1,260-square-mile area that includes Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties as a national marine sanctuary (Figure 3.1). Boundary B includes 40 known shipwrecks, of which 24 are listed on the National Register of Historic Places. Historical records and other information suggest that approximately 73 additional shipwreck sites may occur within Boundary B, but additional research is needed to verify and describe these shipwrecks. See Section 4.2 for additional information regarding the historical and cultural importance of these shipwrecks.[19]

Boundary B: Western (Shoreline) Boundary: The Ordinary High Water Mark

Under Boundary B, the sanctuary's western (shoreline) boundary would be defined by the OHWM, while the lakeward boundary would be drawn to include all known shipwrecks in each county, extending 16 miles offshore at its greatest extent. The harbors and marinas of Kewaunee, Two Rivers, Manitowoc, Sheboygan, and Port Washington would not be included in the sanctuary, nor would any federal navigation channels.

Boundary B: Northern, Southern, and Eastern Boundaries

Under Boundary B, the northern boundary would be set at the Door/Kewaunee county line and the southern boundary would be set at the Ozaukee/Milwaukee county line.

The eastern (lakeward) sanctuary boundary would include all known shipwrecks between the north and south boundaries. The extent of the eastern boundary would be defined by the eastern most known shipwrecks of *Vernon* (to the north) and *Senator* (to the south). A north/south line

[18] Setting the boundary 650 feet beyond the shipwreck *America* affords a buffer to account for any disarticulated shipwreck remains, as well as potential lack of precision in current location data. This applies to the *Northerner* shipwreck as well, which defines the extent of the sanctuary's southern boundary.
[19] In both boundary options, the number of known and potential shipwrecks and some related vessel information has changed between the DEIS and FEIS. This is due to boundary changes, but also to new information, including newly identified shipwrecks in the area, confirmation of suspected sites, and/or confirmation of a vessel's name. Chapter 4 describes the current understanding of known and potential shipwrecks sites as of the drafting of this FEIS.

is essentially drawn between these two shipwrecks, and then extended to the county lines that define the northern and southern boundaries.

Table 3.2. Known and Potential Historic Shipwrecks by Boundary Option

Boundary Option	Size	Known shipwrecks	Potential shipwrecks
Boundary A (Included in NOAA's Preferred Alternative)	926 square miles	36	59
Boundary B	1,075 square miles	40	73

3.3.2.3 Boundary-Related Provisions that Apply to All Action Alternatives

3.3.2.3.1 Exclusion of Ports, Harbors, and Marinas

To ensure compatible use with commercial shipping and other activities, NOAA would exclude the ports, harbors, and marinas of Algoma, Kewaunee, Two Rivers, Manitowoc, Sheboygan, and Port Washington from the proposed sanctuary under all action alternatives. NOAA would also exclude all federally authorized navigation channels (Figure 3.4).

NOAA is proposing to exclude these areas based on comments by the Lake Carriers' Association, members of the shipping community, and some elected officials. They requested the ports and federal navigation channels not be included within the boundary to avoid any restriction or prohibition on port operations critical to the local, regional, and national economies. This would include routine operations and maintenance activities such as dredging, dredged material placement (nearshore/beach nourishment), and breakwater maintenance.

Regarding underwater cultural resources that may occur in the harbors and marinas of Two Rivers, Manitowoc, Sheboygan, and Port Washington, only two known wrecks (*Julia* and *Lottie Cooper*) occur in these areas, both in the Sheboygan harbor. Identified as state archaeological site SB-334, *Julia* is an iron sidewheel steamer built in 1843. The vessel was abandoned and sunk in seven feet of water off the Sheboygan Yacht Club. The hull was salvaged in 1939 and further fragments were recovered in 1992 through dredging by the city of Sheboygan. Sections of a hull plate were also recovered and were curated at Duluth Canal Park Museum and Wisconsin Maritime Museum. Some unsalvaged hull remains may still be found at the site, although it has been extensively dredged.

Similarly, some fragments of the shipwreck *Lottie Cooper*, state archaeological site SB-323, may be present in the Sheboygan Marina. A 252-ton three-masted schooner built in 1876, *Lottie Cooper* stranded at Sheboygan in a storm in April of 1894. The majority of the hull was recovered during marina enhancement projects, and is on display in a city park at the marina entrance. Because the remains of these shipwrecks are limited, fragmented, and largely disturbed, the state of Wisconsin and NOAA agreed that the benefit of including them in the sanctuary did not outweigh excluding the greater Sheboygan marina area. Both sites will continue to be protected by state law.

According to the Wisconsin Historical Society shipwreck database, there is potential for several other shipwrecks to be found in the ports and harbors within the proposed sanctuary boundary. These shipwrecks are reported through historical sources, with exact locations not specified and

the reliability of the sources not known. Moreover, these areas have been developed and dredged for many years, further suggesting that any shipwrecks would already have been discovered, or the remains are already fragmented and largely disturbed by regular dredging. Although ports and harbors would be excluded from the sanctuary, Section 106 of the NHPA ensures that these areas would be carefully considered for historical material during dredging or other harbor improvements (e.g., by requiring a historic resource survey).

For the reasons explained above, NOAA determined that the benefit of including the known and potential shipwrecks in harbors and ports in the sanctuary did not outweigh the concerns raised by the area's shipping interests. Thus, including harbors, ports, and federally authorized navigation channels did not meet NOAA's purpose and need to protect nationally significant shipwrecks while providing for compatible uses pursuant to the NMSA.

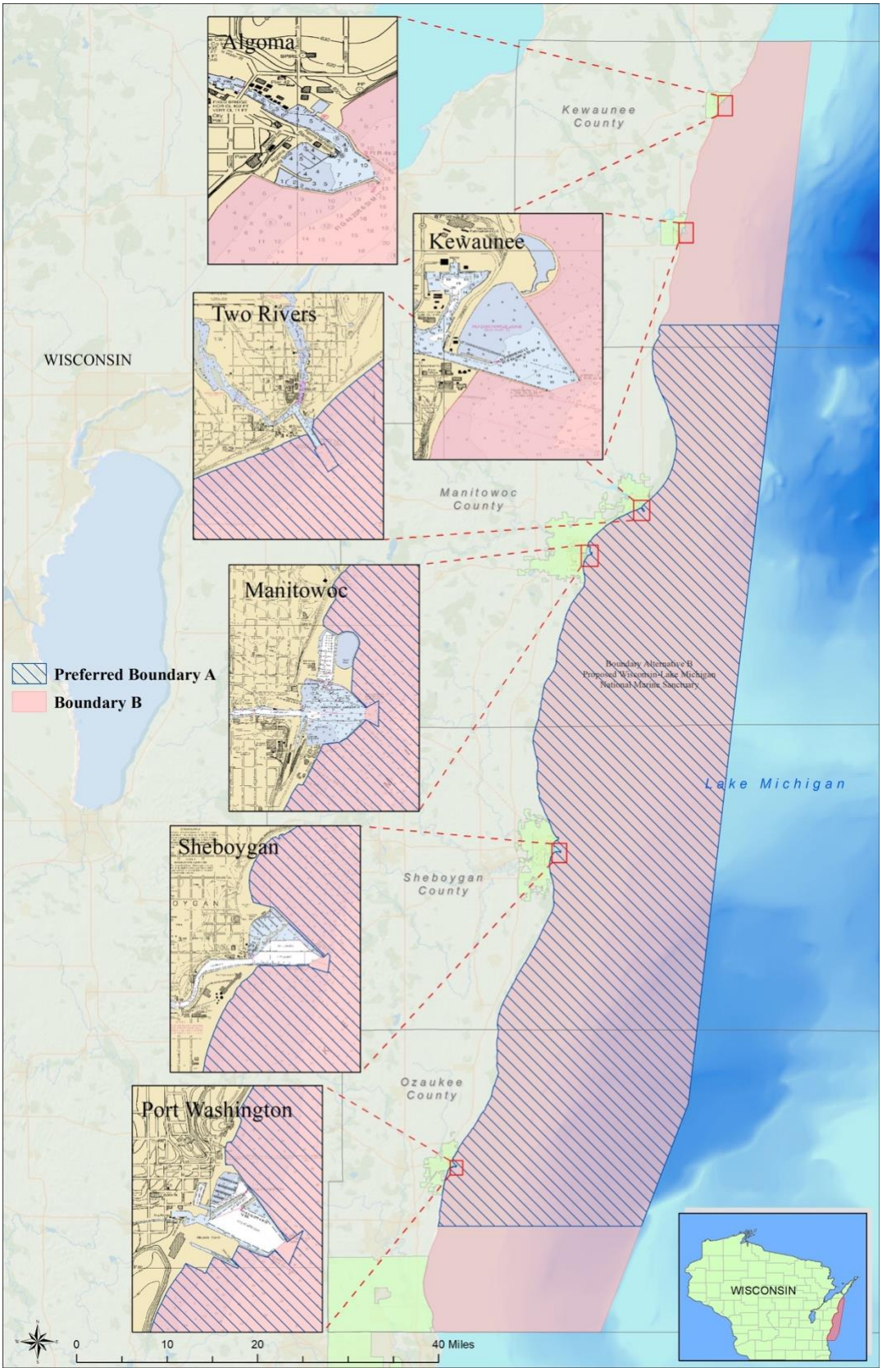

Figure 3.4. Map depicts NOAA's Boundaries A and B and the excluded ports, harbors, marinas, and federally authorized navigation channels of the Wisconsin Lake Michigan shoreline. Image: NOAA

Finally, comments from the commercial shipping community during public scoping process indicated a concern that a sanctuary designation could restrict or prohibit ballasting operations for vessels transiting the sanctuary, given U.S. Coast Guard (USCG) and Environmental Protection Agency (EPA) requirements that certain vessels be equipped with ballast tanks to "avoid the discharge and uptake of ballast water in areas within, or that may directly affect marine sanctuaries, marine preserves, marine parks, or coral reefs."

However, it is important to note that Section 602 of the Coast Guard Authorization Act of 2015 includes the following language to address ballast water exchange in future Great Lakes national marine sanctuaries that protect underwater cultural resources:

> (Pub. L. 114-120 § 602) The Howard Coble Coast Guard and Maritime Transportation Act of 2014 is amended to revise the declaration that bars the Secretary and the Environmental Protection Agency from prohibiting a vessel operating within the Thunder Bay National Marine Sanctuary and Underwater Preserve from taking up or discharging ballast water to allow for safe and efficient vessel operation if the uptake or discharge meets all federal and state ballast water management requirements that would apply if the area were not a marine sanctuary.
>
> The bar on such a prohibition shall extend to any national marine sanctuary that preserves shipwrecks or maritime heritage in the Great Lakes, unless the sanctuary designation documents do not allow taking up or discharging ballast water in the sanctuary.

NOAA is not proposing a prohibition on ballast water in WSCNMS, and Section 602 would be applicable to WSCNMS.

3.3.2.4 Boundary Options Considered but Not Carried Forward

3.3.2.4.1 Nominated 875-Square-Mile Boundary

The 875-square-mile boundary was based on a 2008 Wisconsin Historical Society report that recommended this same area for a potential national marine sanctuary. After consultation with the state of Wisconsin during the designation process, NOAA's adjustments to the nominated boundary include excluding harbors, ports, and all federally authorized channels[20]; moving the south and north boundary lines to the county lines (to more clearly delineate the sanctuary); expanding the southeast corner to include the wreck of *Senator* (the location of which was previously unknown); expanding the northern boundary to include the shipwreck *America*; and moving the southern boundary to the shipwreck *Northerner*. Because the 875-square-mile nominated boundary is included within, and constitutes the majority of Boundary A (included in the preferred alternative), it was not analyzed as a distinct alternative.

3.3.2.4.2 Moving the Lakeward Boundary to the State of Michigan Boundary

NOAA considered moving the lakeward boundary of the proposed sanctuary to the state of Michigan boundary. The primary reason for considering this was historic vessel traffic routes between Wisconsin and Michigan. While there are no known shipwrecks in this additional area, the chances for discovery are somewhat high given the number of ships that traveled this route.

[20] Federally authorized channels are navigation channels recognized by the federal government and have historically been dredged or otherwise maintained to ensure access to ports.

However, this would add considerable area (1,290 sq. miles) to the sanctuary boundary without any known shipwrecks within that area. NOAA chose not to carry forward this alternative because it does not meet the current purpose and need of a sanctuary.

3.3.3 Description of Regulatory Options

NOAA considered two regulatory options, each containing three prohibitions. NOAA is also proposing the ability to issue emergency regulations if there is an imminent risk to sanctuary resources and if a temporary prohibition would prevent the destruction or loss of those resources. In addition to the proposed prohibitions, this section describes the process to authorize state and federal permits, as well as NOAA's authority to issue general permits or special use permits.

3.3.3.1 Regulatory Option A

Regulatory Option A is included in alternatives 1 and 3. Under Regulatory Option A, NOAA would adopt regulations similar to those used in other sanctuaries to protect underwater cultural resources, particularly the regulations of Thunder Bay National Marine Sanctuary.[21] The regulations would be consistent with the purpose and intent of Wisconsin Statute Section 44.47.

The proposed prohibitions for Wisconsin Shipwreck Coast National Marine Sanctuary are as follows:

1. Moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess or otherwise injure a sanctuary resource.
2. Grappling into or anchoring on shipwreck sites that are marked with a mooring buoy.
3. Interfering with, obstructing, delaying, or preventing an investigation, search, seizure, or disposition of seized property in connection with enforcement of the act or any regulation or any permit issued under the act.

3.3.3.2 Regulatory Option B (Included in the Preferred Alternative)

Regulatory Option B is included in alternatives 2 (preferred alternative) and 4. Under Regulatory Option B, the proposed prohibitions for Wisconsin Shipwreck Coast National Marine Sanctuary are as follows:

1. Moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess or otherwise injure a sanctuary resource.
2. Grappling into or anchoring on shipwreck sites.
3. Interfering with, obstructing, delaying, or preventing an investigation, search, seizure, or disposition of seized property in connection with enforcement of the act or any regulation or any permit issued under the act.

[21] Regulations for Thunder Bay National Marine Sanctuary, which is co-managed with the state of Michigan and is located in Lake Huron, can be found at govinfo.gov/content/pkg/FR-2000-10-10/pdf/00-25938.pdf.

Under Regulatory Option B, grappling into or anchoring on shipwreck sites would be prohibited at all shipwreck sites, regardless of whether a mooring buoy is present.

None of the action alternatives would include any direct management, regulation, or authority by NOAA of the natural environment, including fish and wildlife, water quality, or habitat. Authorities related to natural resources and their management will remain with WDNR and other local jurisdictions. NOAA will consider and execute any regulations and/or permits in cooperation with the state of Wisconsin. See below for proposed regulations and permit information.

3.3.3.2.1 Proposed Prohibition on Use of Grappling Hooks and Anchors

As indicated above, the only difference between regulatory options A and B is the broader prohibition on using grappling hooks and anchoring devices on all shipwreck sites, not just on those marked with a mooring buoy, in Regulatory Option B. The intent of the broader prohibition (included in NOAA's preferred alternative) is to better protect those shipwrecks that may not yet have a permanent mooring system, including those that are newly discovered and not yet known to NOAA.

Because NOAA seeks to promote public access while also ensuring sound resource protection an initial focus of the five-year management plan (Appendix A) would be the installation of permanent mooring systems at sanctuary shipwreck sites. The USCG-approved moorings would provide a secure and convenient anchoring point for users, eliminating the need for grappling to locate sites and for anchoring directly into a shipwreck site. The moorings would also provide clear notice to boaters of the presence of a known shipwreck site. When moorings are not yet present, published guidelines would promote the use of best practices for anchoring near shipwrecks sites. An example of a best practice could include instructions on using a weighted line and surface float ("shot line") to mark a wreck for divers to descend and ascend that is removed before the dive boat leaves the area.

Additionally, NOAA would prepare and make publicly available sanctuary maps to provide the public notice of the location of known and suspected shipwreck sites. Shipwreck sites not listed on maps would still be sanctuary resources and the prohibition on anchoring and grappling would still apply. The management plan also includes activities related to surveying the sanctuary and identifying additional shipwreck sites. As appropriate, NOAA would update the maps as new shipwreck sites are found.

The Lake Carriers' Association, in particular, expressed concerns about the anchoring prohibition because of the need for commercial vessels to sometimes anchor for safety reasons. It should be noted that anchoring within the sanctuary would not be prohibited. However, grappling into or anchoring on a shipwreck site (sanctuary resource) would be prohibited. This regulation is narrowly worded to protect historic shipwreck sites from dive-vessel related anchor damage, while still allowing anchoring outside of these discrete areas.

Under all of the action alternatives, as discussed below in Section 3.3.3.3, NOAA proposes an exemption to the proposed anchoring prohibition for any activity necessary to respond to an emergency threatening life, property, or the environment.

Additionally, of all the areas where commercial ships may anchor in the proposed sanctuary, NOAA understands that the area outside the port of Manitowoc is most likely, and that anchoring here is infrequent and done chiefly during poor weather. To ensure that commercial shipping can continue to anchor here without potentially damaging sanctuary resources, NOAA conducted surveys in 2017 and 2018 that helped identify potential sanctuary resources that commercial vessels should take note of and avoid, particularly off Manitowoc. The 2017 survey of Manitowoc (Figure 3.5) revealed no new shipwrecks in the surveyed area.

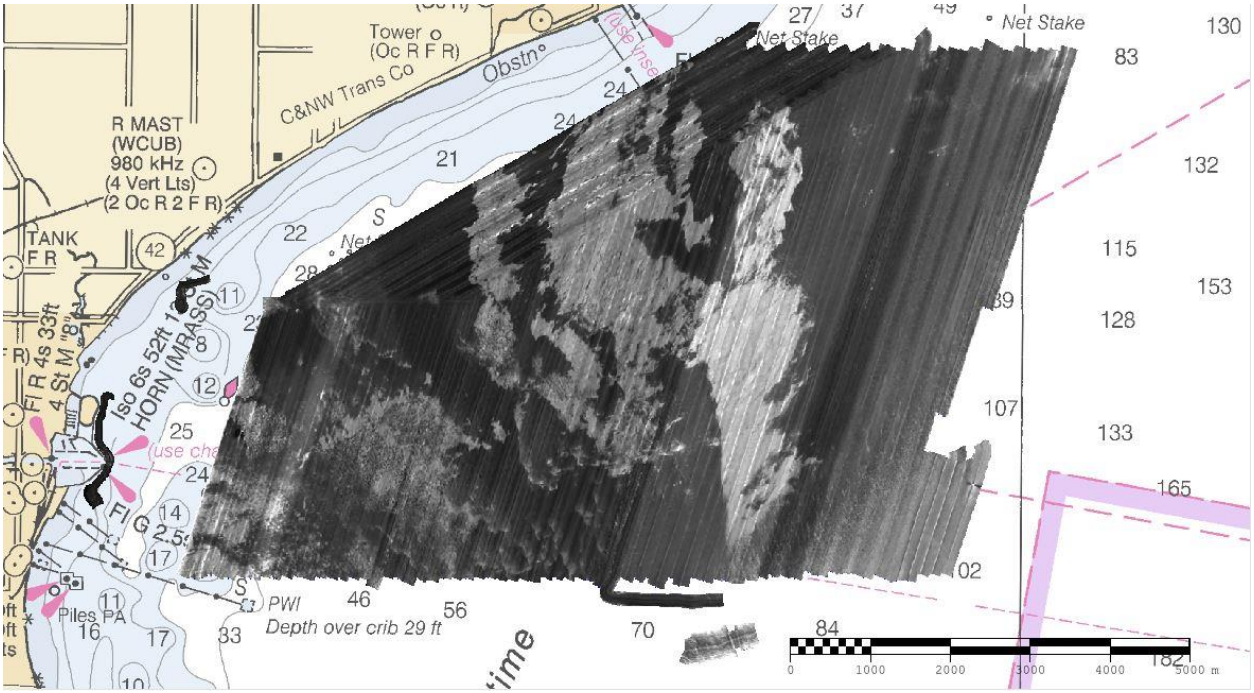

Figure 3.5. This map depicts sonar survey coverage completed by NOAA to help locate potential sanctuary resources where commercial shipping may anchor off Manitowoc. NOAA prioritized a survey of this area to support the designation effort and gain a better understanding of the area where commercial shipping may anchor. The areas in black depict survey coverage. No new shipwreck sites were found in the surveyed area. Image: NOAA

3.3.3.2.2 Delayed Effectiveness and Permitting Considerations

NOAA recognizes that it would take time to install moorings at all shipwrecks sites, and that some sites (particularly deep, technical-diving-depth sites) create challenges for typical mooring systems. Consequently, under all action alternatives, NOAA is proposing a two-year delay in the implementation of the no-anchoring or grappling prohibition. During this period, the sanctuary would work with the state, the Sanctuary Advisory Council, a diver working group, and other relevant stakeholders to develop a mooring implementation and best practices plan.

The purpose of this postponement is to provide NOAA with adequate time to develop a shipwreck mooring program and plan, begin installing mooring buoys, seek input from the dive community about the mooring buoy plan, and develop best practices for accessing shipwrecks when mooring buoys are not present. During this period, NOAA would also work with stakeholders to explore the concept of permitting certain prohibited activities (e.g., allowing divers to attach mooring lines directly to some shipwreck sites). It is important to note that all other prohibitions would remain in effect during this two-year postponement.

NOAA is aware that grappling and attaching a mooring line directly to a shipwreck site is a current practice used by some divers, often at shipwrecks sites that are difficult to locate or anchor near (e.g., technical-diving-depth shipwrecks). This serves as both an anchor line and a secure line for ascending/descending divers. NOAA intends to explore with the state whether to establish a no-fee permit that would allow users to tie a suitable long-term mooring line directly into some shipwreck sites to support sanctuary management goals. Through the sanctuary permitting process, approved users would be able to tie a semi-permanent mooring line into certain shipwrecks sites. The permits would accord with the sanctuary's management, research, or education missions. The permits would be of limited duration and designed to allow users to continue the practice of tying directly into a suitable area of a shipwreck when a mooring buoy is not present. Through this potential permit process, the sanctuary would be able to better manage shipwrecks by: (1) having information on which sites are most popular and prioritize future mooring installations; and (2) having the ability to consult with the permittee on the tackle to be used and attachment point on the shipwreck, thereby reducing the risk of damage. During the two-year delay in the implementation of the anchoring/grappling prohibition, NOAA would consult with the state and other stakeholders on the details of this permitting concept. This activity is identified in the final management plan Strategy RP-3.

3.3.3.3 Regulatory Provisions that Apply to All Action Alternatives

The following provisions would apply to all action alternatives:

- Exemption for emergencies and law enforcement;
- Emergency regulations;
- Authorizations, certifications, and permits; and
- Definition of "sanctuary resource" and "shipwreck site."

3.3.3.3.1 Exemption for Emergencies and Law Enforcement

NOAA proposes to include an exemption from prohibited activities for activities that respond to emergencies that threaten lives, property, or the environment, or are necessary for law enforcement purposes.

NOAA received a request from the Lake Carriers' Association that language be added to Section 922.213(b) that not only considers emergency situations but adds: "…or anchoring to prevent unsafe conditions, as determined by the vessel's master and recorded in the vessel's official log book."

The proposed regulations provide for an exemption from the prohibitions in unsafe conditions, and NOAA has determined that the additional requirement for the vessel master log book is unnecessary. The proposed regulations specify, at 15 C.F.R. § 922.213(b): "The prohibitions in paragraphs (a)(1) through (3) of this section do not apply to any activity necessary to respond to an emergency threatening life, property or the environment."

Emergency Regulations

Nationwide sanctuary regulations include a general authority for instituting emergency regulations. However, under all action alternatives, NOAA proposes a site-specific authority to issue emergency regulations. Emergency regulations would be used on a limited case basis and

under specific conditions when there is an imminent risk to sanctuary resources and a temporary prohibition would prevent the destruction or loss of those resources. Under the site-specific emergency authority, NOAA would only issue emergency regulations that address an imminent risk for a fixed amount of time for a maximum of six months, which could be extended a single time for not more than an additional six months. The governor's approval would be required. To consider making an emergency regulation permanent, a full rulemaking process including public comment would need to occur.

3.3.3.3.2 Authorizations, Certifications, and Permits

NOAA is proposing to include the authority to consider issuing authorizations, certifications, general permits, and special use permits to allow otherwise prohibited activities to occur in the sanctuary under certain conditions. Because of the limited number of regulated activities described above, NOAA does not anticipate needing to frequently use these authorities, but having a range of options available would allow sanctuary managers flexibility to address compatible uses while protecting the sanctuary resources.

Authorizations

NOAA is proposing to consider issuing authorizations that would allow an otherwise prohibited activity if that activity is specifically authorized by any valid federal, state, or local lease, permit, license, approval, or other authorization issued at any time after the designation. The proposed authorization authority is intended to streamline regulatory requirements by reducing the need for multiple permits.

Early discussions with the state of Wisconsin identified a concern about the potential for damage to historic shipwrecks from research activities and towed and tethered research equipment. The existing state permit system already requires a permit for all phases of archaeological work on state bottomlands, including searching for shipwrecks, documenting sites, and excavating sites. Under the regulations proposed for all action alternatives, NOAA would not require a separate sanctuary permit to conduct archaeological activities in the sanctuary, but would have the authority to authorize state permits for activities that otherwise violate sanctuary regulations, and the ability to add terms and conditions as part of the sanctuary authorization.

Certifications

With certification authority, NOAA is proposing to consider allowing an otherwise prohibited activity if that activity were specifically authorized by any valid federal, state, or local lease, permit, license, approval, or other authorization before the time of designation, pursuant to subpart E of 15 C.F.R. part 922. NOAA would consider issuing certifications for such authorized activities that are in place at the time the sanctuary designation becomes effective. The regulations would establish the certification procedures and timeline to request and complete certifications. The certification process allows ("grandfathers") certain existing authorized activities while seeking to minimize the impact on sanctuary resources through terms or conditions established during the certification process.

General Permits

Similar to other national marine sanctuaries, NOAA is proposing to consider issuing general permits for activities that would otherwise violate sanctuary regulations only for the purposes of sanctuary education, research, and management. NOAA would execute this authority using the existing permit procedures and review criteria established in regulation. Permit applicants would follow the approved application procedures and would submit an application providing a description of the proposed activity, a timeline, information on the equipment, personnel and their qualifications, methodology to be used, and potential effects of the activity on sanctuary resources.

Special Use Permits

Special use permits (SUPs) are established in Section 310 of the NMSA (16 U.S.C. § 1441) to allow NOAA to issue permits to authorize specific activities in a sanctuary if the permit is necessary (1) to establish conditions of access to, and use of, any sanctuary resource or (2) to promote public use and understanding of a sanctuary resource. The activities that qualify for SUPs are set forth in the Federal Register (78 Fed. Reg. 25957 [May 3, 2013]; 82 Fed. Reg. 42298 [Sept.7, 2017]). Categories of SUPs may be changed or added through public notice and comment. The list of national categories subject to the requirements of special use permits is:

1) The placement and recovery of objects associated with public or private events on non-living substrate of the submerged lands of any national marine sanctuary.
2) The placement and recovery of objects related to commercial filming.
3) The continued presence of commercial submarine cables on or within the submerged lands of any national marine sanctuary.
4) The disposal of cremated human remains within or into any national marine sanctuary.
5) Recreational diving near the USS *Monitor*.
6) Fireworks displays.
7) The operation of aircraft below the minimum altitude in restricted zones of national marine sanctuaries.
8) The continued presence of a pipeline transporting seawater to or from a desalination facility.

The SUP categories for recreational diving near the USS *Monitor*, operation of aircraft, and the continued presence of a pipeline for desalination would not apply in the proposed sanctuary because USS *Monitor* is located in a different sanctuary, there is no proposed minimum altitude in restricted zones for this proposed sanctuary, and the desalination pipeline category only applies to seawater. SUP applications would be reviewed to ensure that the activity is compatible with the purposes for which the sanctuary is designated and that the activities carried out under the SUP could be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources. NOAA also requires SUP permittees to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit. The NMSA allows NOAA to assess and collect fees for the conduct of any activity under a SUP. The fees are calculated to recover the administrative costs of issuing the permit, the cost of implementing the permit, and the fair market value of the

use of sanctuary resources. The fees may be used for issuing and administering permits, and managing national marine sanctuaries.[22]

3.3.3.3.3 Definitions

Under all action alternatives, the WSCNMS definition of "sanctuary resources," means all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwreck sites. The term "shipwreck site" is further defined as any historic sunken watercraft, its components, cargo, contents, and associated debris field. These definitions have been amended from the DEIS.

In response to public comments, NOAA revised the definitions of "sanctuary resource" and "shipwreck site" for clarity. In the DEIS and proposed rule, NOAA defined "sanctuary resource" as "prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including but not limited to, all shipwrecks and related components." In the FEIS and final rule, NOAA deletes "including but not limited to, all shipwrecks and related components" and replaces it with "including all shipwreck sites." The definition in its entirety now reads: "sanctuary resource means all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwreck sites" (Section 922.211(a)(1)). NOAA made this revision to clarify this sanctuary's emphasis on the protection of shipwrecks and shipwreck sites.

Additionally, the DEIS and proposed rule broadly defined "shipwreck site" to mean any sunken watercraft, its components, cargo, contents, and associated debris field (Section 922.211(a)(2)). However, in the FEIS and final rule, NOAA revises the definition in Section 922.211(a)(2) for "shipwreck site" by adding "historic" to clarify that NOAA is focused on historic shipwrecks (i.e., not all shipwrecks, but those that demonstrate an important role in or relationship with maritime history). This addition is specifically added to respond to concerns about defining recent or contemporary sunken craft or objects as sanctuary resources. For the purposes of this rule, "historic" takes its definition from "historical resource" located in Section 922.3 of the national marine sanctuaries regulations. Section 922.3 reads:

> Historical resource means any resource possessing historical, cultural, archaeological or paleontological significance, including sites, contextual information, structures, districts, and objects significantly associated with or representative of earlier people, cultures, maritime heritage, and human activities and events. Historical resources include "submerged cultural resources," and also include "historical properties," as defined in the National Historic Preservation Act, as amended, 54 U.S.C. 300101 et seq. and its implementing regulations, as amended.

Finally, NOAA's definitions of "sanctuary resource," "shipwreck," and "shipwreck site" align with the following state definitions in Wisconsin Statue 44.47: "Archaeological site" means any land or the bed of any stream or lake where there are objects or other evidence of archaeological interest, aboriginal mounds and earthworks, ancient burial grounds, prehistoric and historical ruins, Indian mounds, historic and prehistoric watercraft and associated objects, aircraft and

[22] More details on special use permits can be found at sanctuaries.noaa.gov/management/permits/.

other archaeological and historical features; and “submerged cultural resource" means an archaeological site or historic property that is located beneath the surface of a lake or stream.

3.3.3.4 Regulatory Options Considered but Not Carried Forward

NOAA considered but later rejected a regulation to require a permit to search for underwater cultural resource sites in the sanctuary. To establish such a permit system, the sanctuary would have to prohibit the activity, which NOAA deems unnecessary at this time. NOAA instead proposes to rely on the current state system of permitting, and strengthening it where appropriate by adding terms and conditions to Wisconsin’s already required Public Lands Field Archaeology Permit (Chapter 44, subchapter II, Section 44.47).

3.3.4 Non-Regulatory Programs Applicable to All Action Alternatives

3.3.4.1 Final Management Plan

NOAA is proposing non-regulatory programs that would apply to all of the action alternatives. These non-regulatory programs are described in detail in the final management plan issued as part of the proposed action (see Appendix A). The final management plan describes all of the management actions and strategies that NOAA intends to implement to protect the nationally significant resources within WSCNMS, and to help conserve and promote the shipwrecks that have been located and those that await discovery.

Management plans are sanctuary-specific planning documents used by all national marine sanctuaries. The final management plan outlines a series of management goals and strategies in the areas of sanctuary resource protection, education and outreach, research, and operations. The final management plan complements the proposed sanctuary regulations in key areas. It would set priorities to guide sanctuary programs and operations and provide the public with an understanding of the sanctuary’s strategies to conserve and promote the nationally significant resources of WSCNMS. The actions are designed to strengthen and complement existing regulatory and non-regulatory protections currently in place under the state of Wisconsin.

The WSCNMS final management plan consists of four action plans:

Resource Protection Action Plan: Strengthen resource protection by conducting on-water resource protection activities, promoting responsible use of sanctuary resources, developing education initiatives for users, and enhancing enforcement efforts.

Education and Outreach Action Plan: Enhance public awareness, understanding, and stewardship of the sanctuary, the Great Lakes, and the ocean.

Research Action Plan: Outlines the sanctuary’s research objectives and priorities. Sanctuary research is conducted in support of resource protection, resource management, and education initiatives.

Sanctuary Operations and Administration Action Plan: Create sanctuary infrastructure, staffing, and program support to ensure effective implementation of the overall management plan.

NOAA proposes to work in full cooperation on the final management plan action plans with the Wisconsin Historical Society, Wisconsin Department of Natural Resources, and the Wisconsin Coastal Management Program in their role as trustees for state resources. In addition, partnerships with private businesses, non-governmental organizations, educational and cultural institutions, and other local, state, and federal agencies would provide expertise for scientific research and exploration, resources and capacities for site monitoring and enforcement, and support for education and outreach programs. The many partnerships developed over the course of this nomination and designation process have been, and would continue to be, critical to the success of the sanctuary.

The final management plan is specific to NOAA's actions but links to and identifies actions and responsibilities of partner management agencies, all of which would be an integral component of WSCNMS success. Public involvement has been valuable throughout the nomination and designation processes, and would continue to be valuable, through ongoing opportunities to volunteer and to participate on the Sanctuary Advisory Council. In addition, NOAA would perform periodic evaluations of its management plan, with additional opportunity for public comment during these reviews.

3.3.4.2 Field Operations to Implement the Management Plan

In order for ONMS to implement the proposed final management plan and regulations supporting the designated sanctuary, sanctuary staff would engage in the following categories of field operations: vessel operations and maintenance; scuba or snorkel operations; deployment of autonomous underwater vehicles (AUVs), remotely operated vehicles (ROVs), and potentially gliders and drifters; and installation of permanent mooring buoys.

Vessel Operations and Maintenance

The Great Lakes field season typically occurs from early spring through late fall. Experience at Thunder Bay National Marine Sanctuary, located in Lake Huron, suggests that WSCNMS sanctuary staff would operate vessels approximately 50 to 60 days at sea per year, though less in the sanctuary's initial years of operation. NOAA's Great Lakes fleet is managed by the Great Lakes Environmental Research Lab (GLERL), and vessels are located in Muskegon, Michigan. Vessels in the fleet range from 26 to 80 feet in length with a variety of capabilities to support remote sensing sonar operations, diving, and other marine operations and archaeological fieldwork. WSCNMS would likely have an agreement with GLERL to support sanctuary marine operations.

When NOAA vessels are supporting sanctuary research, ONMS staff would follow NOAA Small Boat Safety Program guidelines.[23]

Scuba Diving, Echosounders (Sonars), Remotely Operated Vehicles, and Other Operations

One of the priorities in the final management plan is to characterize the sanctuary's underwater cultural resources and landscape features. This is typically accomplished with remote sensing

[23] For NOAA small boat guideline see: NAO 209-125, corporateservices.noaa.gov/ames/administrative_orders/chapter_209/209-125.html.

surveys using sonars, and diving and ROV operations when underwater cultural resources are found. Experience at Thunder Bay National Marine Sanctuary suggests that as WSCNMS matures, sanctuary staff would conduct approximately 250 to 300 dive operations per year, use both towed and hull-mounted sonars for several weeks per year, and support other operations such as AUVs and ROVs, as opportunities arise.

Due to the depths of some of the shipwreck sites in the proposed sanctuary, accessing these shipwreck sites will require technical diving operations. These operations will generally consist of up to six bottom/support divers in the water accessing shipwreck sites at depths between 50 and 250 feet. When engaged in this type of diving, sanctuary research vessels typically operate in a "live boat" mode, meaning they are not anchored. A small weighted visual surface buoy marker would be deployed on the dive site to guide divers to the bottom. Divers typically conduct non-invasive recording (photo-video documentation and measurements) and deploy self-contained lift bags (air-fillable canvas float bags) as an ascent line.

Sanctuary staff would employ echosounders (sonars) to locate and identify underwater cultural resources and landscape features. The sanctuary would use towed and hull-mounted echosounders that transmit repeated series of short sound pulses to image the subsurface. The echosounders may be single beam or multibeam, which transmits a fan of acoustic energy for greater bottom coverage. During a survey, a vessel equipped with one or more echosounders "mows the lawn" (travels back and forth in a preplanned grid) at a slow speed to ensonify (or visualize) the subsurface and ensure full coverage within each project area.

ONMS uses ROVs and uncrewed systems to carry and operate scientific instruments and cameras to collect data. ROVs are operated remotely by a human operator and are often tethered to a crewed vessel. Uncrewed systems operate with various levels of autonomy, and include unmanned underwater vehicles (UUVs, sometimes referred to as autonomous underwater vehicles or AUVs) and unmanned surface vehicles (USVs, sometimes referred to as autonomous surface vehicles or ASVs). These items use a variety of propulsion sources, including diesel, diesel/electric, battery, solar, buoyancy driven, and wave-gliding propulsion systems.

Deployment of Mooring Buoy Systems, Including Steel Mooring Blocks on the Seafloor

The sanctuary seeks to promote public access while also ensuring sound resource protection. One method of promoting public access while protecting sunken artifacts is to install and maintain permanent moorings at popular diving locations. Mooring buoys would provide secure and convenient anchoring points for users and eliminate the need for anchoring directly into a shipwreck site. In addition, moorings facilitate public access and safer diving by providing a sturdy means of descent and ascent for divers. The sanctuary's shipwreck mooring program would be one of its primary on-water resource protection efforts.

The sanctuary anticipates installing permanent moorings at as many of the 36 known shipwrecks sites within the proposed sanctuary as possible. WSCNMS mooring systems would generally consist of a mooring block positioned near a shipwreck site, to which appropriately sized tackle, subsurface float, and surface buoy are attached and would be regularly inspected and maintained for safety and utility. NOAA would follow best practices when selecting lakebed locations, such as avoiding any cultural resources or sensitive benthic habitats.

3.3.5 Summary: NOAA's Preferred Alternative (Alternative 2)

Alternative 2 is NOAA's preferred alternative, which includes Boundary A (962 square miles), Regulatory Option B, and implementation of the final management plan and associated field operations. The boundary is consistent with the nomination put forth by the state and coastal communities, and the proposed regulations reflect significant input from the state of Wisconsin. It also is responsive to public comments, complements and strengthens current state regulations and permitting, and offers a proactive approach to reducing damage to sanctuary sites. The preferred alternative meets the purpose and need for the action as described in Chapter 2.

CHAPTER 4

AFFECTED ENVIRONMENT

4.1 Introduction

Consistent with NEPA requirements, this section provides a description of the resources and human uses that would be affected by the alternatives under consideration. It focuses primarily on the human uses of the environment, which includes underwater cultural resources in the proposed sanctuary. This section also includes some relevant aspects of the physical and biological environment.

4.2 Underwater Cultural Resources

The area under consideration as a national marine sanctuary in Wisconsin contains an extraordinary collection of underwater cultural resources demonstrated by the listing of 21 shipwrecks on the NRHP. The following narrative applies to resources in Boundary B (the largest boundary option), which includes all known historic shipwrecks in the waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties. For purposes of the underwater cultural resources section, this area is referred to as the "study area."

The Great Lakes and their connecting waterways provide a natural highway extending over 1,000 miles into the heart of North America. For millennia before European contact, these inland seas and tributaries served as important lines of trade and communication for Native Americans. Over the past 300 years, these waters have been further exploited by Euro-Americans and have greatly contributed to the growth of the North American interior. Marine transport on the Great Lakes played a crucial role in the exploration, settlement, and industrialization of the region.

During the 19th and early 20th centuries, the Great Lakes evolved from an isolated maritime frontier on the western edge of the Atlantic World into the nation's busiest and the world's most significant industrial waterway, where innovative ships and technologies moved raw materials and agricultural products in larger quantities and at lower costs than at any previous time in history. During this period, entrepreneurs and shipbuilders on the Great Lakes launched tens of thousands of ships of many different designs. Sailing schooners, grand palace steamers, revolutionary propeller-driven passenger ships, and industrial bulk carriers transported America's business and industry. In the process they brought hundreds of thousands of people to the Midwest and made possible the dramatic growth of the region's farms, cities, and industries. The Midwest, and indeed the United States, could not have developed with such speed and with such vast economic and social consequences without the Great Lakes.

Figure 4.1. This is a historic photo of the schooner *Rouse Simmons*. While en route to Chicago in November 1912, *Rouse Simmons* was lost with all hands. Thousands of schooners like this sailed the Great Lakes in the late 1800s, driving the United States economy. Located in the proposed sanctuary, the well-preserved wreck of *Simmons* is a tangible reminder of the essential, and often dangerous, role played by Great Lakes ships and crews in our nation's past. Photo: Thunder Bay Sanctuary Research Collection

In 2008, the WHS, with funding from the Wisconsin Coastal Management Program, conducted a comprehensive study of Wisconsin's shipwrecks in *Wisconsin's Historic Shipwrecks: An Overview and Analysis of Locations for a State/Federal Partnership with the National Marine Sanctuary Program*. Based on this report and subsequent research, the WHS provided documentation on the area's underwater cultural resources in Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties, which provided the foundation for the sanctuary nomination. Much of the information on underwater cultural resources in this section of the FEIS comes from that report.

Similarly, the 2008 report entitled *Wisconsin's Historic Coastlines: An Overview and Analysis of Near Shore Archaeological and Historic Sites for a State/Federal Partnership with the National Marine Sanctuary Program* looked at the potential for submerged non-shipwreck archaeological sites. Additionally, important contextual historical information, as well as a rationale for the national significance of Wisconsin shipwrecks, can be found in *Great Lakes*

Shipwrecks of Wisconsin, a National Register of Historic Places Multiple Property Document produced by the state of Wisconsin and on file with the National Park Service.

4.2.1 Known Shipwrecks

Known shipwrecks in the study area represent vessels constructed in Michigan, New York, Ohio, Illinois, and Wisconsin. Vessel types include schooners, a brig, canallers, scows, wood and steel steam propellers, steam paddles, barges, a dredge, and tugs. The 40 known vessels within this area are described below (with ship name followed by build year) and are listed in Tables 4.1 and 4.2 which follow.

Advance (1853). A 180-ton two-masted schooner built in Milwaukee, Wisconsin. It spent most of its career in the Lake Michigan lumber trade until it foundered southeast of Sheboygan on September 8, 1885, taking five of its crew with it. Today, it lies in 85 feet of water with its hull broken, but its centerboard trunk remains upright and all of its major hull components are extant.

Ahnapee (1867). An 80-ton two-masted scow schooner built in Chicago, Illinois, and lengthened at Milwaukee in 1876. It ran aground on Sheboygan's North Point in a fog in 1884. Despite salvage attempts, it was declared a total loss. Today, it lies broken and scattered in 0 to 7 feet of water. Pieces of its hull occasionally wash ashore on North Point following heavy wave action.

Alaska (1869). An 85-ton two-masted scow schooner built in Sheboygan, Wisconsin, primarily for the Lake Michigan lumber trade. While sailing light to pick up lumber in Ahnapee, Wisconsin on March 23, 1879, it was pushed ashore near Two Creeks. Great efforts were made to free and relaunch the craft, but it ultimately could not be made seaworthy and was set adrift and abandoned. It came to rest south of Rawley Point in 5 feet of water. Today *Alaska*'s bow, deck machinery, centerboard trunk, some rigging implements, and much of its hull structure remain intact on the site beneath the shifting sand.

Algoma (1918). The dredge *Algoma* was only a year old when it foundered between Manitowoc and Sheboygan in a storm on November 18, 1919. Today it lies upright and intact in 85 feet of water.

America (1873). This three-masted schooner carried cargos mainly on lower Lake Michigan, typically consisting of lumber and ice. A casualty of a night-time collision just south of Kewaunee, the wreck sits upright on a sand bottom in 130 feet of water. The wheel was recovered and is located in the Wisconsin Maritime Museum, while the anchor is at the Rogers Street Fishing Village in Two Rivers, Wisconsin.

Arctic (1881). A 71-ton steam tug built for the Goodrich Steamship Company by the Rand and Burger shipyard in Manitowoc, Wisconsin; it was built with a reinforced bow for ice breaking. Abandoned in 1930, it was beached north of Manitowoc and today lies broken in 15 feet of water near the wreckage of *Francis Hinton*. The wreck site consists of the lower hull and portions of the hull sides, a firebox boiler, propeller blade, engine mounts, rudder and other artifacts. *Arctic* is listed on the National Register of Historic Places.

Atlanta (1891). A 1,129-ton wooden propeller built in Cleveland, Ohio for the Goodrich Transportation Company; it spent most of its life sailing the passenger and package trade routes

between Lake Michigan ports until it caught fire and burned to the waterline on March 18, 1906. Today, it lies in 17 feet of water south of Sheboygan.

Byron (1849). Little is known about the small trading schooner *Byron*. Just under 40 feet in length, the tiller-steered, two-masted schooner sank on May 8, 1867 loaded with sundries. Today, it lies in 135 feet of water 12 miles southeast of Sheboygan with its hull intact except for its decking. *Byron* is listed on the National Register of Historic Places.

Continental (1882). A 1,506-ton wooden steam barge built by the George Presley shipyard in Cleveland, Ohio; it ran aground while running empty north of Rawley Point Lighthouse on December 12, 1904 (Figure 4.2). It broke up over the winter, and today its hull lies in 15 feet of water. Its compound steam engine remains upright and intact, breaking the water's surface near the beach. *Continental* is listed on the National Register of Historic Places.

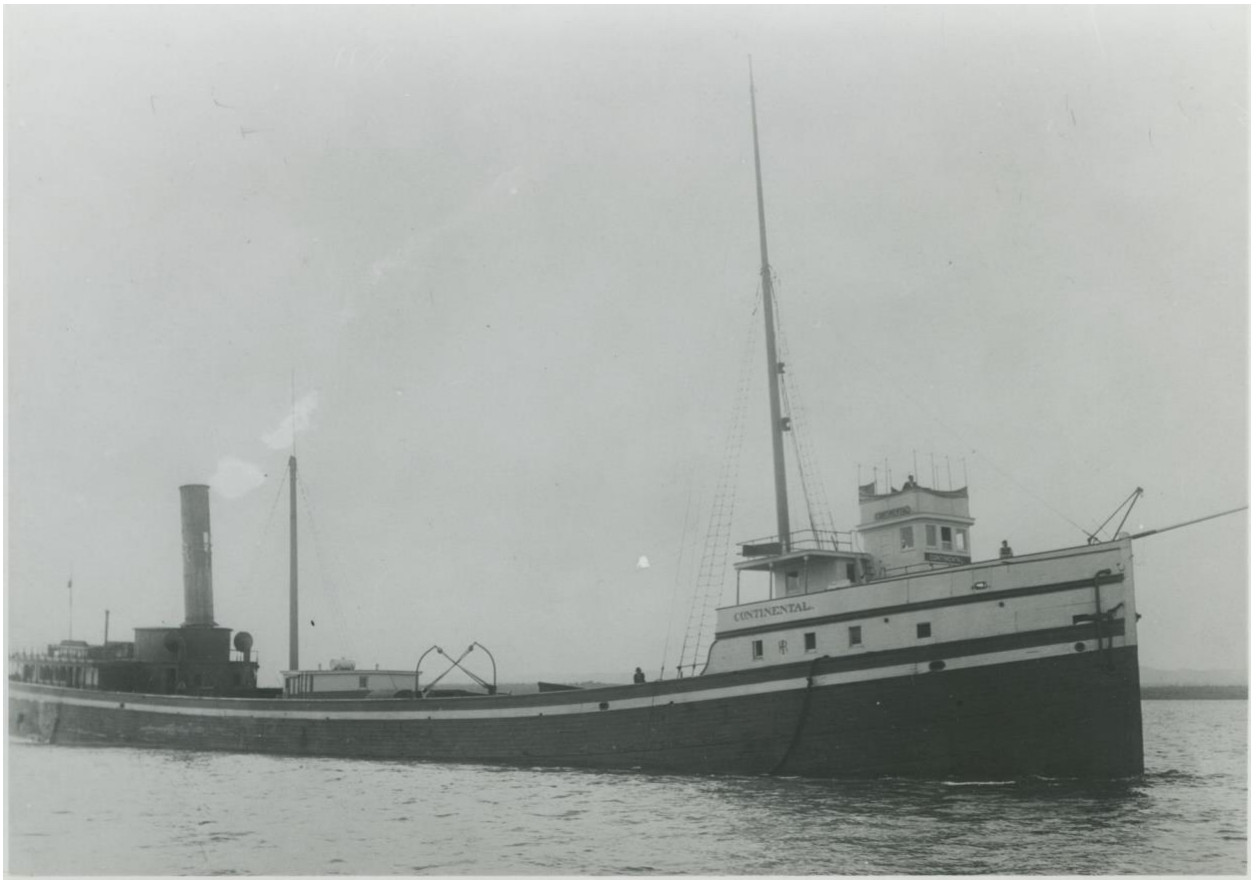

Figure 4.2. The steamer *Continental* marks an important milestone in the transition from wood to steel shipbuilding. Today, it is an accessible shallow water shipwreck site presenting a recreational opportunity for divers and snorkelers. Photo: Thunder Bay Sanctuary Research Collection

Floretta (1868). A 260-ton two-masted canaller built in Detroit, Michigan; it was carrying a rare cargo for schooners on Lake Michigan when it foundered off Manitowoc on September 18, 1885 – iron ore. Today, it lies somewhat broken in 170 feet of water. Its centerboard trunk remains upright, but like most wooden vessels that sank carrying iron ore, its hull is broken with much of its lower hull covered in ore. Its two intact hull sides lay next to its lower hull. Nearly all of its

standing and running rigging are extant. *Floretta* is listed on the National Register of Historic Places.

Francis Hinton (1889). A 417-ton wooden steam barge built by the Hanson and Scove shipyard in Manitowoc, Wisconsin. It came ashore in a storm on November 16, 1909, north of Manitowoc (Figure 4.3). Today, it lies broken in 20 feet of water with its hull sides collapsed and its boiler, engine, and propeller intact. *Francis Hinton* is listed on the National Register of Historic Places.

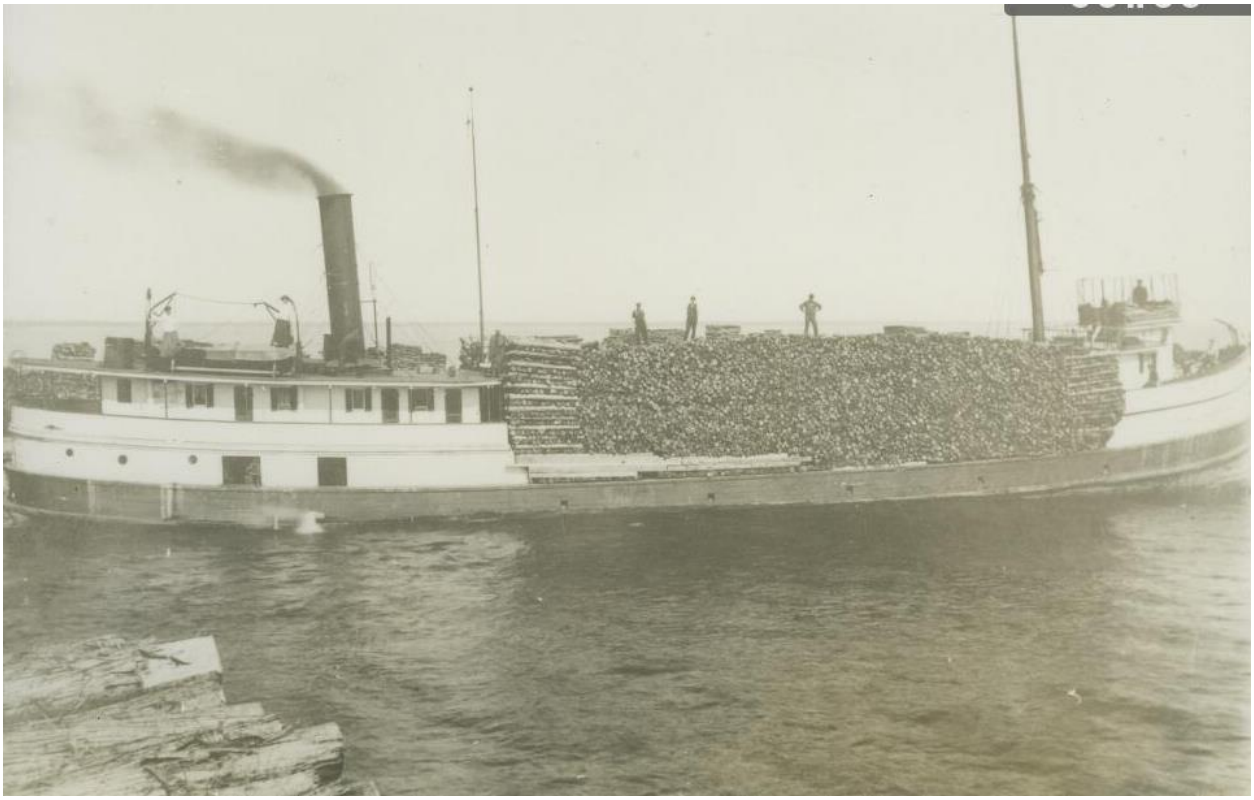

Figure 4.3. The steamer *Francis Hinton* loaded to capacity with forest products to meet the building demands of Milwaukee, Chicago, Detroit, and other rapidly growing cities in the 19th century. Photo: Thunder Bay Sanctuary Research Collection

Gallinipper (1833). A 95-foot two-masted schooner originally built as *Nancy Dousman* in Black River, Ohio. Its name was changed to *Gallinipper* prior to its foundering northeast of Sheboygan on July 5, 1851 while empty. Today, it lies at 210 feet on a slight list to starboard with its hull completely intact and one of its masts still standing (the other is on display at Roger Street Fishing Village in Two Rivers) (Figure 4.4). *Gallinipper* is Wisconsin's oldest known shipwreck, having ties to early Wisconsin settlement and the fur trade, and is an excellently-preserved example of a very early hull type. The *Gallinipper* is listed on the National Register of Historic Places.

Figure 4.4. A view toward the stern of the nearly intact schooner *Gallinipper*, built in 1833. Photo: Wisconsin Historical Society.

Helvetia (1873). A 793-ton three-masted schooner built in Tonawanda, New York. It was cut down to a schooner barge and continued to sail until it was abandoned and scuttled northeast of Sheboygan on September 10, 1921. Today, it lies in 165 feet of water with much of its lower hull intact.

Henry Gust (1893). A 37-ton wooden steam-powered fish tug built by the Milwaukee Shipyard Company in Milwaukee, Wisconsin. It was scuttled off Two Rivers in 1935. Today, it lies in 85 feet of water with its lower hull largely intact as well as its boiler, engine, and propeller.

Hetty Taylor (1874). An 84-ton two-masted schooner built in Milwaukee. It sailed as a trading schooner until it capsized in a storm southeast of Sheboygan on August 26, 1880. Today, it lies mostly intact in 110 feet of water. *Hetty Taylor* is listed on the National Register of Historic Places.

Home (1843). This 85-foot two-masted schooner was built in Black River, Ohio. It was sunk in a collision southeast of Manitowoc on October 17, 1858 with a load of slabwood (the first bark-side cut of a log from a sawmill). Today, it lies intact in 170 feet of water with the collision damage visible on its starboard bow. Its foremast is on display at Rogers Street Fishing Village, but its mainmast remains in place, having fallen towards the port quarter (Figure 4.5). *Home* is listed on the National Register of Historic Places.

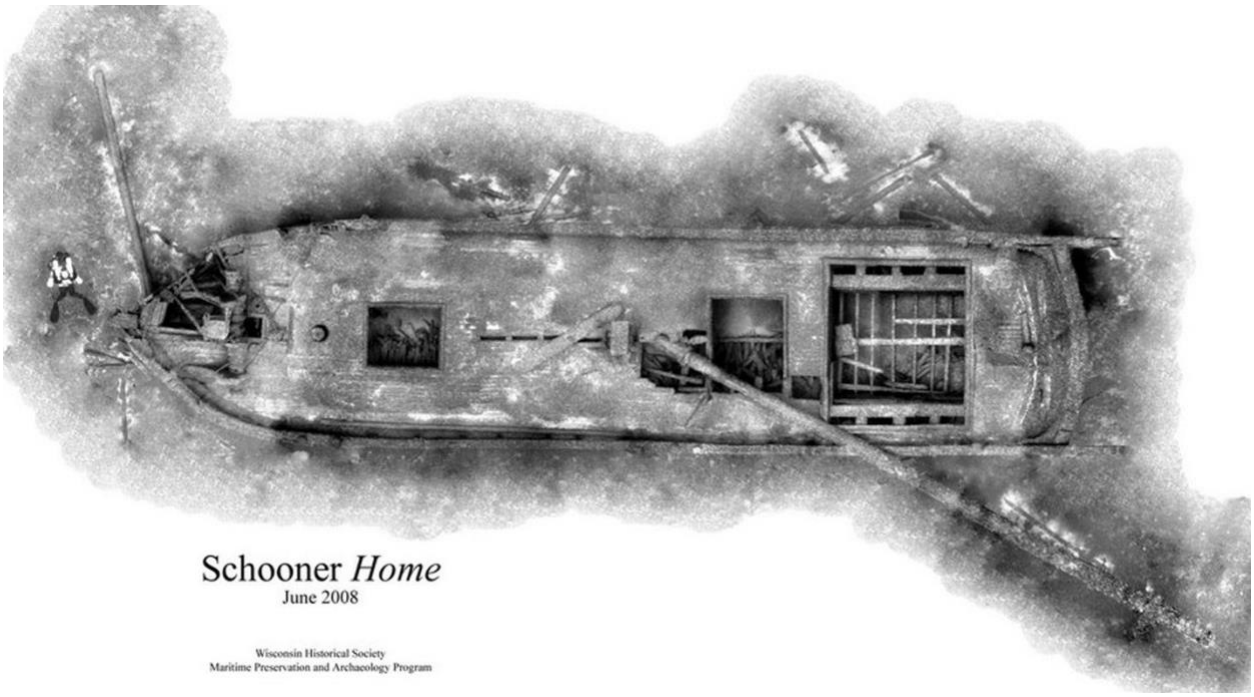

Figure 4.5. A photomosaic of the schooner *Home* conveys the site's high degree of archaeological and recreational significance. Image: Wisconsin Historical Society

I.A. Johnson (1866). A 91-ton two-masted scow schooner built in Dover Bay, Ohio. On September 23, 1890, *I.A. Johnson* collided with *Lincoln Dall* off Centerville, Wisconsin. Attempts to salvage the vessel were unsuccessful and it was abandoned. Today, the ship is broken in 90 feet of water. The vessel's location is known to some divers but is not on record with the state.

Island City (1859). This 54-ton two-masted schooner was built in St. Clair, Michigan, and served as a trading schooner until it foundered on April 8, 1894. It was owned by the same family that owned the scow schooner *Tennie and Laura*, which lies just a few miles to the northeast. Today, the *Island City* lies in 135 feet of water. Its hull is broken up, but all major hull components are extant. *Island City* is listed on the National Register of Historic Places.

J.M. Allmendinger (1883). The steambarge *J.M. Allmendinger* ran aground in 1895 during a November gale and blizzard. Bound to Milwaukee from Sturgeon Bay with a load of lumber, the wooden steam barge was blown off course and went ashore on the rocky beach near Fox Point about 3 a.m. The vessel ended up about 500 feet offshore near Mequon. The location of the *J.M. Allmendinger* wreckage was all but forgotten until July of 1934 when three young Milwaukee men, Max Nohl, Jack Browne, and Verne Netzow, began working with a raft, homemade diving helmets, and oxygen tanks to recover portions of the wreckage. The 24-year-old Max Eugene Nohl was enrolled at MIT where he studied mechanical engineering and in 1933 developed the "Hell Below" diving sphere. Nohl went on to set the world's deep diving record to 420 feet of water in Lake Michigan on December 2, 1937.

La Salle (1874). A 307-ton three-masted canaller built in Tonawanda, New York. While carrying wheat from Chicago on October 25, 1875, it unshipped its rudder while abreast Rawley Point. Before it could come to anchor, it struck bottom and drifted shoreward where it became

embedded in quicksand. Today *La Salle* rests in 12 feet of water. Its bow is intact, iron deck knees line its hull sides, and much of its rigging remains on the site.

Linda E. (1937). A 29-ton steel fish tug built by Burger Ship Building Company in Manitowoc, Wisconsin. *Linda E.* went missing on December 11, 1998 with its crew of three men. It was located seven miles off Port Washington in June 2000 by the Coast Guard Cutter *Acacia*. *Linda E.* sits upright, with collision damage evident, in 260 feet of water.

Lookout (1855). A 226-ton three-masted schooner built in Buffalo, New York, that carried grain, coal and lumber during its 45-year career. On April 29, 1897, it sailed too close to Rawley Point and stranded. Today, the vessel lies partially embedded in quicksand in 10 feet of water; its bow, centerboard trunk, and much of its starboard side are exposed from the gelatinous sand.

Mahoning (1847). A 119-foot brig built at Black River, Ohio; it was lost while being towed to Milwaukee for repairs on November 4, 1864. Today, *Mahoning* lies broken in 55 feet of water southeast of Port Washington. Most of its hull structure is extant, including its bow knee and an early centrifugal salvage pump that was aboard at the time of its loss. *Mahoning* is one of a handful of square-rigged vessels discovered in Wisconsin waters.

Major Anderson (1861). A 434-ton three-masted barkentine built in Cleveland, Ohio. In early October 1871, it was bound for Chicago with 750 tons of coal from Erie, Pennsylvania, when it became lost in smoke which hung over the lake from regional fires and stranded south of Rawley Point. Although its rigging and deck machinery were salvaged, today, its lower hull remains intact and well-preserved under an estimated 10 feet of sand. *Major Anderson* is listed on the National Register of Historic Places.

Niagara (1846). A 225-foot wooden sidewheel steamer that was built in Buffalo, New York, and carried passengers and package freight on a regular route between New York and Wisconsin. It caught fire and burned to the waterline northeast of Port Washington on September 24, 1856, taking more than 60 of its passengers with it. Today, *Niagara* lies broken in 55 feet of water, but its engine, boilers, walking beam, and paddles are extant. *Niagara* is listed on the National Register of Historic Places.

Northerner (1851). A 77-ton two-masted schooner built in Clayton, New York; it worked in the lumber trade until it foundered in a storm southeast of Port Washington on November 29, 1868. Today, it lies intact in 135 feet of water with a unique scroll head still intact (Figure 4.6). *Northerner* is listed on the National Register of Historic Places.

Figure 4.6. Maritime archaeologists from the Wisconsin Historical Society document the schooner *Northerner*, which rests in 135 feet of water in the proposed sanctuary. Photo: Wisconsin Historical Society

Pathfinder (1869). A 634-ton three-masted schooner built by the Campbell, Owen and Co. shipyard in Detroit, Michigan. It stranded 2.5 miles north of Two Rivers on November 18, 1886. Today, it lies broken in 10 feet of water. *Pathfinder* is listed on the National Register of Historic Places.

Robert C. Pringle (1903). A 141-ton wooden steam screw built in Manitowoc, Wisconsin, as the excursion boat *Chequamegon* before it was converted to a work tug. While towing the steamer *Venezuela* en route to Sandusky, Ohio, it struck a submerged object and sank off Sheboygan on June 19, 1922. Today, it lies upright and completely intact in 300 feet of water southeast of Sheboygan.

Rouse Simmons (1868). A 205-ton three-masted double centerboard schooner built by the Allen McClellen and Co. shipyard in Milwaukee, Wisconsin. It foundered off Two Rivers on 23 November 1912 while carrying a load of Christmas trees to Chicago. Today, it lies upright and intact in 165 feet of water, including its cargo of evergreen trees. *Rouse Simmons* is listed on the National Register of Historic Places.

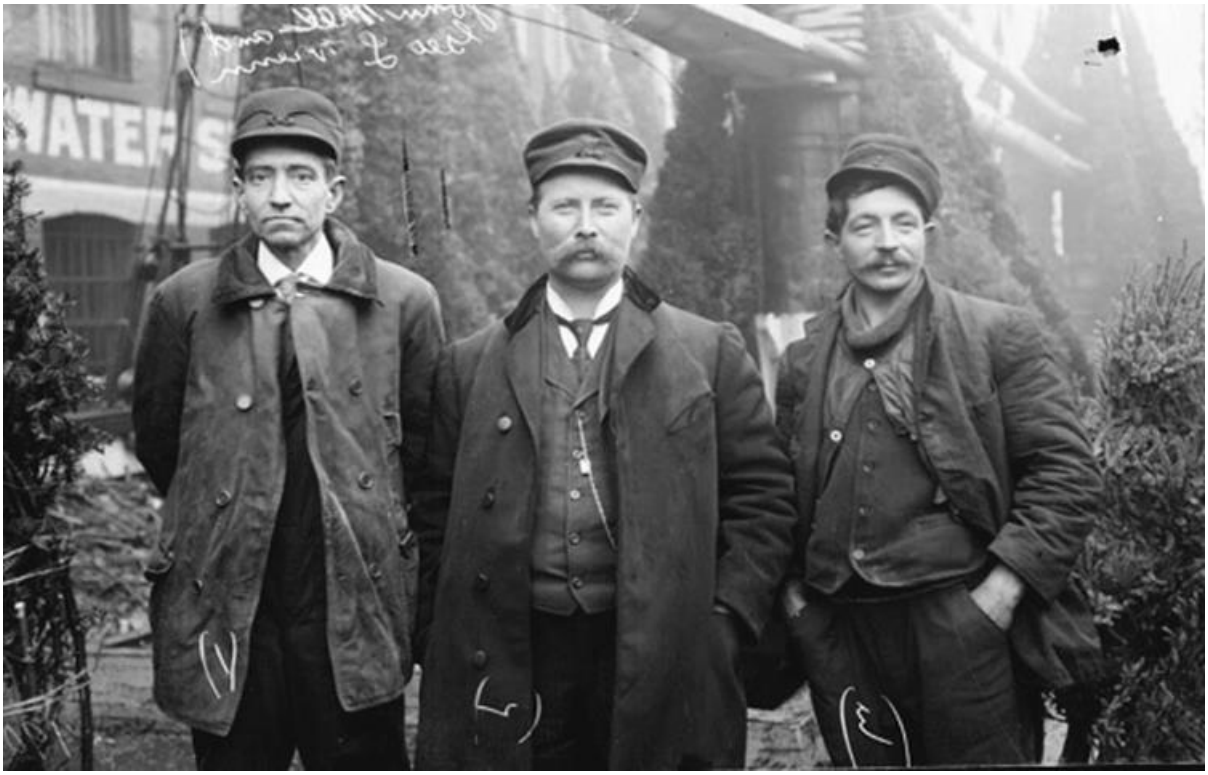

Figure 4.7. This is a historical photo of the crew of the schooner *Rouse Simmons.* Captain Schuenemann, center, was lost with his ship and crew on Lake Michigan in 1912. Several of the historic shipwrecks in the proposed sanctuary also represent the final resting place of sailors and passengers. Photo: Chicago Historical Society

S.C. Baldwin (1871). A 412-ton wooden steam barge built by the Campbell, Owen and Co. shipyard in Detroit, Michigan. It is reportedly the first double-decked wooden steam barge built on the Great Lakes. It foundered on August 27, 1908 north of Two Rivers. Today, it lies broken and scattered in 70 feet of water. *S.C. Baldwin* is listed on the National Register of Historic Places.

Selah Chamberlain (1873). A 1,207-ton steam barge built in Cleveland, Ohio. It collided with *John Pridgeon Jr.* in a dense fog off Sheboygan on October 14, 1886. It quickly sank, taking five of its crew with it. Today, *Selah Chamberlain*'s hull is largely broken, but its twin boilers, steeple compound engine, sternpost, propeller, and rudder remain upright and intact.

Senator (1896). A 4,408-ton steel steamer built in Wyandotte, Michigan. It was carrying 264 new Nash automobiles when it collided with the steamer *Marquette* in a dense fog southeast of Sheboygan on October 31, 1929 (Figure 4.8). Located in 2005, it is upright and intact in 460 feet of water. *Senator* is listed on the National Register of Historic Places.

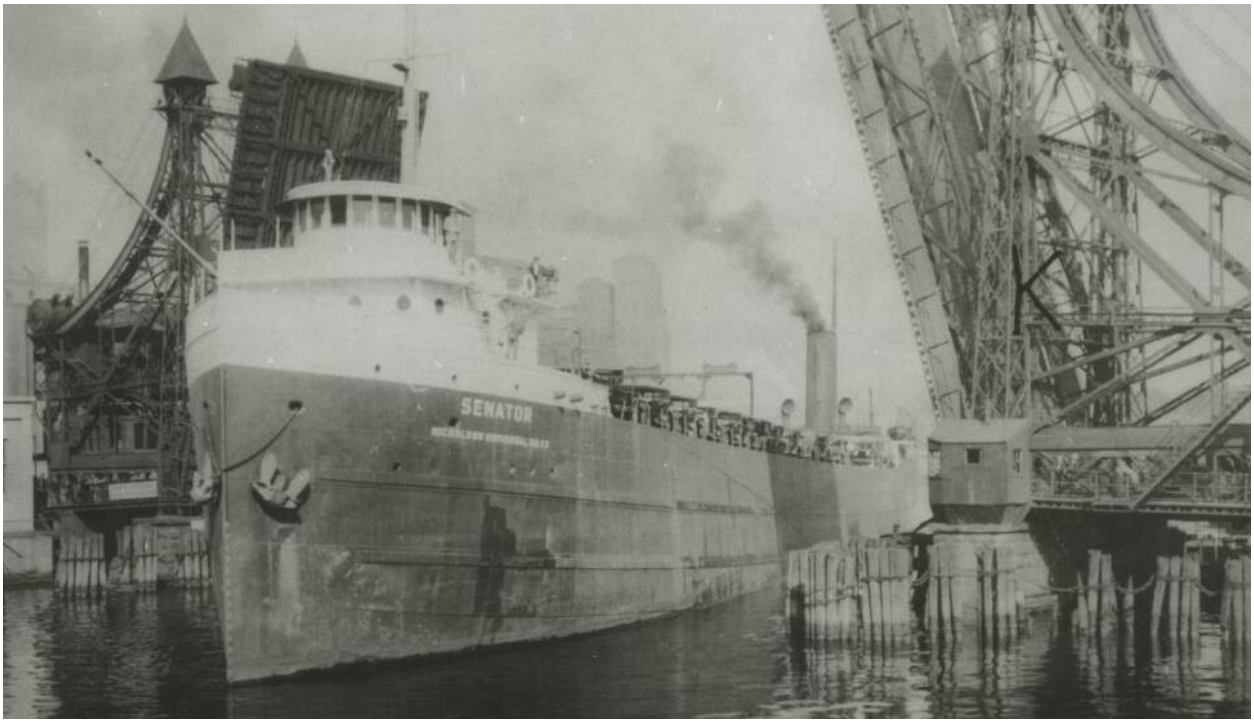

Figure 4.8. The steamer *Senator* with a deck load of Nash automobiles. The 400-foot vessel sank with the loss of nine crew after a 1929 collision on busy Lake Michigan. Photo: Thunder Bay Sanctuary Research Collection

Silver Lake (1889). A 105-ton two-masted scow schooner built in Little Point Sable, Michigan. It sailed in the lumber trade until it was cut nearly in two by *Pere Marquette* on May 28, 1900. Today, it lies upright and intact in 210 feet of water northeast of Sheboygan. Its hull is fractured from the collision, but its foremast remains standing with a rigged yard. *Silver Lake* is listed on the National Register of Historic Places.

Sir William Wallace (1836). On March 16, 1861, the schooner *Sir William Wallace* was loading wood at Amsterdam in southern Sheboygan County when a Northeast gale sprung up and the vessel was forced to change its position. The vessel was later driven ashore. Although the entire crew was eventually rescued, some were forced to spend the night in the rigging. Today, the 84-foot trading schooner lies in shallow water off Amsterdam Dunes County Park.

Tennie and Laura (1876). A 57-ton two-masted scow schooner built in Manitowoc, Wisconsin. It sailed in the lumber trade until it capsized in a gale on August 2, 1903, northeast of Milwaukee. Today, *Tennie and Laura* lies upright and intact in 325 feet of water southeast of Port Washington with both masts still standing. *Tennie and Laura* is listed on the National Register of Historic Places.

Toledo (1854). A 128-foot steam screw built in Buffalo, New York. It sailed in the passenger and package trade until it foundered off Sheboygan on October 22, 1856 with the loss of approximately 40 lives. Today, it lies broken and scattered in 20 feet of water just north of the Sheboygan entrance.

Tubal Cain (1866). Built by master shipwright James Monroe "J.M." Jones, son of the Great Lakes pioneer shipwright Augustus Jones and launched in 1866 in Detroit, Michigan. The morning of November 26, 1866, *Tubal Cain* was headed from Milwaukee carrying 18,000

bushels of wheat from Jenkins & Doolittle, consigned to the Second National Bank of Oswego when it went ashore near Two Rivers. Today the wreck lies northeast of the Two Rivers, Wisconsin, harbor entrance and approximately 300 feet offshore in 7 to 10 feet of water.

Unidentified wreckage (b). In 10 feet of water, six miles north of Sheboygan, lies the broken and scattered remains of a wooden vessel. Tentatively identified as a schooner, more work needs to be done on this site for further analysis.

Vernon (1886). A 694-ton wooden propeller built by the J. P. Smith shipyard in Chicago, Illinois. It worked as a package freighter for the Booth Fish Company for one year when it foundered northeast of Two Rivers on October 29, 1887. Today, it lies intact in 210 feet of water with its cargo of general merchandise intact in its holds (Figure 4.9).

Figure 4.9. The bow of the intact wooden steamer *Vernon*, sunk in 1887 with a full cargo of package goods. Photo: Wisconsin Historical Society

Walter B. Allen (1866). A 296-ton two-masted canaller built in Ogdensburg, New York. It was being towed to the shipyard for repairs when it foundered northeast of Sheboygan on April 17, 1880. Today, it lies upright and completely intact in 170 feet of water. Both of its masts were upright until the winter of 2006-2007, when the mainmast broke at deck level and toppled to the port side. The steam pump that was used to keep it afloat remains lashed to the deck. *Walter B. Allen* is listed on the National Register of Historic Places.

Table 4.1. The 36 Known Shipwreck Sites Within Boundary A, which is Included in NOAA's Preferred Alternative

	Name & Build Date	Vessel Type	Condition	Depth (Feet)	NRHP Listed	County
1	**Advance (1853)**	Schooner	Deep/broken	85		Sheboygan
2	**Ahnapee (1867)**	Scow schooner	Surf zone	5		Sheboygan
3	**Alaska (1869)**	Scow schooner	Surf zone	5	Yes	Manitowoc
4	**Algoma (1918)**	Dredge	Deep/intact	85		Sheboygan
5	**America (1873)**	Canaller	Deep/broken	85	Yes	Kewaunee
6	**Arctic (1881)**	Tug	Surf zone	10	Yes	Manitowoc
7	**Atlanta (1891)**	Steam screw	Surf zone	20	Yes	Sheboygan
8	**Byron (1849)**	Schooner	Deep/intact	135	Yes	Sheboygan
9	**Continental (1882)**	Steam screw	Surf zone	15	Yes	Manitowoc
10	**Floretta (1868)**	Schooner	Deep/broken	170	Yes	Manitowoc
11	**Francis Hinton (1889)**	Steam screw	Surf zone	15	Yes	Manitowoc
12	**Gallinipper (1833)**	Schooner	Deep/intact	220	Yes	Ozaukee
13	**Helvetia (1873)**	Schooner-barge	Deep/intact	165		Sheboygan
14	**Henry Gust (1893)**	Tug	Deep/broken	80		Manitowoc
15	**Hetty Taylor (1874)**	Schooner	Deep/intact	110	Yes	Sheboygan
16	**Home (1843)**	Schooner	Deep/intact	165	Yes	Manitowoc
17	**I.A. Johnson (1866)**	Scow schooner	Deep/broken	90		Sheboygan
18	**La Salle (1874)**	Schooner	Surf zone	12	Yes	Manitowoc
19	**Lookout (1855)**	Schooner	Surf zone	8	Yes	Manitowoc
20	**Mahoning (1847)**	Brig	Deep/broken	55		Ozaukee
21	**Major Anderson (1861)**	Barkentine	Surf/intact	10	Yes	Manitowoc
22	**Niagara (1846)**	Steam paddle	Deep/broken	65	Yes	Ozaukee
23	**Northerner (1851)**	Schooner	Deep/intact	125	Yes	Ozaukee
24	**Pathfinder (1869)**	Schooner	Surf zone	10	Yes	Manitowoc
25	**Robert C. Pringle (1903)**	Steam tug	Deep/intact	300		Sheboygan
26	**Rouse Simmons (1868)**	Schooner	Deep/intact	165	Yes	Manitowoc
27	**S.C. Baldwin (1871)**	Barge	Deep/broken	75	Yes	Manitowoc
28	**Selah Chamberlain (1873)**	Steam screw	Deep/broken	85		Sheboygan
29	**Senator (1896)**	Steam screw	Deep/intact	460	Yes	Ozaukee
30	**Silver Lake (1889)**	Scow schooner	Deep/intact	210	Yes	Sheboygan
31	**Sir William Wallace (1836)**	Schooner	Surf zone	15		Sheboygan
32	**Toledo (1854)**	Steam screw	Surf zone	20		Ozaukee

	Name & Build Date	Vessel Type	Condition	Depth (Feet)	NRHP Listed	County
33	**Tubal Cain (1866)**	Barque	Surf zone	10		Manitowoc
34	**Unidentified wreck (b)**	Unknown	Surf zone	10		Sheboygan
35	**Vernon (1886)**	Steam screw	Deep/intact	210		Manitowoc
36	**Walter B. Allen (1866)**	Schooner	Deep/intact	170	Yes	Sheboygan

Table 4.2. The 40 Known Shipwreck Sites Within the Study Area (Boundary B)

	Name & Build Date	Vessel Type	Condition	Depth (Feet)	NRHP Listed	County
1	**Advance (1853)**	Schooner	Deep/broken	85		Sheboygan
2	**Ahnapee (1867)**	Scow schooner	Surf zone	5		Sheboygan
3	**Alaska (1869)**	Scow schooner	Surf zone	5	Yes	Manitowoc
4	**Algoma (1918)**	Dredge	Deep/intact	85		Sheboygan
5	**America (1873)**	Canaller	Deep/broken	85	Yes	Kewaunee
6	**Arctic (1881)**	Tug	Surf zone	10	yes	Manitowoc
7	**Atlanta (1891)**	Steam screw	Surf zone	20	Yes	Sheboygan
8	**Byron (1849)**	Schooner	Deep/intact	135	Yes	Sheboygan
9	**Continental (1882)**	Steam screw	Surf zone	15	Yes	Manitowoc
10	**Floretta (1868)**	Schooner	Deep/broken	170	Yes	Manitowoc
11	**Francis Hinton (1889)**	Steam screw	Surf zone	15	Yes	Manitowoc
12	**Gallinipper (1833)**	Schooner	Deep/intact	220	Yes	Ozaukee
13	**Helvetia (1873)**	Schooner-barge	Deep/intact	165		Sheboygan
14	**Henry Gust (1893)**	Tug	Deep/broken	80		Manitowoc
15	**Hetty Taylor (1874)**	Schooner	Deep/intact	110	Yes	Sheboygan
16	**Home (1843)**	Schooner	Deep/intact	165	Yes	Manitowoc
17	**I.A. Johnson (1866)**	Scow schooner	Deep/broken	90		Sheboygan
18	**Island City (1859)**	Schooner	Deep/broken	135	Yes	Ozaukee
19	**J.M. Allmendinger (1883)**	Steam screw	Surf zone	12		Ozaukee
20	**La Salle (1874)**	Schooner	Surf zone	12	Yes	Manitowoc
21	**Linda E. (1937)**	Tug	Deep/intact	260		Ozaukee
22	**Lookout (1855)**	Schooner	Surf zone	8	Yes	Manitowoc
23	**Mahoning (1847)**	Brig	Deep/broken	55		Ozaukee
24	**Major Anderson (1861)**	Barkentine	Surf/intact	10	Yes	Manitowoc
25	**Niagara (1846)**	Steam paddle	Deep/broken	65	Yes	Ozaukee
26	**Northerner (1851)**	Schooner	Deep/intact	125	Yes	Ozaukee
27	**Pathfinder (1869)**	Schooner	Surf zone	10	Yes	Manitowoc

	Name & Build Date	Vessel Type	Condition	Depth (Feet)	NRHP Listed	County
28	**Robert C. Pringle (1903)**	Steam tug	Deep/intact	300		Sheboygan
29	**Rouse Simmons (1868)**	Schooner	Deep/intact	165	Yes	Manitowoc
30	**S.C. Baldwin (1871)**	Barge	Deep/broken	75	Yes	Manitowoc
31	**Selah Chamberlain (1873)**	Steam screw	Deep/broken	85		Sheboygan
32	**Senator (1896)**	Steam screw	Deep/intact	460	Yes	Ozaukee
33	**Silver Lake (1889)**	Scow schooner	Deep/intact	210	Yes	Sheboygan
34	**Sir William Wallace (1836)**	Schooner	Surf zone	15		Sheboygan
35	**Tennie and Laura (1876)**	Scow schooner	Deep/intact	325	Yes	Ozaukee
36	**Toledo (1854)**	Steam screw	Surf zone	20		Ozaukee
37	**Tubal Cain (1866)**	Barque	Surf zone	10		Manitowoc
38	**Unidentified wreck (b)**	Unknown	Surf zone	10		Sheboygan
39	**Vernon (1886)**	Steam screw	Deep/intact	210		Manitowoc
40	**Walter B. Allen (1866)**	Schooner	Deep/intact	170	Yes	Sheboygan

4.2.1.1 National Register of Historic Places Listings and Additional Historical Significance of Shipwrecks in the Study Area

The National Register of Historic Places is the official list of the nation's historic places worthy of preservation (including shipwrecks). Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect U.S. historic and archaeological resources.

Wisconsin has over 60 shipwreck sites statewide listed on the NRHP, more than any other state in the country. Twenty-four of the listed shipwrecks are located within the study area. The sites have been listed under all four of the NRHP criteria: (A) sites associated with significant events that have made a contribution to the broad patterns of our history; (B) sites that are associated with the lives of significant persons; (C) sites that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master; and (D) sites that have yielded, or may be likely to yield, information important in history or prehistory.

Within the study area, the shipwrecks listed on the NRHP include (ship name followed by build year): *Alaska* (1869), *America* (1873), *Arctic (1881), Atlanta* (1891), *Byron* (1849), *Continental* (1882), *Floretta* (1868), *Francis Hinton* (1889), *Gallinipper* (1833), *Hetty Taylor* (1874), *Home* (1843), *Island City* (1859), *La Salle* (1874), *Lookout* (1855), *Major Anderson* (1861), *Niagara* (1846), *Northerner* (1851), *Pathfinder* (1869), *Rouse Simmons* (1868), *S.C. Baldwin* (1871), *Senator* (1896), *Silver Lake* (1889), *Tennie and Laura* (1876), and *Walter B. Allen* (1866). The remaining 16 historic shipwrecks in the study area are likely eligible for listing on the NRHP.

As detailed in each shipwreck's NRHP nomination package, these shipwrecks represent a cross-section of vessel types that played critical roles in the expansion of the United States and the development of the Midwest during a significant period in our nation's history. These ships sailed and steamed to eastern ports carrying grain and raw materials. They returned west with loads of coal and with settlers crammed aboard great palace steamers. Great Lakes' shipbuilders adapted to the changes in cargo and built vessels able to stand up to the demands of the Great Lakes lumbering and iron ore industries. Small trading or lake shoring schooners provided both economic and cultural links between Wisconsin's developing communities.

Shipwrecks in the study area also include a broad range of vessel types and are illustrative of a critical period in the development of the Western Lake Michigan maritime cultural landscape, the expansion of the United States, and the settlement and development of the Midwest (1830-1950). Highlights include:

- Wisconsin's two oldest shipwrecks discovered to date, *Gallinipper* (1833) and *Home* (1843), both of which remain largely intact.
- Schooners of several types, including scows, canallers, and lakeshorers. *Tennie and Laura* and *Silver Lake* represent two intact examples of an especially unique vessel class on the Great Lakes — the scow schooner. Little historical and archaeological data exists regarding scow schooners; these two vessels, with intact hulls and standing rigging, are exceptional examples and are particularly important because they influenced scow construction throughout the world.
- Two of the five known Wisconsin examples of a unique and poorly-understood vessel type — the double-centerboard schooner. The best-preserved of these vessels, *Rouse Simmons* (often referred to as the Christmas Tree Ship), is one of the most celebrated shipwrecks in all the Great Lakes. *Silver Lake* is the only known example of a double centerboard scow-schooner on the Great Lakes.
- Three examples of canallers — which were boxy, purpose-built vessels — designed to barely squeeze through the Welland Canal locks with the largest possible amount of cargo. Several canallers are located in Wisconsin, but the best-preserved example, *Walter B. Allen,* also contains a relatively intact ship's yawl, the only known yawl boat in Wisconsin waters.
- Trading schooners, which were small vessels typically 90 feet or less in length, rarely traveled beyond Lake Michigan, but were critical to the local economy. Frequently carrying goods to market from the owner's home port, these little-documented vessels were the lifeblood of hinterland communities and allowed a connection between remote communities and larger markets around the lake. Several trading schooners are represented in this region, including *Hetty Taylor*, *Byron*, *Home*, *Island City*, *Northerner*, and *Silver Lake*.
- Several steam barges, including *Francis Hinton*. The historical importance of this Manitowoc-built vessel is enhanced by the presence of other steam barge shipwrecks and the architectural drawings of *Sidney O. Neff*. The drawings and shipwrecks provide an excellent opportunity to compare steam barge construction through time. Wooden bulk carriers like *Continental* and *S.C. Baldwin* provided vital links to regional and national

markets. *S.C. Baldwin* is reportedly the first double-decked steamer built on the Great Lakes.

- The side-wheel steamer *Niagara,* one of Wisconsin's most significant vessels because it is representative of the early Great Lakes passenger trade. *Niagara* was lost while carrying nearly 300 passengers — 60 died in the accident — most of them immigrants coming to settle in the Midwest. Palace steamers like *Niagara* set the standard for fast and luxurious lake travel and served as a primary carrier of immigrants to Wisconsin and other states along Lake Michigan's shore.
- Few package steamers are represented in Wisconsin's archaeological record, but the most intact example is *Vernon*, which lies northeast of Two Rivers. Not only does *Vernon*'s hull and machinery remain intact, so does its cargo of sundries, including a large number of woodenware manufactured in Peshtigo that remain neatly packed in boxes.
- Other sites add diversity to the collection of vessels in the proposed sanctuary. *Mahoning* is a rare example of an early Great Lakes square rigger, the brig. *Algoma* is a well-preserved example of a vessel that was vital to Great Lakes commerce yet is largely forgotten — the steam dredge. *Henry Gust* is an excellent example of an early fish tug, a vessel that is rarely represented in the archaeological record. Both steam screws and steam paddles have been identified, as well as an icebreaking tug (*Arctic*) and a barkentine (*Major Anderson*).

The structural remains of shipwrecks have been the focus of documentation research in this area, and the integrity and variation of those remains are significant on a national level. In addition to the shipwrecks themselves, their cargos illustrate complex and intertwined local and regional ecological and economic changes through time. The cargos remain largely intact and include general merchandise, sundries, locally-made woodenware items, Christmas trees, cordwood, iron ore, and a collection of 264 1929 Nash automobiles. The shipwrecks and associated debris fields are stark physical reminders of the lives of the people who lived, and sometimes died, on the lakes. Many of the shipwrecks represent the chief asset of a family-owned business, or the savings of a small group of local investors. Preserving these shipwrecks preserves their stories and informs the present and the future.

Researchers believe that many other shipwrecks, underwater cultural features, and ancient sites wait to be discovered, taking into consideration the long history of the use of this nationally important transportation corridor, the shifting sands that characterize the coastline, and the development and application of new technologies to locate them.

4.2.1.2 Archaeological Integrity of Known Shipwrecks in the Study Area

The collection of shipwrecks in the study area is nationally significant because of the architectural and archaeological integrity of the shipwrecks, the representative nature of the sample of vessels, their location on one of the nation's most important transportation corridors, and the potential for the discovery of other shipwrecks and submerged pre-contact cultural sites. The archaeological integrity and research potential are documented for 24 of these sites in their respective National Register of Historic Places nominations. Fourteen of the known shipwrecks are intact with a high level of archaeological integrity. Three vessels —*Tennie and Laura*,

Gallinipper, and *Silver Lake* — all possess standing masts. *Silver Lake* is especially noteworthy in that its foreyard is still rigged on its foremast. The study area also possesses the best-preserved shipwreck in Wisconsin, *Robert Pringle*. This steam tug is completely intact.

These vessels were built during the zenith of settlement and commercial development. Several of the vessels had short careers and as a result their original designs remain largely unaltered.

4.2.2 Potential Shipwrecks Within the Study Area

Archival research by the WHS indicates potential for over 73 historic shipwrecks to be discovered within the study area (Table 4.3). According to a 2008 analysis done by the WHS in support of a national marine sanctuary partnership, 82% of "probable" wrecks lie in the surf zone, and 38% of "suspected" wrecks lie in the surf zone.[24]

Under WHS classification, the terms "probable" and "suspected" are defined as:

> Probable: Includes all vessels that have not yet been located, but according to historic records occurred at a location that is specific to a harbor, shoal, reef, island, river mouth, landing, etc., or at an approximate location according to mileage, direction, or landmark references.
>
> Suspected: Includes all vessels that have not yet been located, and whose position, according to historic records, is either general (exact location within a body of water unknown), uncertain (conflicting references), or unknown.

For the purposes of this FEIS, NOAA combines both of these groups of yet-to-be discovered shipwrecks as "potential shipwrecks sites."[25]

Table 4.3. Potential Shipwreck Sites Within the Study Area, Based on Archival Research

Name & Build Date	Vessel Type	Casualty Type	Probable Location	County
A.V. Knickerbocker (1840)	Schooner	Stranded	Surf zone	Ozaukee
Abner Howes (1859)	Scow schooner	Stranded	Surf zone	Kewaunee
Baltimore (1847)	Steam paddle	Stranded	Surf zone	Sheboygan
Belle (1860)	Steam screw	Burned	Deep	Ozaukee
Belle Wallbridge (1857)	Schooner	Stranded	Surf zone	Sheboygan
Bessie Boalt (1868)	Schooner	Foundered	Surf zone	Manitowoc
Big Z (1844)	Schooner	Stranded	Surf zone	Sheboygan
Blue Belle (1867)	Scow-schooner	Stranded	Surf zone	Sheboygan
Bohemian (?)	Schooner	Stranded	Surf zone	Ozaukee
Boss (1882)	Tug	Foundered	Deep	Manitowoc
Brilliant (1856)	Schooner	Stranded	Surf zone	Sheboygan
Buccaneer (1943)	Oil screw	Stranded	Surf zone	Kewaunee

[24] Meverden, Keith N. and Tamara Thomsen. 2008. Wisconsin's Historic Shipwrecks: An Overview and Analysis of Locations for a State/Federal Partnership with the National Marine Sanctuary Program. Wisconsin Historical Society, State Maritime Preservation and Archaeology.
[25] Vessel data on many of these potential shipwrecks can be found at wisconsinshipwrecks.org/shipwrecks.

Name & Build Date	Vessel Type	Casualty Type	Probable Location	County
C.G. Breed (1862)	Brig	Foundered	Deep	Manitowoc
C.S. Davis (1870)	Schooner	Stranded	Surf zone	Manitowoc
Challenge (1852)	Schooner	Stranded	Surf zone	Sheboygan
Collingwood (1855)	Schooner	Foundered	Deep	Ozaukee
Commerce (1857)	Schooner	Foundered	Surf zone	Sheboygan
Conquest (1853)	Schooner	Unknown	Surf zone	Sheboygan
Dan Tindall (1858)	Schooner	Abandoned	Surf zone	Manitowoc
Dart (1867)	Schooner	Stranded	Surf zone	Manitowoc
David Wagstaff (1863)	Schooner	Foundered	Deep	Sheboygan
Dawn (1888)	Scow-schooner	Stranded	Surf zone	Kewaunee
Delaware (1846)	Steam screw	Stranded	Surf zone	Sheboygan
Dispatch (1857)	Schooner	Stranded	Surf zone	Manitowoc
E.G. Wolcott (?)	Schooner	Stranded	Surf zone	Sheboygan
Emily Cooper (?)	Schooner	Stranded	Surf zone	Manitowoc
Eva M. Cone (1857)	Schooner	Stranded	Surf zone	Ozaukee
F.C. Clark (1849)	Brig	Stranded	Surf zone	Manitowoc
Flora (1849)	Brig	Stranded	Surf zone	Kewaunee
Florence M. Dickinson (1855)	Schooner barge	Foundered	Deep	Kewaunee
Greyhound (1853)	Brig	Stranded	Surf zone	Sheboygan
Hampton (1845)	Brig	Foundered	Deep	Sheboygan
Hannah Etty (1864)	Schooner	Foundered	Surf zone	Sheboygan
Hercules (1854)	Scow	Foundered	Surf zone	Sheboygan
Iowa (1852)	Barge	Stranded/ Burned	Surf zone	Kewaunee
J.M. Jones (1855)	Schooner	Collided	Deep	Manitowoc
James Navagh (1857)	Schooner	Stranded	Surf zone	Manitowoc
Jennifer (1964)	Oil screw	Foundered	Deep	Ozaukee
John Irwin (1845)	Brig	Stranded	Surf zone	Manitowoc
Joseph G. Masten (1867)	Bark	Stranded	Surf zone	Manitowoc
Julia Smith (1847)	Schooner	Stranded	Surf zone	Kewaunee
L.B. Shepard (1855)	Schooner	Foundered	Surf zone	Manitowoc
Levant (1854)	Schooner	Foundered	Deep	Sheboygan
Lexington (1838)	Steam paddle	Stranded	Surf zone	Ozaukee
Libbie Carter (1882)	Scow-schooner	Unknown	Deep	Manitowoc
Magellan (1873)	Schooner	Collided	Surf zone	Manitowoc
Major Barnum (1849)	Schooner	Stranded	Surf zone	Manitowoc
Margaret A. Muir (1867)	Schooner	Foundered	Deep	Kewaunee

Name & Build Date	Vessel Type	Casualty Type	Probable Location	County
Mary Ann Scott (1871)	Scow-schooner	Stranded	Surf zone	Manitowoc
Mary B. Hale (1857)	Schooner	Stranded	Surf zone	Manitowoc
Milton (1867)	Scow-schooner	Foundered	Deep	Manitowoc
Minnesota (1847)	Schooner	Stranded	Surf zone	Manitowoc
Montgomery (1866)	Schooner	Stranded	Surf zone	Sheboygan
Mount Vernon (1849)	Scow schooner	Stranded	Surf zone	Kewaunee
Nora (1869)	Schooner	Collided	Deep	Sheboygan
Northport Belle (1869)	Steam paddle	Abandoned	Surf zone	Unknown
Ocean Eagle (1855)	Brig	Collided	Surf zone	Sheboygan
Octavia (1849)	Schooner	Stranded	Surf zone	Kewaunee
Oliver Culver (1855)	Schooner	Stranded	Surf zone	Manitowoc
Ottawa (1853/1854)	Steamer	Burned	Surf zone	Kewaunee
Phoenix (1845)	Steam screw	Burned	Surf zone	Sheboygan
Planet (1855)	Barge	Foundered	Surf zone	Manitowoc
Scow No. 2 (?)	Scow	Stranded	Surf zone	Manitowoc
Sea Bird (1875)	Schooner	Stranded	Surf zone	Kewaunee
Sheboygan (1869)	Steam paddle	Burned	Surf zone	Manitowoc
Silver Cloud (1869)	Scow-schooner	Stranded	Surf zone	Ozaukee
Thomas Spear (1880)	Tug	Burned	Surf zone	Kewaunee
Transit (1854)	Schooner	Abandoned	Deep	Kewaunee
W.F. Allen, Jr. (1853)	Schooner	Stranded	Surf zone	Sheboygan
White Oak (1867)	Scow-schooner	Stranded	Surf zone	Sheboygan
William A. Reiss (1901)	Steam screw	Stranded	Surf zone	Sheboygan
Winona (1863)	Schooner	Stranded	Surf zone	Sheboygan
Wollin (1854)	Schooner	Stranded	Surf zone	Sheboygan

4.2.3 Additional Sites, Historic and Prehistoric Site Potential, and the Maritime Cultural Landscape

Shipwrecks are not the only underwater cultural resources located within the proposed sanctuary boundaries.[26] Wisconsin's lakeshores have been magnets for human settlement in the Great Lakes over the last 14,000 years. The shallow reaches and shoreline within the proposed sanctuary contain historic structures such as docks, cribs, and piers, and there is significant potential for finding other historic sites and isolated artifacts of historical and archaeological value. As stated in the 2008 report by the state of Wisconsin entitled *Wisconsin's Historic*

[26] See Broihahn, John H. and Amy L. Rosebrough. 2008. Wisconsin's Historic Coastlines: An Overview and Analysis of Near Shore Archaeological and Historic Sites for a State/Federal Partnership with the National Marine Sanctuary Program.

Coastlines: An Overview and Analysis of Near Shore Archaeological and Historic Sites for a State/Federal Partnership with the National Marine Sanctuary Program:

> A wide variety of Post-Contact[27] historic structures have been reported for Wisconsin's Great Lakes coastlines. Detailed histories of many of these buildings are not currently available. In many instances, it may be possible to identify locations and structures that were exclusively, or primarily, associated with water related industry and commerce. However, lakeshore communities served not only as hubs for water-related activities, but also as transshipment points for land-derived commodities and as service centers. These communities are in a very real sense places where land and water merged and Wisconsin's historic Great Lakes Maritime Cultural Landscape grew and evolved. Additional information gathering and analysis is necessary to evaluate the nature and extent of the on-shore built portion of the Maritime Cultural Landscape.

For example, historic cribs, docks, pier footings, and pilings are located near the major harbors of Two Rivers, Manitowoc, Sheboygan, and Port Washington. Piers which serviced many smaller communities but whose docks are no longer maintained include but are not limited to Two Creeks, Hika Bay, Haven, Amsterdam, Belgium, and Ulao. A U.S. Army airfield at Camp Haven in northern Sheboygan County was maintained from 1949 to 1959 as an anti-aircraft firing center for Reserve and National Guard units. As a result, many drone radio-operated aircraft and targets have been reported in the waters in the vicinity of what is now Whistling Straits PGA Golf Course. Additionally, jettisoned cargos of many of the vessels transiting the region both historic and modern have been reported on the bottomlands.

South of Two Rivers lies a Manitowoc crane, bulldozer, and slag, which was being carried by a barge, which overturned and was lost from a vessel in the mid-1980s. Caissons used in bridge construction were lost from a vessel south of Sheboygan. Furthermore, lost salvage equipment and other artifacts dot the lake bottom, some in association with shipwrecks, some not.

Additionally, there is potential for the discovery of pre-contact (prehistoric) sites and artifacts. The report indicates that the Mid Lake Michigan Region has the most potential for the preservation of very ancient sites, and, as of 2008, "a total of 161 Pre- and Post-Contact Native American archaeological and cultural sites have been reported within 1.0 mile of the lakeshore in the Mid-Lake Michigan region." The range of sites includes those along the shoreline, with potential for more discoveries due to the limited nature of current surveys:

> Site types range from complex community sites, cemeteries, and short-term special-use sites such as fishing or shellfish collection camps. Fluctuations in lake level suggest that some of these sites, particularly along the Lake Michigan coast, may be deeply stratified, since repeated occupation would have been possible.[28]

As the first Europeans and later Americans moved into the region, they encountered Native American communities that maintained strong ties to the shoreline in Manitowoc, Sheboygan, Ozaukee, and Kewaunee counties, even as non-Indian settlement increased. Lakeshores have long been magnets for human settlement in the Great Lakes. Drowned former beaches,

[27] Also known as Present Historic Period.
[28] Broihahn, John H. and Amy L. Rosebrough. 2008.

sheltered areas along older shorelines, submerged relic river/stream-lake confluences, and lake plateaus within the proposed sanctuary boundaries have potential for containing inundated pre-contact archaeological sites. The recent discovery of 9,000-year-old Caribou hunting features on the bottom of Lake Huron testifies to the potential for this type of site preservation and identification.

4.2.3.1 Maritime Cultural Landscape

As described by the National Park Service, a cultural landscape is a geographic area including cultural and natural resources, coastal environments, human communities, and related scenery that is associated with historic events, activities or persons, or exhibits other cultural or aesthetic value (NPS 1997). The mid-Lake Michigan region comprises many shoreline features such as beached shipwrecks, lighthouses, aids to navigation, abandoned docks, working waterfronts, and additional Native American sites. Of course, not all of these heritage sites would be managed by the sanctuary. However, the presence of these places complements the interpretation of historic shipwrecks. More importantly, the shipwrecks themselves are a central, but often unseen, element of this larger universe of maritime heritage. Land-based cultural landscape features provide important points of intersection for tourism efforts that seek to leverage the public's interest shipwrecks.

Specifically, the study area has five lighthouses, three breakwater lights, and three historic life-saving stations: the Manitowoc Breakwater Lighthouse, Rawley Point Lighthouse, North Pier Lighthouse (moved to Rogers Street Fishing Village), Port Washington Light Station, Kewaunee Pierhead Lighthouse, Sheboygan Breakwater Light, Port Washington Breakwater Light, Algoma Pierhead Light, the Kewaunee Lifesaving Station, the Two Rivers Lifesaving Station (now Coast Guard Station), and the Sheboygan Lifesaving Station (now Coast Guard Station).

The national importance of this area is highlighted because of its intimate association with the evolution of transportation, settlement, and industry in Wisconsin, from frontier to industrial heartland, expanding the Atlantic Maritime landscape inland. Many of Wisconsin's commodities were shipped beyond Lake Michigan to eastern Great Lakes ports. These distant ports returned goods, supplies, and immigrants to Wisconsin, creating a diverse regional economic and cultural universe that evolved and changed over time. The natural environment, along with the region's rich history, has established a dynamic cultural and industrial landscape. The legacy of these historic maritime landscapes, both physical and intangible, offer a rare opportunity to explore human responses to the problems and opportunities associated with the development of settlement, commerce, and industry over time.

Figure 4.10. This is a historic image of Great Lakes vessels preparing to spend the winter in the Sheboygan River in 1908. The shoreline is choked with lumber to feed the city's booming furniture industry. Similar to other industries throughout the Great Lakes, both the raw materials and finished products were transported by water in the holds of ships that continually evolved to meet new economic demands. Photo: Thunder Bay Sanctuary Research Collection

Multiple documents have been written highlighting the national importance of this region as a unique maritime cultural landscape, including an analysis of the proposed sanctuary region from the cultural landscape perspective, *A Cultural Landscape Approach (CLA) Overview and Sourcebook for Wisconsin's Mid-Lake Michigan Maritime Heritage Trail Region* (Jensen and Hartmeyer 2014). See also *Wisconsin's Historic Coastlines: An Overview and Analysis of Near Shore Archaeological and Historic Sites for a State/Federal Partnership with the National Marine Sanctuary Program* (Broihahn and Rosebrough 2008). Additionally, David J. Cooper and Paul Kriesa's Multiple Property Documentation for Wisconsin's submerged shipwrecks, *Great Lakes Shipwrecks of Wisconsin: The Early Industries: Fishing, Lumber, Mining, and Agricultural, 1800-1930; Settlement, 1800-1930; and Package Freight, 1830-1940* (1990), identifies historical contexts associated with the maritime resources found within the proposed sanctuary boundaries.

4.3 Human Uses and Socioeconomics

4.3.1 Socioeconomics

This analysis addresses the socioeconomic factors of the proposed sanctuary, including population density, income and employment, and economic value and use. In this analysis, the study areas were defined differently for Boundary A versus Boundary B (figures 4.11 and 4.12). A study area profile includes a characterization of the area where the social and economic impacts of the resource use take place, and an overview of what is currently known about the uses of the natural and cultural resources that exist within the study area. The two study areas in this analysis include primary and secondary counties. Primary counties are counties along the shoreline where the primary social and economic (socioeconomic) impacts take place from use of cultural and natural resources. Secondary counties are counties where a significant portion of economic impact takes place via the multiplier impacts of spending in the primary counties. Secondary counties are determined by reviewing the Census of Inter-county Commuters at the U.S. Census Bureau. These data show where people work and the county where they live. The objective is to account as fully as practical the amount of "local" economic activity that is associated with spending related to the use of the cultural and natural resources. We use a threshold of 4,000 to 5,000 workers to reach a significant level to include a county as a secondary county.

Study Area 1 (Figure 4.11) contains the three-county area proposed as Boundary A. Study Area 2 (Figure 4.12) contains the four-county area proposed as Boundary B.

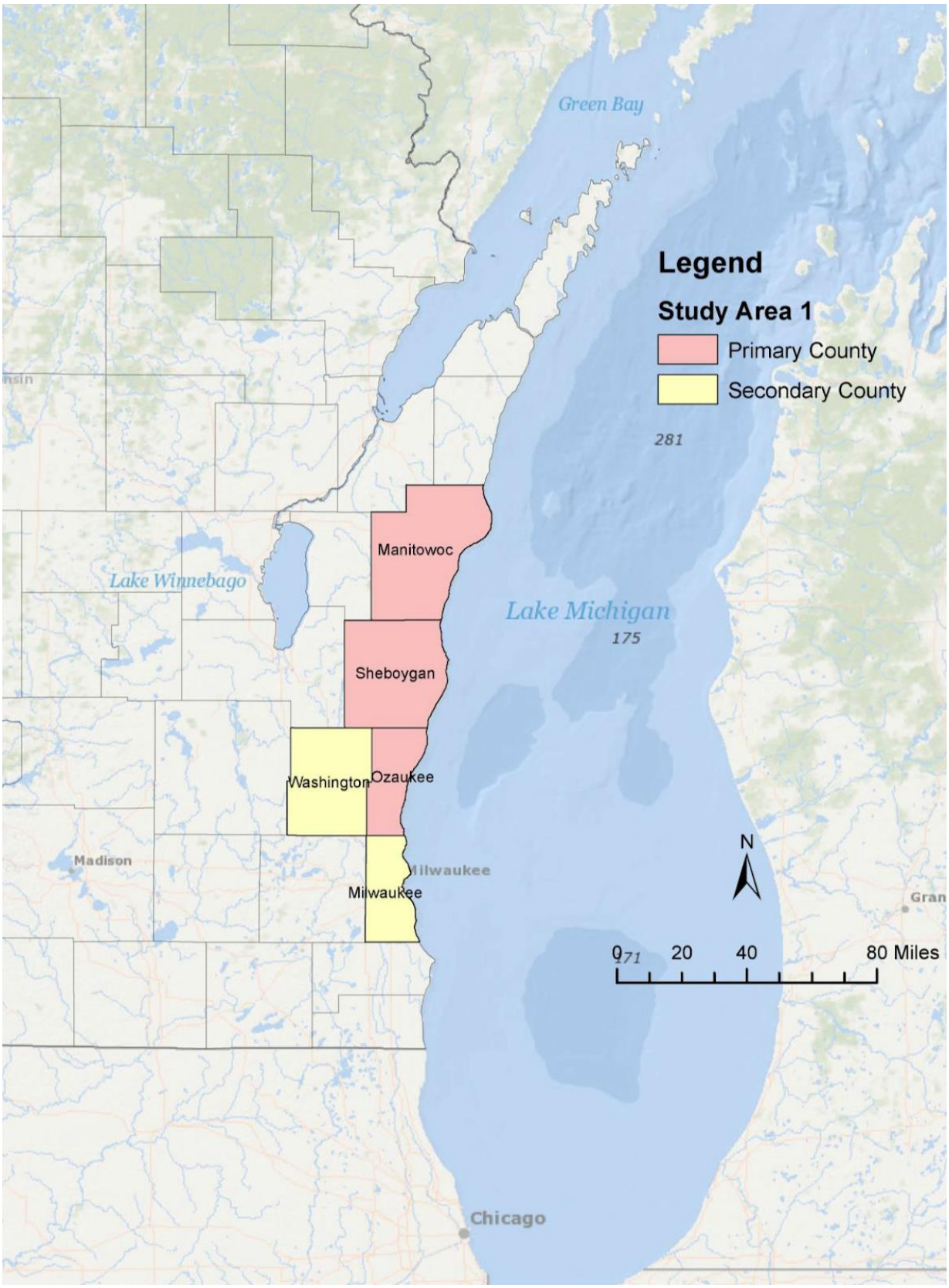

Figure 4.11. This is a map of Wisconsin counties in the socioeconomic analysis study area of potential sanctuary Boundary A. Image: NOAA

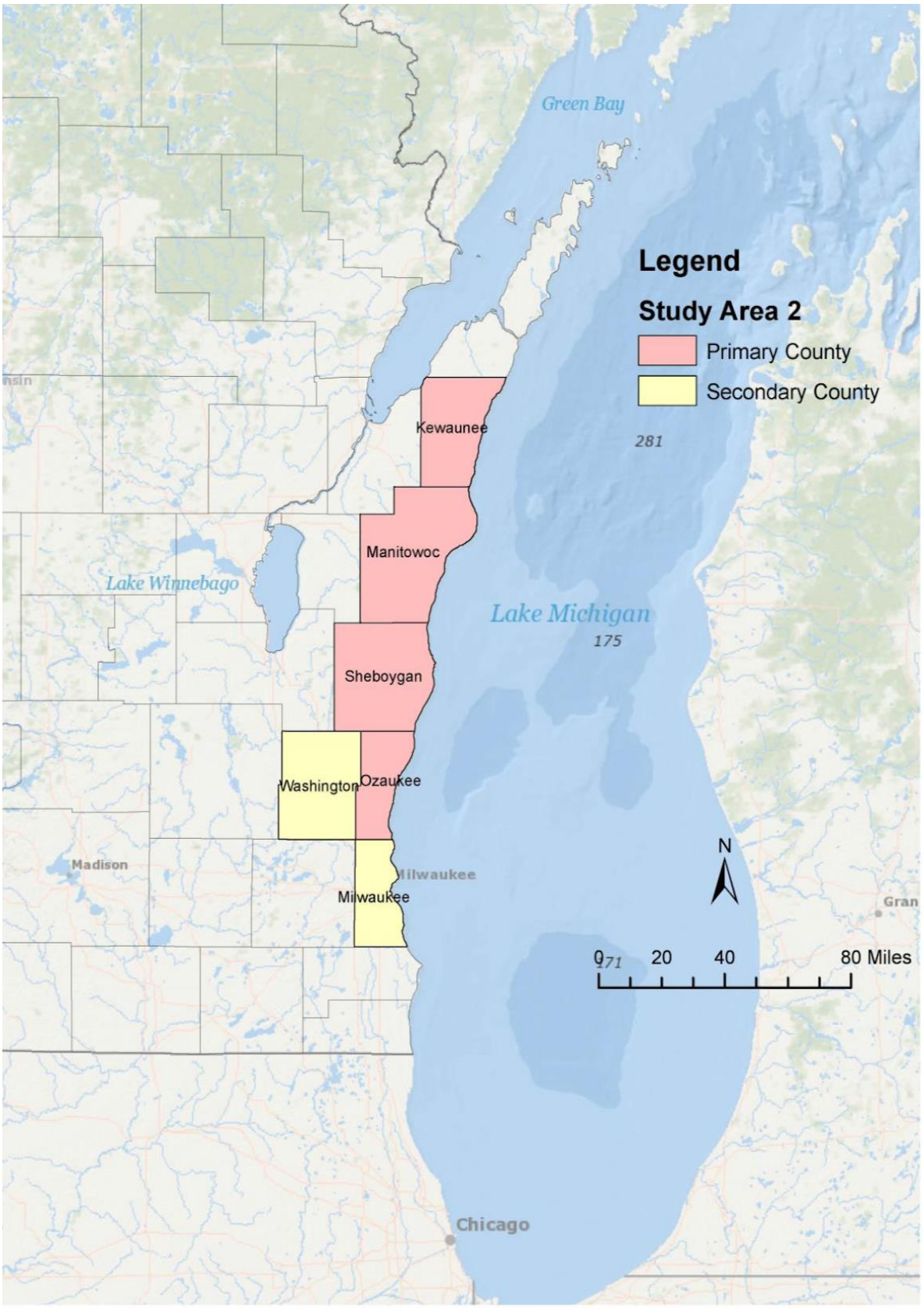

Figure 4.12. This is a map of Wisconsin counties in the socioeconomic analysis study area of potential sanctuary Boundary B. Image: NOAA

4.3.1.1 Population Density

Population density is an indicator of the extent of pressures that the study area's population might have on the sanctuary resources. Population density varies widely across Study Area 1, from a high of 3,962 people per square mile in Milwaukee County to a low of 136 in Manitowoc County. Study Area 2 population densities vary more than that of Study Area 1, with a high of 3,962 people per square mile in Milwaukee County and a low of 60 people in Kewaunee County (Table 4.4). Although population density is higher in the study areas relative to Wisconsin and the U.S., population growth is lower in the study areas. From 2010 to 2014, population growth in both study areas was roughly 0.70% versus 3.11% for the U.S. The projected population growth from 2014 through 2020 is 1% and 1.1% for study areas 1 and 2, respectively, compared to 5.59% for the U.S. and 4.84% for Wisconsin.[29,30]

Table 4.4. Population, Income, and Unemployment Rates, 2014

County	2014 Population	Population Change (%) 2010-2014	2014 Population Density[1]
Kewaunee	20,444	-0.64	60
Manitowoc	80,160	-1.4	136
Milwaukee	956,406	0.858	3,962
Ozaukee	87,470	1.28	375
Sheboygan	115,290	-0.11	225
Washington	133,251	1.02	309
Study Area 1 Total	**1,372,577**	**0.69**	**2,841**
Study Area 2 Total	**1,393,021**	**0.67**	**2,801**
Wisconsin	**5,757,564**	**1.19**	**105**
U.S.	**318,857,056**	**2.98**	**87**

[1] Number of people per square mile.
Sources: U.S. Department of Commerce Bureau of the Census; Leeworthy et al. 2017

The next three tables present information on the distribution of selected demographics. The age distribution across the two study areas, Wisconsin, and the U.S. are fairly similar. See Table 4.5 for more detailed information.

Table 4.5. Age Distribution by Study Area, 2014

Age	U.S.	Wisconsin	Study Area 1	Study Area 2
Under 5	6.4%	6.1%	6.9%	6.9%
5 to 19	13.1%	20.1%	20.2%	20.2%
20 to 34	20.5%	19.6%	22%	21.9%
35 to 44	13%	12.3%	12.5%	12.5%
45 to 54	14.1%	14.8%	13.7%	13.7%
55 to 64	12.3%	13.1%	12%	12%
65 to 74	7.6%	7.7%	6.5%	6.5%
75 and over	6.1%	6.7%	6.2%	6.2%

Sources: U.S. Department of Commerce Bureau of the Census; Leeworthy et al. 2017

[29] Leeworthy, et al. 2017.
[30] Woods and Poole 2016.

The proportion of White persons in the study areas is smaller than that of the U.S. and Wisconsin. Additionally, there is a larger proportion of Black or African Americans in the study areas than the U.S. or Wisconsin. However, there are fewer Hispanics and Latinos in the study areas than the U.S. or Wisconsin. Table 4.6 presents the full details.

Table 4.6. Race and Ethnicity Distribution by Study Area, 2014

Race/Ethnicity	U.S.	Wisconsin	Study Area 1	Study Area 2
White	77.4%	87.8%	74.05%	70.34%
Black	13.2%	6.6%	19.35%	19.07%
Asian	5.4%	2.6%	3.57%	3.52%
Hispanic	17.4%	6.5%	11.07%	10.94%
Other	3.9%	2.9%	2.95%	2.93%

Sources: U.S. Department of Commerce Bureau of the Census; Leeworthy et al. 2017

Table 4.7 presents gender differences across study areas. In all areas, there are more females than males. However, there is a higher portion of females in both study areas compared to the U.S. and Wisconsin.

Table 4.7. Gender Distribution by Study Area, 2014

Gender	U.S.	Wisconsin	Study Area 1	Study Area 2
Male	49.2%	49.7%	48.7%	48.8%
Female	50.8%	50.3%	51.3%	51.2%

Sources: U.S. Department of Commerce Bureau of the Census; Leeworthy et al. 2017

4.3.1.2 Income and Employment

Table 4.8 below shows the per capita income, poverty rate, and unemployment rate of the two study areas. Although the per capita income in 2014 was higher in both study areas ($50,009 and $48,699, Study Area 1 and Study Area 2 respectively) than in the U.S., the persons below poverty was higher in both study areas (around 17% for each) than for the U.S. (15.6%).

Table 4.8. Average Income, Poverty, and Employment by Study Area

County	2014 Per Capita Income ($)	2014 Persons Below Poverty (%)	2014 Unemployment Rate (%)
Kewaunee	42,152	10	5.1
Manitowoc	42,519	9.9	6.1
Milwaukee	41,507	21.9	6.9
Ozaukee	71,126	5	4.2
Sheboygan	46,328	9.3	4.6
Washington	48,564	6.2	4.6
Study Area 1 Total	**50,009**	**17.54**	**6.3**
Study Area 2 Total	**48,699**	**17.43**	**6.3**
Wisconsin	**44,186**	**8.9**	**5.4**
U.S.	**46,046**	**15.6**	**6.2**

Sources: U.S. Department of Commerce, Bureau of the Census and the Bureau of Economic Analysis, Regional Economic Information System; Leeworthy et al. 2017

Table 4.9 shows that the larger sectors of employment in the study areas are manufacturing, healthcare assistance, government and government enterprise, and finance and insurance.

Table 4.9. Employment by Sector and Study Area

Sector	Wisconsin (%)	Study Area 1 (%)	Study Area 2 (%)
Government and government enterprises	10.9	9.8	9.8
Other services, except public administration	2.53	2.5	(D)
Accommodation and food services	1.87	1.9	2
Arts, entertainment, and recreation	0.62	1.0	1
Healthcare and social assistance	8.80	11.0	(D)
Educational and health services	1.04	2.7	(D)
Administrative and waste management services	2.33	3.1	(D)
Management of companies or enterprises	2.58	4.1	(D)
Professional, scientific, and technical services	3.99	5.4	5.4
Real estate and rental and leasing	0.89	1.1	1.1
Finance and insurance	4.39	6.3	6.2
Information services	1.66	1.5	(D)
Transportation and warehousing	2.42	(D)	(D)
Retail trade	4.29	3.8	3.8
Manufacturing	13.46	14.2	14.2
Construction	3.87	2.6	2.6
Trade, transport, and utilities	0.62	(D)	(D)
Mining and logging	0.14	(D)	(D)
Forestry, fishing, and related activities	0.21	(D)	(D)
Farm earnings	1.40	0.5	0.6

Note: (D) the Bureau of Economic Analysis suppresses this data due to confidentiality concerns.
Sources: U.S. Department of Commerce, Bureau of the Census and the Bureau of Economic Analysis, Regional Economic Information System; Leeworthy et al. 2017

4.3.2 Tourism and Recreation

4.3.2.1 Tourism

The natural, recreational, historical, and cultural resources located in Wisconsin's central Lake Michigan coastline are integral to the region's current economy, support a vibrant quality of life, and create a unique sense of place. The region's position along the Great Lakes coast has been vital to its economic development. Historically, the lakes served as the regional highway, allowing people and goods to move freely even when roads and other infrastructure were lacking or rudimentary. During the last half of the 20th century and continuing into the 21st century, the rugged and relatively undeveloped coast began to attract tourists, who come for the area's hunting, fishing, boating, and natural beauty, and to visit the network of historic lighthouses and dive the many shipwrecks.

Tourism continues to be one of Wisconsin's most important economic resources. The Department of Tourism identified statewide tourism spending in 2018 as $13.3 billion,

representing a 4.9% increase since 2014.[31] Each community in the proposed sanctuary draws tourists who value Lake Michigan, whether it is through a maritime museum or the opportunity to get out on the water. These include venues in Study Area 1 and Study Area 2 such as the Rogers Street Fishing Village, Wisconsin Maritime Museum, and Port Exploreum. Also operating within the proposed sanctuary, the car ferry SS *Badger* carries passengers and automobiles between Manitowoc, Wisconsin, and Ludington, Michigan. In service since 1953 and now a National Historic Landmark, this historic vessel affords passengers a unique, historic experience while transiting the breadth of Lake Michigan.

Lake Michigan and its waterfront are an epicenter of recreational activities for both tourists and local residents. Between Memorial Day weekend and Labor Day weekend, a 103-day peak season of water activities generates more than $6.3 million in visitor spending from surfboard, kayak, and stand-up paddleboard rentals, boat launch fees and dock rentals, marina slip rentals, and charter fishing trips (State of Wisconsin 2015). According to the Wisconsin State Comprehensive Outdoor Recreation Plan (2011-2016), kayaking and stand-up paddleboarding are two activities that are increasing in popularity. The Lake Michigan Water Trail, developed by Bay-Lake Regional Planning Commission, the Wisconsin Coastal Management Program, the Wisconsin Department of Natural Resources, and the National Park Service, exemplifies the collaborative projects developed to enhance and expand on these recreational water activities. The Lake Michigan Water Trail runs through the study area and was highlighted in the Wisconsin State Comprehensive Outdoor Recreation Plan as a good example of partnerships providing recreational opportunities.

From an aesthetic and public recreation perspective, both study areas include a number of scenic beaches that attract tourists and support natural features. Port Washington boasts lakeside scenery with a sandy beach at the foot of Lake Park Bluffs. Sheboygan's Kohler-Andrae State Park features sand dunes and miles of public access beach along the coastline. Point Beach State Park near Manitowoc/Two Rivers was one of the Travel Channel's top picks for the best beach in the Midwest. Point Beach contains the Rawley Point Lighthouse.

There are several natural areas in the region. Lion's Den Gorge Nature Preserve (Port Washington) represents one of the last stretches of undeveloped bluff land along the Lake Michigan shoreline and is adjacent to a 44-acre wetland complex owned by the U.S. Fish and Wildlife Service (USFWS) for enhancing populations of migratory birds and other wildlife. Sanderling Nature Center (Sheboygan County) sits amidst the dunes overlooking Lake Michigan, featuring exhibits and interactive kiosks as well as a rooftop observation deck for viewing Lake Michigan vessels and waterfowl. Woodland Dunes (Two Rivers) is a 1,300-acre nature preserve of globally significant habitat and includes 14 forested ridge and swale wetlands that represent the ancient lakeshore.

Other relevant natural areas include: Donges Bay Gorge, Fairy Chasm State Natural Area, Amsterdam Dunes, Kohler Park Dunes State Natural Area, Point Beach Ridges, and Two Creeks Buried Forest. These areas are owned and maintained by a variety of nonprofit organizations and state and county entities.

[31] See industry.travelwisconsin.com/pdfs/wi%20economic%20impact%202019%20final.pdf.

Though inland, Riveredge Nature Center in Ozaukee County spans 380 acres of various habitats and supports Lake Michigan ecosystem projects, such as rearing and releasing lake sturgeon into the Milwaukee River.

4.3.2.2 Sport Fishing

As the scope of the Wisconsin Shipwreck Coast National Marine Sanctuary regulations is proposed to be limited to the protection of underwater cultural resources, there is no direct anticipated effect on fishing. However, because recreational fishing is an important activity that would continue to occur in the proposed sanctuary, the status is summarized below.

The sport fishery is robust along Wisconsin's central Lake Michigan coast, including the ports of Algoma, Kewaunee, Manitowoc, Two Rivers, Sheboygan, and Port Washington (Figure 4.13). These ports are also home to many local Lake Michigan anglers, and many people from outside the region trailer their boats here (both Wisconsin residents and non-residents). Offshore fishing trips use a trolling method and primarily target the introduced Chinook salmon, as well as coho salmon, rainbow trout, and brown trout.

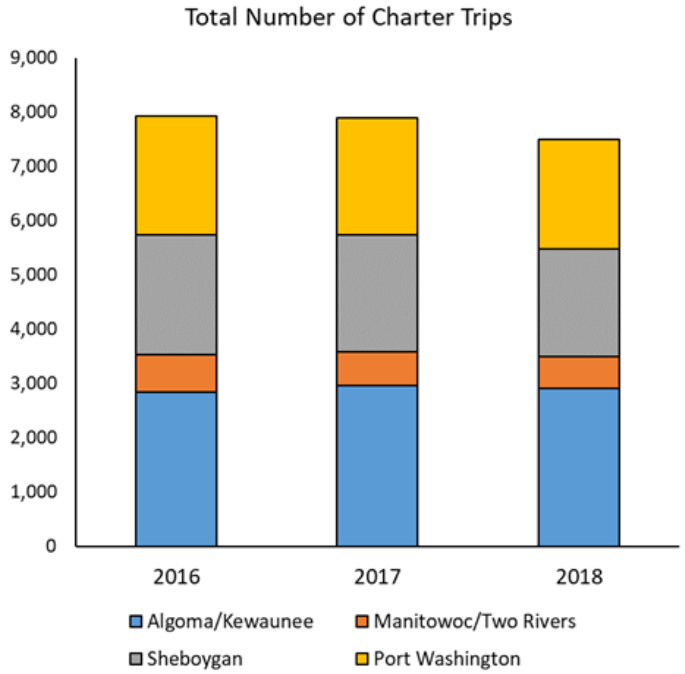

Figure 4.13. This chart shows that the numbers of charter fishing trips out of marinas within the study area stayed nearly the same for the years 2016 and 2017, at around 8,000 per year total, but decreased some for Sheboygen in 2018. Image: UW Sea Grant/WDNR

This excerpt from a 2016 Wisconsin Department of Natural Resources Report quantifies the status and trend of Wisconsin's Lake Michigan sport fishing:

> Wisconsin's Lake Michigan open water fishing effort was 2,728,083 hours during 2015, 3.38% above the five-year average of 2,638,836 hours. Effort was slightly above the five-year average for some fishery types despite lower effort in the moored and stream fisheries. Most notable are the charter boat and ramp effort increasing slightly (at 8.11% and 6.71%, respectively), a below average moored boat effort (-16.45%), and the pier fishery at an

(17.76%) increase in effort during 2015. Wisconsin Lake Michigan trout and salmon anglers had a challenging season in 2015. Overall harvest was down, with 269,978 salmonids harvested, the lowest harvest since 1978; the harvest rate decreased to 0.0990, fish per hour, the lowest harvest rate since 1992 (0.0980 fish per hour). Chinook again comprised the majority of the catch, with a harvest of 113,973, which is the lowest harvest since 1994, which had 99,755 fish harvested.

Fishing for Coho salmon was once again poor in 2015 with only 41,010 fish harvested which was a substantial decrease from the 2011 peak of 157,367 fish harvested. Another unusually cold winter and spring hampered Lake Michigan fishing in 2015 with Chinook salmon fishing being best later in the season from late June-Early August. Despite most other salmonids being down in harvest, Lake trout harvest increased to 35,715 fish harvested in 2015, the highest harvest since 2002. The open-water Yellow Perch harvest was 99,322 fish, a decrease from 2014. The majority of the catch was comprised of the 2010, 2011 and 2012 year-classes. Walleye harvest was estimated at 99,302 fish, an increase from 2014. The Northern Pike catch was considerably higher in 2015 with 2,641 fish harvested, compared to 814 fish harvested in 2014. Smallmouth Bass harvest was 9,422 fish, also an increase from 2014.[32]

4.3.2.3 Recreational Boating

There are municipal marinas in Algoma, Kewaunee, Two Rivers, Manitowoc, Sheboygan, and Port Washington. Recreational boating continues to have a strong economic impact in Wisconsin. In 2011, Wisconsin was ranked fifth in the nation for registered boats, with over 625,000 registered boats that year.[33] Wisconsin showed the strongest growth in registered boaters between 1999 and 2006 and this increase is demonstrated by the high rates of marina occupancy. There is a strong recreational boating culture not only in the state, but in Wisconsin's central Lake Michigan region. The Wisconsin Marine Association, University of Wisconsin Sea Grant Institute, and the Wisconsin Coastal Management Program work collaboratively to promote recreational boating and environmental stewardship for boaters and marinas through the Wisconsin Clean Marina Program. Boaters and marina managers recognize the importance of protecting the resources they enjoy and use for their lives and livelihood.

Wisconsin's central Lake Michigan region boasts several sailing initiatives, including Sail Sheboygan, one of four Olympic training centers for sailors in the U.S., and the only one on fresh water, which hosts a variety of international sailing events, attracting the world's most competitive crews. The Sailing Education Association of Sheboygan (SEAS) and the Sheboygan Youth Sailing Club work collaboratively to provide maritime education, removing social and economic barriers to marine access and water sport participation.

4.3.2.4 Recreational Scuba Diving and Snorkeling

Divers and snorkelers are fascinated by Wisconsin's historic shipwrecks because of the natural beauty of the lakes and the magnificent preservation of these underwater museums. The

[32] Sport Fishing Effort and Harvest, Brad Eggold and Brandon Wambach / 2016 Annual Meeting Milwaukee, Wisconsin March 21-23, 2016 Lake Michigan Management Reports Lake Michigan Fisheries Team Wisconsin Department of Natural Resources.
[33] See wisconsinmarine.org/economic-impact.htm.

variation in depth and proximity to shore of the shipwrecks means they are accessible to divers of all skill levels. Sport diving has continued to grow as a recreational activity and recently many divers are taking advanced certifications allowing them to explore deeper shipwrecks, many of which remain largely intact. As visibility has increased, divers, kayakers, paddleboarders, and snorkelers have become more common sights along the coastline. Shallow-water shipwrecks near Two Rivers provide opportunities for snorkelers, while the range of shipwreck depths offer opportunities for both novice and advanced divers.

There are about 12 dive charter businesses operating out of Milwaukee, Chicago, Wilmette, Green Bay, and the coastal communities in the proposed sanctuary. Two dive shops, including one recently opened, are in the coastal communities within the proposed sanctuary.

4.3.3 Commercial Activities

4.3.3.1 Commercial Fishing

NOAA has not proposed regulating commercial and recreational fishing activities in the Wisconsin Shipwreck Coast National Marine Sanctuary. Sanctuary regulations and terms of designation are narrowly defined to protect underwater cultural resources, and under the current terms of designation for WSCNMS, NOAA would not regulate commercial or recreational fishing activities. There are no restrictions on where fishing activities can occur or what gear fishermen can use, as long as the fishing activities do not injure underwater cultural resources. However, because commercial fishing is an important activity that would occur in the proposed sanctuary, the status is summarized below.

The Lake Michigan ecosystem was transformed in the 19th and 20th centuries by pollution, habitat degradation, the introduction of invasive species, and the unrestricted harvest of native species. Even today the presence of dozens of invasive species, together with irreversible losses of some near-shore wetland and tributary habitats, precludes the full restoration of the fish community that was present at the time of European settlement. But, strides have been made. With chemical and organic pollution limited and habitat degradation slowed, state, federal, and tribal fisheries agencies have been able to develop a successful inter-jurisdictional fisheries management program that provides exceptional opportunities for both sport and commercial fishers.[34]

Commercial fishing is an important part of the heritage of Lake Michigan and continues to have a presence in the proposed sanctuary. Over the past 25 years Wisconsin's commercial fisheries have moved toward targeting four species: lake whitefish, yellow perch, rainbow smelt, and bloater chubs. There are two active commercial fishing ports in Two Rivers and Sheboygan; historically Port Washington also had an active commercial fishery. The primary commercial species in Lake Michigan is lake whitefish (commonly called whitefish), a cousin to trout and salmon. Other less common commercial species in Lake Michigan include the bloater chub (also a whitefish relative) and the rainbow smelt, a non-native species but culturally important species. Today, the lake whitefish fishery is strong, while populations of yellow perch, rainbow smelt, and bloater chub have declined markedly over the past 20 years.[35]

[34] Lake Michigan Integrated Fisheries Management Plan, 2003-2013.
[35] Lake Michigan Integrated Fisheries Management Plan, 2015-2024 (public discussion draft, July 2014).

Within the proposed sanctuary, commercial fishing trap nets are set off Two Rivers/Manitowoc and Sheboygan. The nets are designed to catch whitefish and allow other non-target species to be released unharmed. Nets are marked with several flags. There may be other buoys that mark additional anchors. Overall, the net, buoy lines, and anchors may be over a 1/4 mile long. Early in the season, trap nets may be set in water between 25 and 150 feet in depth. Between June 29 and Labor Day, the nets are set in water 60 to 150 feet deep. The leads extend towards shore and the nets are anchored on the bottom and may be 45 feet high.

Commercial trawling activity is currently limited in the proposed sanctuary. Commercial trawling is currently done on a limited/research project basis via a collaborative effort between University of Wisconsin Sea Grant, WDNR, and a commercial fishing company. The study is determining the impact of using trawl nets to collect whitefish without adversely affecting salmon, trout, and walleye. In this study, trawling is being studied in a limited area that is approved by WDNR.

Commercial fishers are interested in using trawl nets as a catch method. Currently, state law only allows smelt trawling and limits them to catching whitefish using gill and trap nets, a limitation that shortens their fishing season by several months each year. Net season only runs from April to October.

The U.S. Geological Survey's Great Lakes Science Center (GLSC) has conducted bottom trawl surveys near Port Washington (and other areas of Lake Michigan) for many decades. The Lake Michigan bottom trawl survey has played a critical role in understanding the ecosystem dynamics and in managing the fisheries of Lake Michigan. Its primary role is to provide annual estimates of prey fish abundance to guide the decision of state agencies in the stocking of certain species of fish.[36]

4.3.3.2 Shipping

Commercial shipping on the Great Lakes carries the raw materials that drive the nation's economy. The report *Economic Impacts of Maritime Shipping in the Great Lakes-St. Lawrence Region* relates that:

> In 2017, a total of 143.5 million metric tons (158.3 million short tons) of cargo valued at US$15.2 billion (Cdn$19.8 billion) moved through the Great Lakes-Seaway system. A majority of the domestic cargo moving on Canadian and U.S. flag vessels remains in the Great Lakes-Seaway system, creating economic impacts at the loading port as well as the port of discharge. With this accounted for, the actual tons handled at the ports on the Great Lakes-Seaway system is 284.8 million metric tons (314.0 million short tons).[37]

The report also indicates that 2017 marine cargo and vessel activity in the Great Lakes-Seaway system generated a total of US$35.0 billion (Cdn$45.4 billion) in economic activity in the United States and Canada, and that this commerce supported 237,868 U.S. and Canadian jobs, including 78,400 direct jobs.

[36] See glsc.usgs.gov/deepwater-ecosystems/deepwater-ecosystems-prey-fish-assessment/lake-michigan-benthic-prey-fish.
[37] Martin and Associates. 2018. Economic Impacts of Maritime Shipping in the Great Lakes-St. Lawrence Region.

A finer scale look at the value of inter-lake commercial shipping on the Great Lakes is demonstrated via statistics compiled by the Lake Carriers' Association, which represents 13 members that operate 49 U.S.-flag vessels ("lakers") on the Great Lakes. Collectively, Lake Carriers' Association members transport about 90 million tons of dry-bulk cargo per year in the Great Lakes. They employ more than 1,600 people and provide annual wages and benefits of approximately $125 million. In turn, the cargoes carried by Lake Carriers' Association members generate and sustain more than 103,000 jobs in the United States and have an economic impact of more than $20 billion. Lake Carriers' Association vessels carry significant tonnage through the proposed sanctuary area. The 2016 commercial vessel and passenger ferry activity for NOAA's preferred alternative is shown in Figure 4.14.

The Port of Manitowoc handles bulk commodities, newly constructed yachts, and passengers on the S.S. *Badger* ferry. The port is also home to a marine contracting firm that services Lake Michigan ports in Wisconsin and Michigan. In the Port of Sheboygan, docking for commercial cruise ships and other larger vessels is provided along a newly reconstructed seawall at the mouth of the Sheboygan River.[38]

Commercial ships loading and unloading at these ports, as well as other ships transiting Lake Michigan, conduct ballasting as part of routine vessel operations and safety.

Dry cargo residue sweeping (the practice of washing dry cargo residue off a ship's deck and into the water) may occur in the proposed sanctuary, though the state of Wisconsin has determined that it is illegal in state waters.

[38] See wcpaports.org/ports.

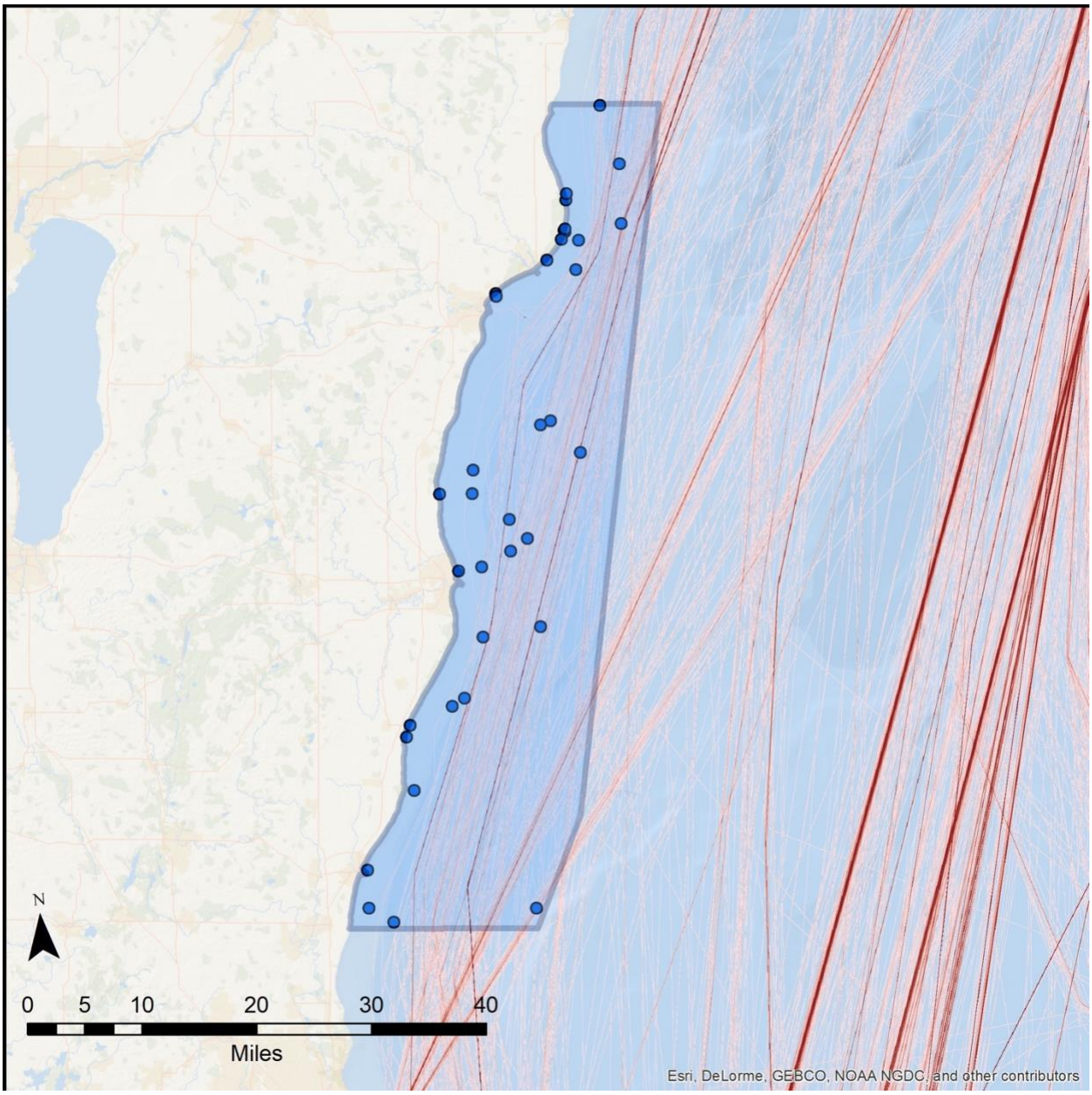

Figure 4.14. This map depicts 2016 commercial vessel traffic in Lake Michigan within NOAA's preferred boundary option. The red lines represent relative vessel traffic density. Blue dots are the known shipwrecks within the sanctuary. Image: NOAA

4.3.3.3 Other Commercial Activities

In addition to the commercial fishing and shipping activities referenced above, potential offshore commercial wind energy activities may take place in the proposed sanctuary. In 2012, there was preliminary interest from an energy company in considering the feasibility of wind energy in Lake Michigan, the development of which would be carried out under state authorities. However, since that time no further plans have been announced and there is no detailed information, such as locations, numbers of turbines, or timelines that could be used in analyzing potential impacts relative to the proposed sanctuary. It should be noted that both boundary options in this FEIS exclude harbors, marinas, and shipping lanes from the sanctuary

boundary. Federally authorized areas (channels) adjacent to the ports and harbors are periodically dredged by the U.S. Army Corps of Engineers. Because the lanes are excluded from the boundaries, dredging activities to support commercial shipping are not summarized.

Notably, issuing federal or state permits for new drilling operations under the U.S. portions of the Great Lakes was banned in the Energy Policy Act of 2005 (P.L. 109-58, § 386). Specifically, the provision enacts a permanent ban on the issuance of federal or state permits for new directional, slant, or offshore drilling in or under the Great Lakes. Consequently, a sanctuary designation would not impact drilling for oil and gas.

4.3.4 Military Exercise Area

Within the proposed sanctuary is a military exercise area (Overwater Range R-6903) used by the Air National Guard and administered by the Combat Readiness Training Center at Volk Field, Wisconsin (Figure 4.15). The 288-square mile area stretches between Port Washington and Manitowoc and is about two miles from the closest shoreline. Since the late 1950s, this range has been used for training involving air-to-air missiles, air-to-air gunnery, rocketry, aircraft intercepts, air-to-air refueling, bombing, surface-to-surface firing, radar checks, and air combat maneuvers. Since the 1970s the area has been used chiefly for air-to-air exercises.[39] Active since World War II, the area has been indicated on NOAA Chart 14901 since the early 1990s, following the discovery of a sidewinder missile by local fishermen.

Use of R-6903 is currently extremely limited and typically used for conventional missions rather than expenditure of ordinance. Should use of R-6903 change in future, NOAA, the Federal Aviation Administration, and the Air National Guard will consult and coordinate as needed.

[39] Report to the Honorable F. James Sensenbrenner, House of Representatives, General Accounting Office, March 1992.

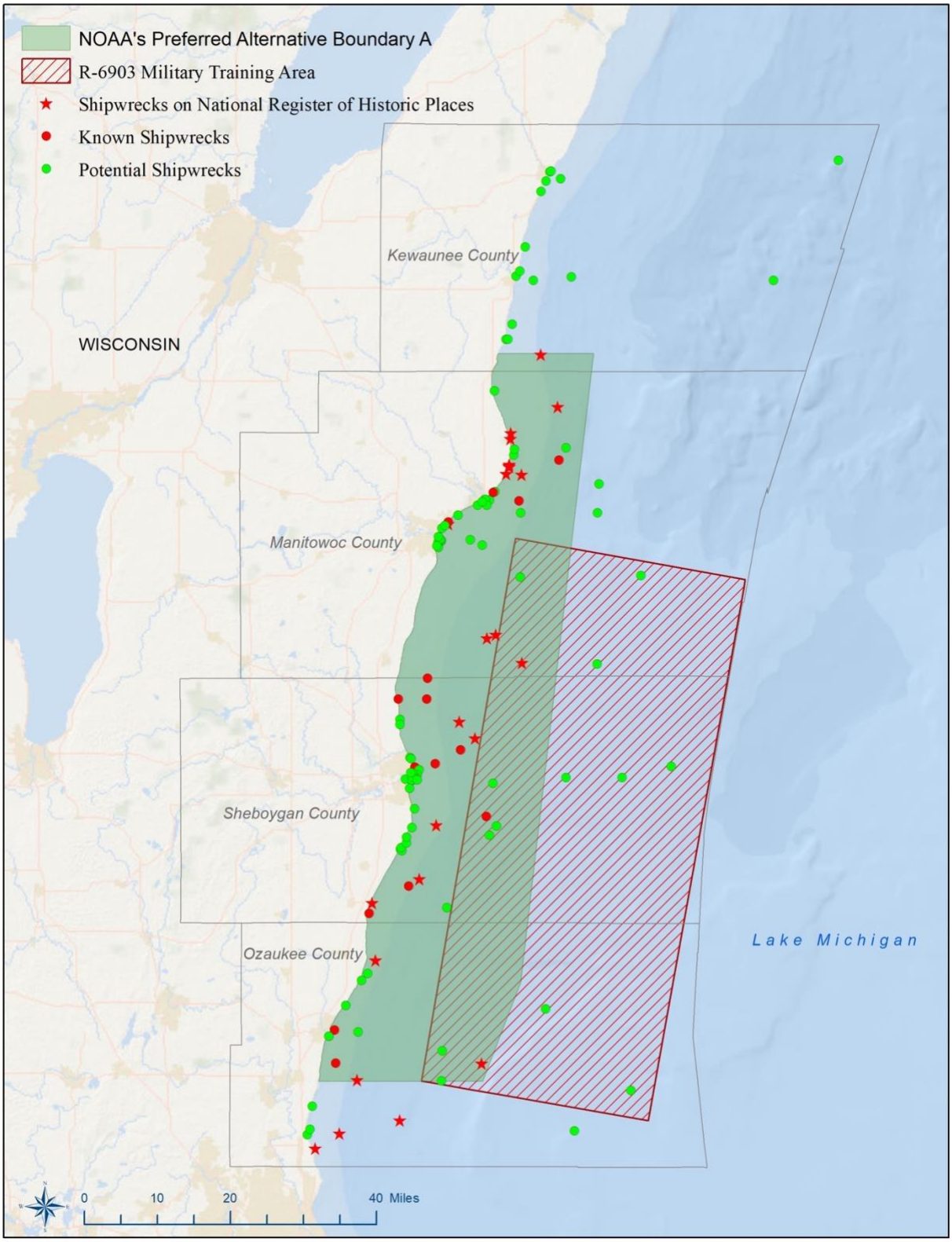

Figure 4.15. NOAA's Preferred Alternative Boundary A (shaded green), and overlap with R-6903 military training area (hatched red) in Lake Michigan off the counties of Ozaukee, Sheboygan, and Manitowoc. Image: ONMS

4.4 Physical Environment

This section describes the physical environment within the proposed sanctuary, including the geology, climate, and water quality within Lake Michigan along the Wisconsin coastline.

4.4.1 Geology

Lake Michigan is the second largest of the Great Lakes with a surface area of 22,300 square miles (57,756.7 km^2). It is the largest freshwater lake located entirely in the United States and the fifth largest lake in the world. Lake Michigan is part of an ecologically rich ecosystem which contains the world's largest collection of freshwater sand dunes along with many wetlands and prairies, and provides important habitat to a great diversity of life. The lake supports fish for food, sport, and culture. The proposed sanctuary includes a glacier-sculpted shoreline and nearshore areas of the lake that are dominated by the Niagara limestone formation, which is visible along some of the shoreline. The lakebed substrate includes boulders, cobbles, gravel, coarse sand, and silt/clay till with some rocky outcroppings (Janssen et al. 2005).

Just to the east of the proposed sanctuary lies the ecologically important Mid-Lake Plateau, or Mid-Lake Reef Complex. This underwater reef system separates the northern and southern basins of Lake Michigan and comprises three limestone ridges. The vertical relief of the Mid-Lake Plateau provides significant fish spawning habitat. The deepest part of the proposed sanctuary is about 492 feet (150 m).

4.4.2 Climate

Climate change is a concern in the Great Lakes and much research is currently being done on the topic. According to the EPA:

> Water level and water temperature are two important and interrelated indicators of weather and climate change in the Great Lakes. Water level (the height of the lake surface above sea level) is influenced by many factors, including precipitation, snowmelt runoff, drought, evaporation rates, and people withdrawing water for multiple uses. Water temperature is influenced by many factors, too, but most directly by air temperature.
>
> In recent years, warmer surface water temperatures in the Great Lakes have contributed to lower water levels by increasing rates of evaporation and causing lake ice to form later than usual, which extends the season for evaporation.[40] Lower water levels in the Great Lakes forced ships to reduce their cargo tonnage by 5 to 8 percent between 1997 and 2000, which increased shipping costs. Lower water levels can also affect water supplies, the usability of infrastructure such as docks and piers, and shoreline ecosystems. These types of disruptions from low water levels are expected to continue as the climate changes.[41]
>
> Another possible effect of warmer water, reduced ice cover, and increased evaporation is a corresponding increase in precipitation over nearby land, especially "lake effect" snow.[42] Rising water temperatures are also expected to expand the ranges of, and give new

[40] Gronewold et al. 2013.
[41] Posey et al. 2012.
[42] Burnett et al. 2003.

advantages to, some invasive species such as the zebra mussel, and to encourage the growth of certain waterborne bacteria that can make people ill.[43,44]

Regarding water levels, according to NOAA:

> Since September of 2014, all of the Great Lakes have been above their monthly average levels for the first time in 15 years. This period of below-average levels on Lake Superior, Michigan and Huron caused challenges for boaters, small harbor towns, commercial shipping, and hydropower. After a new record low level was set on Lakes Michigan and Huron in January 2013, wet conditions of 2013 and 2014 brought a dramatic end to the long period of low water levels.
>
> Although fluctuation in Great Lakes water levels is an annual occurrence, long periods of either high or low levels can impact sectors of the population in different ways. High water levels are advantageous to boaters, commercial shipping, and hydropower; however, coastal erosion, flooding and property damage along the shoreline are likely to result.[45]

4.4.3 Water Quality

The WDNR, University of Wisconsin Sea Grant, U.S. Geological Survey (USGS), and the EPA are among the organizations that monitor water quality in Lake Michigan, including the study area. As the proposed action does not anticipate a negative impact on water quality, this section is not intended to be a comprehensive summary. Notably, water quality issues in the study area have the potential to curtail public access (via beach closures) in some discrete areas, and therefore could have an impact on public enjoyment of sanctuary resources. Concentrations of blue-green algae[46], *Cladophora*[47], and *Escherichia coli*[48] can create harmful water quality conditions for humans.

Both WDNR and USGS regularly monitor water quality and publish public results. WDNR data can be found at https://dnr.wi.gov/topic/SurfaceWater/ with annual beach conditions reports posted at https://dnr.wi.gov/topic/beaches/. USGS posts water quality monitoring results at https://waterdata.usgs.gov/wi/nwis/qw.

4.5 Biological Environment

This section describes the biological environment in the proposed sanctuary within Lake Michigan along the Wisconsin coastline, including the aquatic ecosystem, terrestrial wildlife and birds, invasive species, and protected species and habitats.

The natural resources and ecological qualities found within Wisconsin's central Lake Michigan coastline contribute significantly to the ecological system of Lake Michigan and its terrestrial interface. The area is located within a diverse ecological sub-basin as identified by The Nature

[43] Rahel and Olden 2008.
[44] Kanoshima et al. 2003.
[45] See regions.noaa.gov/great-lakes/index.php/highlights/record-breaking-increase-in-great-lakes-water-levels/.
[46] See https://dnr.wi.gov/lakes/bluegreenalgae/.
[47] See https://dnr.wi.gov/topic/greatlakes/documents/CladophoraFactsheet.pdf.
[48] See https://dnr.wi.gov/topic/SurfaceWater/.

Conservancy in their 2012 report, *Lake Michigan Biodiversity Conservation Strategy*.[49] The area's natural resources play a significant role in Lake Michigan's ecological health and diversity, economic vitality, and recreational opportunities.

4.5.1 Aquatic Ecosystem

The sanctuary designation area in Lake Michigan, although disturbed from its natural condition by human activities, still supports a diverse assemblage of aquatic life. The lake contains a variety of important sport and commercial fish species including the native lake trout (*Salvelinus namaycush*), as well as the introduced chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), rainbow trout (*Oncorhynchus mykiss*), and brown trout (*Salmo trutta*). Other species found throughout the lake are yellow perch (*Perca flavescens*), lake whitefish (*Coregonus clupeaformis*), bloater chub (*Coregonus hoyi*), walleye (*Sander vitreus*), northern pike (*Esox lucius*), and introduced rainbow smelt (*Osmerus mordax*), alewife (*Alosa pseudoharengus*), and sea lamprey (*Petromyzon marinus*). Smallmouth bass (*Micropterus dolomieu*) and rock bass (*Ambloplites rupestris*) are mostly found in or near bays and harbors. Non-native aquatic species are discussed more below in Section 4.5.3, Invasive Species.

As noted in the Physical Environment section (4.4.1), lakebed habitats are mostly rocky. Fishes associated with these bottom habitats are the sculpins – mottled sculpin (*Cottus bairdi*) and slimy sculpin (*Cottus cognatus*) – and the introduced round goby (*Neogobius melanostomus*). Rocky bottoms also provide shelter for fish prey species, such as the crayfish species *Orconectes virilis* and *O. propinquus*. Other invertebrate prey species may include amphipods, isopods, oligochaetes, chironomids, mayflies, caddisflies, and snails.

Although much of the lakebed is glacier-scraped flat, numerous rock outcroppings are another important habitat type. The rock reefs of the Mid-Lake Plateau provide vertical relief, which is important spawning habitat for indigenous lake trout. This feature of the proposed sanctuary area would include the state-managed Southern Refuge and the largest spawning population of lake trout.[50] The structures of the shipwrecks themselves also provide shelter habitat for prey species and foraging habitat for predatory fish.

4.5.2 Terrestrial Wildlife and Birds

Wisconsin's central Lake Michigan shoreline is a mixture of sand beaches and steep bluffs. Land use is mainly agricultural, with moderately sized urban areas along the shoreline, and scattered natural areas. Larger natural areas within this area are public lands, such as state parks and county properties, as well as privately owned forest and wetlands. Numerous tributaries provide spawning habitat for salmonid and other native fish species.

The Lake Michigan coastline is a critical migratory flyway for birds. Millions of birds participate in the seasonal migration from northern climes southeast through the Great Lakes region. Even though the Great Lakes act as a barrier to migrating birds, the coastlines become migratory corridors or highways that are heavily used. Wisconsin's central Lake Michigan coastline, part of

[49] The Nature Conservancy 2012.
[50] Janssen 2005.

the Lake Michigan Flyway, contains important stopover sites for migratory birds, helping to link Canada to Central and South America. For additional information regarding birds protected under the Migratory Bird Treaty Act, see Section 4.5.4.2.

On the landward side, there has been significant federal, state, and local investment into Wisconsin's central Lake Michigan coastline in an effort to build local and state capacity to plan, restore, and manage the area's natural resources. Agencies like the Wisconsin Coastal Management Program and the Wisconsin Department of Natural Resources, along with federal and local partners, have targeted resources to develop fish and wildlife habitat protection plans, restore stream and tributary connectivity, conduct wetland and habitat assessments, develop watershed plans, enhance coastal beach health, restore native landscapes, implement integrated bluff management, and control invasive species.

4.5.3 Invasive Species

Invasive species are a serious problem in the Great Lakes. The Great Lakes ecosystem has been severely damaged by more than 180 invasive and non-native species. Species such as the zebra mussel (*Dreissena polymorpha*), quagga mussel (*Dreissena bugensis*), round goby (*Neogobius melanostomus*), sea lamprey (*Petromyzon marinus*), and alewife (*Alosa pseudoharengus*) reproduce and spread, ultimately degrading habitat, outcompeting native species, and short-circuiting food webs. Invasive zebra and quagga mussels have had an exceptionally significant impact on shipwrecks and other underwater cultural resources, as they have an affinity for hard substrates and are commonly found attached to these sites. When first introduced into the Great Lakes in the 1980s via ballast water discharge from transoceanic ships, zebra and quagga mussels first colonized shallow, well-lit shipwreck sites.[51] Today, however, sanctuary archaeologists have observed significant zebra and quagga mussel infestation on shipwrecks sites as deep as 300 feet (91.4 m).

Although invasive mussels settle on all hard substrates, it has been documented that they appear to prefer wrought iron and steel surfaces.[52] As a result, there is concern over the effects of the spread of their colonization on shipwrecks. The latest lake-wide survey of quagga mussels, which included sites within the proposed sanctuary, showed that mussel abundances increased twofold between 2003 and 2007 at depths greater than 164 feet (50 m), and about fourfold at depths between 167 and 295 feet (51-90 m).[53]

The initial impact of mussel attachment is the loss of "archaeological visibility" – the surfaces of a historic shipwreck can literally disappear under layers of mussels.[54,55] While the shape of the shipwreck is still recognizable, the details of its surface and construction are obscured, thus severely impacting the ability to study these resources. Infestation of zebra and quagga mussels could diminish the interest in diving on these wrecks, resulting in an adverse economic impact in the area through loss of tourism.[56] The weight of these mussels can affect the structural integrity of the wrecks, causing portions to break off or collapse. Also, removing mussels from

[51] See csu.edu/cerc/documents/TheIntroductionandSpreadoftheZebraMusselinNorthAmerica.pdf.
[52] Watzin et al. 2001.
[53] T. Nalepa, NOAA GLERL, unpubl. data.
[54] Kraft 1996.
[55] Watzin et al. 2001.
[56] Black et al. 2000.

the surfaces of these resources could result in further damage and loss. Finally, when mussels colonize steel structures such as walls, pipes, and iron fasteners and fittings on shipwrecks, the iron and steel corrodes at a significantly accelerated rate as compared to ferrous material not encrusted with mussels. Since many of the wooden ships in the proposed sanctuary are primarily iron- and steel-fastened, the structural integrity of these resources could potentially be compromised.[57]

The United States regulates ballast water management domestically through the USCG under the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended by the National Invasive Species Act of 1996 (NISA, 16 U.S.C. § 4711), and the Vessel Incidental Discharge Act of 2018, Pub. L. 115–282, Title IX, § 903(a)(2)(A)(i), Dec. 4, 2018, 132 Stat. 4354. Specifically, the Vessel Incidental Discharge Act amends Clean Water Act Section 312 to include a new subsection (p), which requires EPA to develop new national standards of performance for commercial vessel discharges and the USCG to develop corresponding implementing regulations. New regulations are anticipated in 2022. In the interim, vessels must continue to comply with the 2013 Vessel General Permit issued under the Federal Water Pollution Control Act, 33 U.S.C. 1342, and the USCG ballast water regulations, 33 CFR 151.2010 et seq. As discussed in Section 3.3.2.3.1 of this FEIS, it is important to note that Section 602 of the Coast Guard Authorization Act of 2015 includes language to address ballast water exchange in Great Lakes national marine sanctuaries that protect underwater cultural resources.

4.5.4 Protected Species and Habitats

Below provides an overview of the protected species and habitats that may occur in or near the proposed sanctuary, including species listed under the Endangered Species Act (ESA) and the Migratory Bird Treaty Act (MBTA). No Essential Fish Habitat as defined under the Magnuson–Stevens Fishery Conservation and Management Act (MSA) occurs within Lake Michigan.

4.5.4.1 Endangered Species Act

The USFWS and the National Marine Fisheries Service (NMFS) jointly administer the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq*.). The USFWS manages the protection of, and recovery effort for, listed terrestrial and freshwater species. NMFS manages the protection of and recovery effort for listed marine and anadromous species.

The ESA protects plant, fish, and wildlife species (and their habitats) listed as endangered and threatened. A species is defined as endangered if it is at risk of extinction throughout all or a significant part of its range. A threatened species is one that is likely to become endangered in the near future, and a species of special concern receives this classification based on either unfavorable regional factors or a decline in population.[58] The ESA requires federal agencies to consult with the USFWS and/or NMFS, as applicable, before initiating any action that may affect a listed species.

When USFWS or NMFS lists a species under the ESA, they are required to determine whether critical habitat exists. Critical habitat is defined as (1) specific areas within the geographical area

[57] Watzin et al. 2001.
[58] Owre 1990.

occupied by the species at the time of listing that contain physical or biological features essential to conservation of the species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

Action Area

The implementing regulations for Section 7(a)(2) of the ESA (50 C.F.R. § 402.02) state that the "action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area effectively bounds the analysis of ESA-protected species and habitats, because only species that occur within the action area may be affected by the federal action.

For the purposes of the ESA analysis for the proposed sanctuary, NOAA defines the action area as:

1) The proposed boundaries of the sanctuary, the main routes vessels would travel to operate within the sanctuary; and
2) Shorelines and wetlands adjacent to WSCNMS where noise from recreational and other activities would be audible to birds and wildlife.

NOAA expects all direct and indirect effects of the proposed action to be contained within the action area as defined above. NOAA recognizes that while the action area is stationary, federally listed species can move in and out of the action area. For instance, a fish species could occur in the action area seasonally as it forages or travels at or near the proposed sanctuary. Thus, in its analysis, NOAA considers not only those species known to occur directly within the action area, but also those species that may passively or actively move into the action area for limited periods of time. NOAA then considers whether the life history of each species makes the species likely to move into the action area where it could then be affected by the proposed action.

Species Under NMFS Jurisdiction

No listed species or species proposed for listing under NMFS jurisdiction occur within the action area.

Species Under USFWS Jurisdiction

NOAA used the USFWS's Environmental Conservation Online System (ECOS) Information for Planning and Conservation (IPaC) tool to search for federally listed endangered or threatened species that may be present in the action area. The ECOS IPaC tool identified seven species (Table 4.10) federally listed as endangered or threatened under USFWS jurisdiction that could occur in the action area (Consultation Code: 03E17000-2020-SLI-0567; Event Code: 03E17000-2020-E-01800 - January, 22 2020 letter from Green Bay Ecological Services Field Office, to ONMS). Designated critical habitat for one species, the piping plover, occurs within the action area.[59] Although the piping plover was not listed in USFWS's ECOS IPaC database for this action area, NOAA included this species within this analysis since it has been observed to

[59] USFWS 2020.

forage on the Lake Michigan shoreline in the action area on its southern migrations and ECOS IPaC does list designated critical habitat for the species within the action area.[60]

Table 4.10 summarizes the habitat requirements of these eight listed species and their likelihood of occurrence in the action area. As noted in Table 4.10, NOAA determined that seven of the listed species may occur in the action area based on the species' habitat requirements and habitat availability within the action area. Suitable habitat for the rusty patched bumble bee does not occur within the action area, and therefore, NOAA did not consider potential impacts to this species in Chapter 5.

Table 4.10. ESA-listed Species Under USFWS Jurisdiction Potentially Found in the Action Area

Common Name	Latin Name	Status	Habitat Requirements	Likelihood to Occur Within the Action Area
Northern long-eared bat	*Myotis septentrionalis*	T	May be found in a variety of forested and wooded habitats where they roost, forage, and travel. May also include some adjacent and interspersed non-forested habitat, as well as linear features such as fence rows, riparian forests, and other wooded corridors. These may be dense or loose aggregates of trees with variable amounts of canopy closure. Suitable winter habitat includes caves and cave-like structures (e.g., abandoned or active mines; railroad tunnels).	May infrequently roost, travel, or forage within riparian forests that are adjacent to the proposed sanctuary.
Piping plover	*Charadrius melodus*	E	May nest on shoreline and island sandy beaches with sparse vegetation and the presence of small stones (greater than 1 cm (0.4 in.)) called cobble. Piping plovers spend three to four months a year on the breeding ground during the summer. Prey upon invertebrates that are 0.5 inch or less below the surface, including insects, worms, crustaceans, and mollusks, as well as eggs and larvae of flies and beetles.	May infrequently nest or forage along shoreline and sandy beaches during three to four months of the summer.
Red knot	*Calidris canutus rufa*	T	May be found in coastal habitats and may occur in transit over open water. Migrating red knots feed on invertebrates, especially small clams, mussels, and snails.	May infrequently transit within the proposed sanctuary and forage along the shoreline of the proposed sanctuary during seasonal migration.

[60] R. Bowman, Fish and Wildlife Biologist, USFWS, personal communication, February 10, 2020.

Common Name	Latin Name	Status	Habitat Requirements	Likelihood to Occur Within the Action Area
Hine's emerald dragonfly	*Somatochlora hineana*	E	May be found in marshes and sedge meadows with slow-moving water and adjacent forest edges.	May forage, rest, and breed within marshes or sedge meadows that are adjacent to the proposed sanctuary.
Rusty patched bumble bee	*Bombus affinis*	E	May be found in a variety of habitats, including prairies, woodlands, marshes, agricultural landscapes, and residential parks and gardens. The species requires areas that support sufficient food (nectar and pollen from diverse and abundant flowers), undisturbed nesting sites in proximity to floral resources, and overwintering sites for hibernating queens.	Not likely to occur within the action area due to specialized habitat requirements and lack of suitable habitat within the action area.
Dwarf lake iris	*Iris lacustris*	T	The species grows along the northern shorelines of Lakes Michigan. Dwarf lake iris typically grows in shallow soil over moist calcareous sands, gravel, and beach rubble. Sunlight is one of the most critical factors to the growth and reproduction of the species, and partly shaded or sheltered forest edges are optimal for sexual reproduction. The species is most often associated with shoreline coniferous forests dominated by northern white cedar and balsam fir.	May occur in the dunes on the western shore of Lake Michigan in Kewaunee County in the northern portion of the action area.
Eastern prairie fringed orchid	*Platanthera leucophaea*	T	May be found in tallgrass silt-loam or sand prairies, sedge meadows, fens, and occasionally sphagnum bogs.	May occur in terrestrial habitats adjacent to the proposed sanctuary.
Pitcher's thistle	*Cirsium pitcheri*	T	May be found on unforested dune systems of the western Great Lakes.	May occur on unforested dunes adjacent to the proposed sanctuary.
Notes: T= Threatened, E= Endangered as defined under the regulations of 50 C.F.R. part 17, “Endangered and Threatened Wildlife and Plants,” which implement the provisions of the Endangered Species Act of 1973, as amended.				

4.5.4.2 Migratory Birds

USFWS administers the MBTA, which prohibits anyone from taking native migratory birds or their eggs, feathers, or nests. Regulations under the MBTA define "take" as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to" carry out these activities (50 C.F.R. § 10.12). The act protects a total of 1,007 migratory bird species (75 Fed. Reg. 9282 [March 1, 2010]). The sanctuary would not engage in any activities that take migratory birds, and the below information is provided for informational purposes. USFWS stated that 24 migratory birds of concern may occur in or near the proposed sanctuary. These 24 bird species may be found transiting through the sanctuary and resting or foraging within the action area (Table 4.11).

Table 4.11. Migratory Bird Species Potentially Found in the Action Area

Common name	Species	Status*	Notes on Range and Effects	Frequency of Onsite Observations	Onsite Habitat Use
American bittern	*Botaurus lentiginosus*	BCC - BCR	Breeds Apr 1 to Aug 31	Occasionally	Resting, foraging
American golden-plover	*Pluvialis dominica*	BCC Rangewide (CON)	Breeds elsewhere	Occasionally	Resting, foraging
Bald eagle	*Haliaeetus leucocephalus*	Non-BCC Vulnerable	Breeds Dec 1 to Aug 31	Occasionally	Resting, foraging
Black tern	*Chlidonias niger*	BCC - BCR	Breeds May 15 to Aug 20	Occasionally	Resting, foraging
Black-billed cuckoo	*Coccyzus erythropthalmus*	BCC Rangewide (CON)	Breeds May 15 to Oct 10	Occasionally	Resting, foraging
Bobolink	*Dolichonyx oryzivorus*	BCC Rangewide (CON)	Breeds May 20 to Jul 31	Occasionally	Resting, foraging
Buff-breasted sandpiper	*Calidris subruficollis*	BCC Rangewide (CON)	Breeds elsewhere	Occasionally	Resting, foraging
Cerulean warbler	*Dendroica cerulea*	BCC Rangewide (CON)	Breeds Apr 22 to Jul 20	Occasionally	Resting, foraging
Dunlin	*Calidris alpina arcticola*	BCC - BCR	Breeds elsewhere	Occasionally	Resting, foraging
Eastern whip-poor-will	*Antrostomus vociferus*	BCC Rangewide (CON)	Breeds May 1 to Aug 20	Occasionally	Resting, foraging
Golden eagle	*Aquila chrysaetos*	Non-BCC Vulnerable	Breeds elsewhere	Occasionally	Resting, foraging
Golden-winged warbler	*Vermivora chrysoptera*	BCC Rangewide (CON)	Breeds May 1 to Jul 20	Occasionally	Resting, foraging
Henslow's sparrow	*Ammodramus henslowii*	BCC Rangewide (CON)	Breeds May 1 to Aug 31	Occasionally	Resting, foraging
King rail	*Rallus elegans*	BCC Rangewide (CON)	Breeds May 1 to Sep 5	Occasionally	Resting, foraging

Common name	Species	Status*	Notes on Range and Effects	Frequency of Onsite Observations	Onsite Habitat Use
Least bittern	*Ixobrychus exilis*	BCC - BCR	Breeds Aug 16 to Oct 31	Occasionally	Resting, foraging
Lesser yellowlegs	*Tringa flavipes*	BCC Rangewide (CON)	Breeds elsewhere	Occasionally	Resting, foraging
Long-eared owl	*Asio otus*	BCC Rangewide (CON)	Breeds Mar 1 to Jul 15	Occasionally	Resting, foraging
Red-headed woodpecker	*Melanerpes erythrocephalus*	BCC Rangewide (CON)	Breeds May 10 to Sep 10	Occasionally	Resting, foraging
Ruddy turnstone	*Arenaria interpres morinella*	BCC - BCR	Breeds elsewhere	Occasionally	Resting, foraging
Rusty blackbird	*Euphagus carolinus*	BCC Rangewide (CON)	Breeds elsewhere	Occasionally	Resting, foraging
Semipalmated sandpiper	*Calidris pusilla*	BCC Rangewide (CON)	Breeds elsewhere	Occasionally	Resting, foraging
Short-billed dowitcher	*Limnodromus griseus*	BCC Rangewide (CON)	Breeds elsewhere	Occasionally	Resting, foraging
Willow flycatcher	*Empidonax traillii*	BCC - BCR	Breeds May 20 to Aug 31	Occasionally	Resting, foraging
Wood thrush	*Hylocichla mustelina*	BCC Rangewide (CON)	Breeds May 10 to Aug 31	Occasionally	Resting, foraging

*Status Types	
BCC	Birds of Conservation Concern (USFWS)
BCR	BCC only in Bird Conservation Region
CON	BCC throughout range
non-BCC Vulnerable	not BCC but warrants attention due to Eagle Act or from potential offshore activities

4.5.4.3 State Listed Species

The state of Wisconsin established its endangered and threatened species laws by State Statute 29.604 and Administrative Rule NR27. The state legislature determined that the state has a responsibility for conserving wild animals and plants to assure their continued survival and propagation for the aesthetic, recreational, and scientific purposes of future generations: "Wisconsin endangered species shall be compiled by issuing a proposed list of species approaching statewide extirpation. Wisconsin threatened species shall be compiled by issuing a

proposed list of species which appear likely, within the foreseeable future, to become endangered." (Wis. Stat. 29.604).

Wisconsin's Endangered and Threatened Species List includes one endangered and four threatened species of mammals, 11 endangered and 13 threatened species of birds, and 10 endangered and 10 threatened species of fishes, as well as insect, snail, and plant species. Many of these species may occur in terrestrial, wetland, and nearshore habitats in the WSCNMS action area.

Although there are a number of state-listed species known to use the flyway and occur along the coastline, there are no state threatened or endangered species that occur in the waters of the proposed sanctuary.[61] A complete list of species that are considered endangered or threatened by the state of Wisconsin can be found at https://dnr.wi.gov/files/PDF/pubs/er/ER001.pdf.

[61] WDNR Comments for the Wisconsin Lake Michigan National Marine Sanctuary Draft EIS and Management Plan, letter 30 March, 2017.

CHAPTER 5

ANALYSIS OF ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

5.1 Introduction

This chapter evaluates the anticipated direct, indirect, and cumulative environmental effects on underwater cultural resources, human uses and socioeconomic resources, physical resources, and biological resources associated with the proposed action and alternatives to the proposed action, including the no-action alternative, presented in Chapter 3.

Potential impacts fall under three types: direct, indirect, and cumulative. These types of impacts are defined in regulations issued by CEQ as follows:

Direct impact: A known or potential impact caused by the proposed action or project that occurs at the time and place of the action (40 C.F.R. § 1508.8).

Indirect impact: A known or potential impact caused or induced by the proposed action or project that occurs later than the action or is removed in distance from it but is still reasonably expected to occur (40 C.F.R. § 1508.8).

Cumulative impact: A known or potential impact resulting from the incremental effect of the proposed action added to other past, present, or reasonably foreseeable future actions (40 C.F.R. § 1508.7).

The potential direct and indirect impacts associated with the proposed action and alternatives are described by their significance (negligible, less than significant, or significant). The impact analysis considers the beneficial and adverse impacts of each alternative. The affected resources and types of use examined for the proposed action and alternatives are as follows:

1. Underwater cultural resources
2. Human uses and socioeconomic resources
3. Physical resources
4. Biological resources

Cumulative impacts from other past, present, and reasonably foreseeable activities are described in Section 5.6.

5.1.1 Significance of Potential Impacts

To determine whether an impact is significant, the CEQ regulations (40 C.F.R. § 1508.27) and NOAA guidance (NAO 216-6A) require the consideration of context and intensity of potential impacts.

Context is the setting within which an impact is analyzed, such as the affected region or locality and the affected interests. In this FEIS, the direct and indirect impacts are evaluated within a local context, primarily examining how each alternative would affect the human environment within the sanctuary, and whether those effects would be short-term or long-term. The

geographic area of interest for cumulative impacts is a slightly broader regional context in order to consider overlapping and compound effects with other past, present, or reasonably foreseeable future actions.

Level of intensity refers to the severity of the impact. The various levels of impact used in this analysis are:

- **Negligible:** Impacts to a resource can barely be detected (whether beneficial or adverse) and are therefore discountable.
- **Less than significant:** Minor impacts that do not rise to the level of significance as defined below.
- **Significant:** Impact resulting in an alteration in the state of an underwater cultural, human use and socioeconomic, physical, or biological resource. Long-term or permanent impacts or impacts with a high intensity or frequency of alteration to a resource, whether beneficial or adverse, would be considered significant. The significance threshold is evaluated on a case-by-case basis, taking into consideration the context and intensity of each action.

5.1.2 Quality of Potential Impacts

Potential impacts are described as either beneficial or adverse as follows:

- **Beneficial impact:** Beneficial impacts are believed to promote favorable conditions for the resource.
- **Adverse impact:** Adverse impacts are considered contrary to the goals, objectives, management policies, and practices of NOAA and the public interest or welfare. These impacts are likely to be damaging, harmful, or unfavorable to one or more of the resources.

5.1.2.1 Resources Not Analyzed

Of the resources commonly analyzed during the NEPA process, Table 5.1 provides a list of those not addressed in this FEIS and the rationale as to why the action would not affect these resources.

Table 5.1. Resources Not Analyzed in this FEIS

Resource	Rationale
Land use	With the exception of the impacts that some land use practices have on water quality (and are covered in cumulative impacts below), no significant land use activities, including land used for utilities, are included in the proposed action or alternatives.
Visual resources	None of the alternatives include activities that will impact visual resources.

5.1.3 Overview of the Environmental Consequences Analysis

Sections 5.2 through 5.6 evaluate the impacts of the alternatives on the resource areas described in Chapter 4. NOAA evaluated the impacts within the context of each of the following alternative components:

- **Sanctuary boundary:** How does the amount of area within the sanctuary affect the human and natural environment?
- **Sanctuary-wide regulations:** How do the type and amount of regulations to protect sanctuary resources affect the human and natural environment?
- **Management plan and associate field activities:** How do the activities to manage and operate the proposed sanctuary, such as operating boats to conduct research, monitoring, or outreach, affect the human and natural environment?

To efficiently evaluate the potential impacts of the alternatives, NOAA first evaluated the impacts of the no-action alternative, and then considered the impacts specific to the preferred alternative (Alternative 2). Lastly, NOAA analyzed the impacts of the other action alternatives (alternatives 1, 3, and 4), as summarized below:

Impacts from the No-Action Alternative*:* Section 5.2 describes the impacts from the no-action alternative whereby NOAA would not designate a sanctuary.

Impacts from the Preferred Alternative (Alternative 2): Section 5.3 describes the impacts specific to the preferred alternative, which would include:

- Designating a national marine sanctuary within Boundary A (Section 3.3.2.1);
- Implementing Regulatory Option B (Section 3.3.3.2) and regulatory provisions that apply to all action alternatives (Section 3.3.3.3); and
- Implementing the proposed management plan (Section 3.3.4.1) and the associated field activities (Section 3.3.4.2).

Impacts from Other Action Alternatives (Alternatives 1, 3, and 4): Section 5.4 describes the impacts specific to the other action alternatives, other than the preferred alternative, including

- Alternative 1 (Boundary A, Regulatory Option A, and the management plan);
- Alternative 3 (Boundary B, Regulatory Option A, and the management plan); and
- Alternative 4 (Boundary B, Regulatory Option B, and the management plan).

Because many of the impacts would be the same for alternatives 1 through 4, Section 5.4 focuses on the differences among the four action alternatives.

Cumulative Impacts: Section 5.6 analyzes the cumulative effects from other past, present, and reasonably foreseeable activities on each of the alternatives.

5.2 Impacts of the No-Action Alternative

Under the no-action alternative, NOAA would not designate a national marine sanctuary in Wisconsin's Lake Michigan waters. Implementation of the no-action alternative would result in no changes to existing management of the resources or other activities taking place in this area described above in Chapter 4. The no-action alternative provides a baseline to which environmental consequences of the national marine sanctuary designation alternatives can be compared.

The no-action alternative would not fulfill the purpose and need of the proposed action (see sections 2.2 and 2.3). The no-action alternative would forgo the beneficial effects associated with implementing regulations and a management plan to provide comprehensive, long-term management of resources located within the proposed sanctuary.

Below describes these potential forgone beneficial impacts from the no-action alternative in more detail.

5.2.1 Impacts to Underwater Cultural Resources (No-Action Alternative)

Under the no-action alternative, NOAA would not designate the proposed sanctuary nor would NOAA staff implement regulations or a management plan to protect underwater cultural resources. The level of recreational activities and research, which could disturb underwater cultural resources, would likely remain similar to the status quo.

The no-action alternative would forgo the potential benefits of implementing regulations and that would protect underwater cultural resources. In addition, the no-action alternative would forgo the potential benefits from education, research, and community engagement that foster awareness and protection of these resources. As described in Chapter 2, underwater cultural resources within the proposed sanctuary face a number of threats, such as

- Anchor and grappling damage to shipwreck structures and debris fields from visiting dive boats;
- Damage due to unpermitted and poorly attached mooring lines;
- Artifacts being looted, artifacts being moved within a shipwreck site, and remotely-operated vehicle tethers entangled within a shipwreck;
- Fishing gear entangled within a shipwreck; and
- The disturbance of newly discovered shipwrecks and artifacts in debris fields.

These impacts threaten the long term sustainability of historic shipwrecks and other underwater cultural resources, and negatively impact their recreational and archaeological value. Without the additional protections and public outreach provided by the proposed action, continued degradation from these threats could occur, and over time may result in significant effects. Therefore, NOAA determined that the no-action alternative would result in **significant adverse** impacts based on the substantial forgone benefits of not extending sanctuary protections to nonrenewable underwater cultural resources.

5.2.2 Impacts to Human Uses and Socioeconomic Resources (No-Action Alternative)

Under the no-action alternative, NOAA would not designate the proposed sanctuary and therefore NOAA staff expect that local visitation and human use of the area would likely remain similar to the status quo. Local and state-level efforts to promote the recreational opportunities along the Wisconsin coast would continue to attract tourists.

The costs for the no-action alternative are the potential lost benefits of the action alternatives (alternatives 1-4). For example, additional outreach, promotion, and visibility provided by the national exposure of a marine sanctuary designation would not be available to help attract more visitors. Similarly, diving and snorkeling activities would continue without the benefits of a more extensive mooring buoy system to help divers and snorkelers more easily locate high interest diving and snorkeling sites. New sanctuary-related research, documentation, and interpretation of existing and undiscovered shipwrecks would not be available to enhance the diving experience and related marketing.

Additionally, NOAA expects that sanctuary designation could draw more tourists to the area, which could increase revenue in the local economy through more tourists visiting hotels, restaurants, dive shops, and other local businesses. The foregone benefit stream from increasing visitation associated with a sanctuary designation is an additional cost.

NOAA determined that the costs (lost benefits from no sanctuary designation) of the no-action alternative could result in **less than significant adverse** impacts based on the lack of enhanced recreational activities and benefits to the local economy.

5.2.3 Impacts to Physical Resources (No-Action Alternative)

Under the no-action alternative, effects to physical resources would result from the foregone benefits of not implementing a comprehensive management plan and mooring buoy program that would, in part, minimize direct disturbance of the lakebed. Anchoring can damage the lakebed if the anchor is dropped in a soft location and creates impressions in the lakebed. If the anchor is dragged along the lakebed, it could create ditches or other physical changes to the lakebed. In addition to disturbing the geology of the lakebed, the physical interaction between the anchor and the lakebed could stir up sediments and degrade water quality by increasing turbidity. Under the no-action alternative, this anchoring damage would continue at current levels because NOAA would not install and maintain mooring buoys to provide a secure anchoring point for users and eliminate the need for anchoring on the lakebed. In addition, NOAA would not implement outreach and education efforts to promote the responsible use of sanctuary resources that would help protect physical resources and reduce the risk of anchoring damage. Therefore, NOAA determined that the no-action alternative could result in **less than significant adverse effects** to physical resources because the mooring buoy program and outreach activities to promote responsible use of the sanctuary resources would not occur.

5.2.4 Impacts to Biological Resources (No-Action Alternative)

Under the no-action alternative, effects to biological resources would result from the foregone benefits of not implementing a comprehensive management plan and mooring buoy program that would, in part, minimize direct disturbance of benthic habitat and degradation of water quality. Anchoring can damage benthic habitat if the anchor is dropped in benthic habitat and crushes, smothers, or otherwise physically disturbed the habitat. The physical interaction between the anchor and the lakebed could also stir up sediments and degrade water quality by increasing turbidity. Under the no-action alternative, these adverse impacts would continue because NOAA would not install and maintain mooring buoys to provide a secure anchoring point for users and eliminate the need for anchoring on benthic habitat. In addition, NOAA

would not implement outreach and education efforts to promote the responsible use of sanctuary resources that would protect biological resources and reduce the risk of direct disturbance of benthic habitat and degradation of water quality. Therefore, NOAA determined that the no-action alternative could result in **less than significant adverse effects** to biological resources because the mooring buoy program and outreach activities to promote responsible use of the sanctuary resources would not occur.

5.3 Impacts of the Preferred Alternative (Alternative 2)

This section describes the beneficial and adverse impacts from NOAA's preferred alternative, which includes the following components, described in detail in Chapter 3:

- Boundary A:
    - 962-square mile area of Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties (see Figure 3.1).
    - Western (shoreline) sanctuary boundary at the low water datum (LWD).
- Regulatory Option B:
    - Regulations similar to those used in other sanctuaries to protect underwater cultural resources.
    - Underwater cultural resources would include all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwreck sites.
    - Prohibitions would include:
        1. Moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess, or otherwise injure a sanctuary resource.
        2. Grappling into or anchoring on all shipwreck sites.
        3. Interfering with, obstructing, delaying, or preventing an investigation, search, seizure, or disposition of seized property in connection with enforcement of the National Marine Sanctuaries Act or any regulation or any permit issued under the National Marine Sanctuaries Act.
- *Additional regulatory provisions and definitions common to all action alternatives.*
- *Implementation of the proposed management plan and associated field activities.*

In total, under the preferred alternative, NOAA would implement regulations and a management plan to achieve the following:

- A federally-supported, comprehensive management framework for cultural resources that have been determined to be nationally significant;
- Protection for potential undiscovered historic shipwrecks and additional underwater cultural resources, such as submerged aircraft, docks, piers, prehistoric sites, and artifacts;
- NOAA-led activities to support research, resource protection, education and outreach, and enhanced public access of the National Marine Sanctuary System;
- Complementary permitting and law enforcement with the state of Wisconsin; and

- Expanded education and outreach efforts directed at long term preservation of shipwrecks, responsible use of sanctuary resources, and reduced negative human effects to these resources.

5.3.1 Impacts to Underwater Cultural Resources (Preferred Alternative)

5.3.1.1 Beneficial Impacts to Underwater Cultural Resources

Below describes the indirect and direct benefits from implementing the preferred alternative, including:

- Direct protection of sanctuary resources through regulations and components of the management plan that would directly protect underwater cultural resources from disturbance and physical damage;
- Enhanced management of underwater cultural resources from the information gained through research and monitoring activities; and
- Increased stewardship of underwater cultural resources by conducting community outreach activities that help foster awareness and stewardship of these resources.

5.3.1.1.1 Direct Protection of Underwater Cultural Resources

Under the preferred alternative, NOAA would directly protect underwater cultural resources in the sanctuary from injury and disturbances by developing regulations and implementing a long-term, comprehensive management plan. The regulations would protect underwater cultural resources by prohibiting moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess, or otherwise injure a sanctuary resource. NOAA's proposed regulations would complement the existing federal and state regulations to provide uniform protection over the entire collection of nationally significant historic shipwrecks within the designated sanctuary. These regulations enforce the principles of in-situ preservation of underwater cultural resources in the sanctuary to maintain their long-term integrity.

NOAA would also directly protect underwater cultural resources by developing a mooring buoy program to prevent potential damage that may be caused by anchoring into or grappling directly into the shipwreck structure. The use of anchors and grappling hooks can damage shipwrecks due to tearing, breaking, crushing, or other physical disturbances of the shipwrecks. The mooring buoy program would prevent such damage by installing USCG-approved moorings that provide a secure and convenient anchoring point for users. This would eliminate the need for grappling to locate sites and for anchoring directly into a shipwreck site. In addition, moorings would provide clear notice to boaters of the presence of a known shipwreck site.

Under the preferred alternative, the prohibition to prevent grappling and anchoring would apply to all shipwrecks, even those without mooring buoys. To help prevent damage and ensure compliance with the prohibition in areas where moorings are not yet present, NOAA would publish guidelines to promote the use of best practices for anchoring near shipwrecks sites. An example of a best practice could include instructions on using a weighted line and surface float

("shot line") to mark a wreck for divers to descend and ascend that is removed before the dive boat leaves the area.

During the two-year delay on the anchoring/grappling prohibition, NOAA will also consider developing a permitting process to allow for mooring line attachment to shipwrecks in places where a mooring buoy is not installed. Through the sanctuary permitting process, approved users would be able to tie a semi-permanent mooring line into certain shipwrecks sites. This permitting process would allow divers to access these shipwrecks in a more sustainable manner than grappling by attaching a semi-permanent mooring line directly to a shipwreck site. NOAA would further minimize any direct damage by issuing permits for a limited duration and by working with the permittee to ensure that the attachment point would be in an area of the shipwreck that would be the least susceptible to physical damage.

NOAA would adopt a streamlined permitting system to ensure it is not overly burdensome on the user. Consequently, NOAA determined that the preferred alternative would result in **significant beneficial impacts** on underwater cultural resources based on the direct and permanent protections to underwater cultural resources that would be provided by implementing regulations to prohibit harm or injury to shipwrecks, including a prohibition on grappling and anchoring at all shipwreck sites.

5.3.1.1.2 Enhanced Management of Underwater Cultural Resources Through Research and Monitoring

NOAA's designation of a sanctuary would enhance the management of underwater cultural resources through additional data and information to support informed management decisions. For example, NOAA would provide research and monitoring programs that would fill important gaps in archaeological knowledge and historical context of these shipwrecks. Under the preferred alternative, as part of its resource protection action plan, NOAA would conduct research to assess and collate baseline data on the 36 known shipwrecks and their associated artifacts. NOAA or its partners may also survey for the 59 unknown shipwrecks. NOAA would also gain information about the character and location of shipwrecks using such activities as scuba dive surveys, ROV surveys, and towed instrument or remote sensing activities. Sanctuary management would use this information to identify shipwrecks for protection efforts such as installing mooring buoys to prevent anchor damage. In order to assess their condition over time, NOAA would develop and implement a monitoring program for the underwater cultural resources in the sanctuary. In total, NOAA's research and monitoring activities would have **significant beneficial impacts** on underwater cultural resources by broadening the research community's knowledge of what lies within Lake Michigan and informing management strategies that would improve the long-term preservation of these resources.

5.3.1.1.3 Enhanced Stewardship Through Education and Outreach Activities

Education, outreach, and community engagement supported by federal resources would enhance protection of underwater cultural resources in the sanctuary by fostering awareness and stewardship of these resources. The Sanctuary management plan would include strategies for promoting public education about sustainable and responsible use of the resources. For example, NOAA would develop outreach programs that endorse sanctuary resource protection, such as publicizing best management practices for scuba divers to minimize their impacts while

wreck diving. NOAA anticipates that under the preferred alternative, its education and outreach efforts would have **significant, beneficial impacts** on the underwater cultural resources by enhancing public appreciation of the historical significance of these resources and encouraging public stewardship of the area.

5.3.1.1.4 Summary of Beneficial Impacts to Underwater Cultural Resources

The preferred alternative would directly protect underwater cultural resources in the sanctuary from injury and disturbance by developing long-term sanctuary-wide regulations, including a prohibition on grappling and anchoring at all sites. In addition, implementing the management plan would have beneficial impacts on underwater cultural resources by broadening the research community's knowledge of what lies within Lake Michigan and informing management strategies that would improve the long-term preservation of these resources. Similarly, education and outreach efforts would have long-term, beneficial impacts on the underwater cultural resources by enhancing public appreciation of the historical significance of these resources and encouraging public stewardship of the area. Based on these actions that would reduce continuing degradation of these resources, improve decision making from long-term management planning, and increase knowledge about the shipwrecks, NOAA determined that the preferred alternative would result in **significant beneficial impacts** to underwater cultural resources within the proposed sanctuary.

5.3.1.2 Adverse Impacts to Underwater Cultural Resources

Under the preferred alternative, damage to underwater cultural resources may occur during NOAA field operations and from increased tourism. Field operations that would take place to support management of the proposed sanctuary include vessel operations and maintenance; scuba operations; deployment of AUVs, ROVs, gliders, and drifters; and deployment of equipment on the lakebed (e.g., installing mooring buoys).

Scuba diving during field operations can injure underwater cultural resources if divers use improper diving techniques and make physical contact with a wreck. Under the preferred alternative, NOAA scuba diving operations would increase as part of research efforts to study the known and unknown shipwrecks within the proposed sanctuary. However, NOAA divers are highly trained, follow best management practices, and generally conduct non-invasive activities, such as recording (photo-video documentation and measurements), when conducting field work.

Recreational or other non-NOAA divers could also damage underwater cultural resources by using improper diving techniques. Designating the national marine sanctuary may increase non-NOAA dive traffic on the wrecks, and installing mooring buoys at wreck sites may concentrate use on those wrecks. However, the regulatory prohibitions, the mooring buoy program, and the permitting system would help ensure sustainable diving practices to minimize any direct impacts to the shipwrecks. Similarly, education and outreach efforts would help promote responsible use of the sanctuary and increase public appreciation and stewardship of these resources.

Deploying AUVs, ROVs, and remote sensing equipment to better document underwater cultural resources within the proposed sanctuary carries a slight risk of entanglement or accidental

contact with a wreck. However, NOAA operators are highly trained, deploy these types of vehicles regularly, and follow NHPA protocols that describe how to avoid harm to historic artifacts. In addition, research efforts would be of relatively low intensity and frequency.

5.3.1.2.1 Summary of Adverse Impacts to Underwater Cultural Resources

Based on the mooring buoy program that would limit direct interactions with the shipwrecks, best management practices that NOAA would follow during research activities and other field operations, the protections afforded to underwater cultural resources within the proposed sanctuary, and the education and outreach activities that would encourage public stewardship, NOAA determined that the preferred alternative could result in **negligible adverse impacts** on underwater cultural resources.

5.3.2 Impacts to Human Uses and Socioeconomic Resources (Preferred Alternative)

Under the preferred alternative, NOAA would bring resources and national visibility to provide coordinated promotion of regional recreational activities and human uses within the designated sanctuary area.

5.3.2.1 Beneficial Impacts to Human Uses and Socioeconomic Resources

5.3.2.1.1 Enhanced Promotion of Shipwreck Tourism and Improved Recreational Experiences

National visibility and regional coordination of sanctuary messaging and promotion of regional visitor opportunities would likely attract more tourists, especially divers interested in viewing shipwrecks. NOAA anticipates that the research, education, interpretation, and outreach activities associated with the preferred alternative would have a positive impact on tourism by heightening public awareness of, and interest in, the underwater cultural resources found in Lake Michigan. This increase in tourism would be driven by name recognition associated with the significance of becoming a national marine sanctuary and NOAA's own outreach and advertising activities for the sanctuary and region.

NOAA would work with state and local partners to create more public exhibits, improve outreach, and raise awareness and knowledge to enhance the visitor experience. For example, designating the sanctuary would complement and enhance the state of Wisconsin's Maritime Trails initiative, which encourages divers, snorkelers, boaters, and maritime enthusiasts to visit maritime resources while following best management practices to reduce adverse impacts to these resources. While the specific efforts and partners would be determined as part of the implementation of the sanctuary management plan, NOAA's top priority would be creating opportunities for people to learn about and visit the proposed sanctuary. NOAA would likely partner with existing institutions, such as the Wisconsin Maritime Museum, Port Exploreum, and Rogers Street Fishing Village, among others, to develop exhibits and programs. NOAA anticipates that this involvement would increase visitation at these locations.

The preferred alternative would result in improved recreational experiences for the public through the distribution of maps that would help users to locate the shipwrecks and the implementation of a mooring buoy program that would make the wrecks more easily accessible.

The mooring buoys would provide a clear indication of where specific shipwrecks are located, which would make it easier for divers to locate the shipwrecks. In addition, NOAA would distribute sanctuary maps to the public that include the location of known and suspected shipwreck sites. As appropriate, NOAA would update the maps as new shipwreck sites are found, increasing the number of known sites to divers to visit.

Based on the anticipated increase in tourists driven by the name recognition associated with the significance of becoming a national marine sanctuary; NOAA's management plan goals to create more public exhibits, improve outreach, and raise awareness and knowledge of sanctuary resources; and an improved dive experience from the implementation of a mooring buoy program and distribution of sanctuary maps, NOAA determined that the preferred alternative would result in **less than significant beneficial impacts** due to the enhanced promotion of shipwreck tourism and improved recreational experiences. In the framework of NEPA, the finding of less than significant beneficial impacts is based upon a conservative evaluation with high confidence. Although it is expected that the sanctuary designation will have positive impacts to human uses, given an absence of baseline data specific to the proposed WSCNMS designation and region, NOAA is unable to state the impacts would be significant with certainty. However, at the existing Great Lakes national marine sanctuary (Thunder Bay National Marine Sanctuary) in Alpena, Michigan, there is good evidence supporting the idea that new national marine sanctuaries in the Great Lakes would support and enhance tourism and related efforts. For example, a 2018 study analyzing users of attractions at Thunder Bay National Marine Sanctuary found that nearly half of out-of-town visitors cited the sanctuary visitor center (the Great Lakes Maritime Heritage Center) and Alpena Shipwreck Tours, a glass bottom boat that visits shipwrecks, had "a lot" to do with their decision to visit the area (Schwarzmann et al. 2019), as well as other positive findings.[62]

5.3.2.1.2 Increased Spending and Positive Contribution to the Local Economy

The natural, recreational, and underwater cultural resources located along Wisconsin's central Lake Michigan coastline are integral to the region's current economy, support a vibrant quality of life, and create a unique sense of place. An increase in tourists to the proposed sanctuary could continue to benefit the local economy in many ways. The increase in tourism may result in an associated increase in potential revenue since tourists may stay at hotels, eat at restaurants, purchase supplies from dive shops, and visit other local businesses. Such business may be newly established or enhanced from the increased visitation. For example, a dive shop recently opened in Port Washington in part due to the proposed national marine sanctuary. New or expanded boat charter businesses could be established, as in the case of the Skyline Princess tour boat company in Manitowoc that operated for several months during the summer of 2016.

NOAA determined that the preferred alternative would result in **less than significant beneficial impacts** due to the increase in potential revenue and positive contributions to the local economy since tourists may stay at hotels, eat at restaurants, purchase supplies from dive shops, and visit other local businesses. Although it is expected that the sanctuary designation

[62] The full report can be found at https://sanctuaries.noaa.gov/science/conservation/2020-thunder-bay-socioeconomic-profile-and-uses-vol-3.html.

will have positive impacts to the local economy, given an absence of baseline data specific to the proposed WSCNMS designation and region, NOAA is unable to state the impacts would be significant with certainty. However, as mentioned above, the similar heritage-based Thunder Bay National Marine Sanctuary has had positive impacts in the northeastern Michigan region. For example, the 2018 study in Thunder Bay National Marine Sanctuary referenced above, found that of those who used the Great Lakes Maritime Heritage Center and Alpena Shipwreck Tours, their spending in the study area totaled $32.4 million and supported nearly 500 jobs and $40.0 million in output. Visitors to the region accounted for 88% of the total spending (Schwarzmann et al. 2019).

5.3.2.1.3 Increased Value from Sanctuary Designation

Many of the goods and services provided by cultural and heritage resources do not require market transactions to derive benefit. Even if a person must spend money to access the resource, such as an entrance fee to a park, the price of admission does not reflect their true value. The difference between the price a person pays and the most they would be willing to pay for the good or service is what economists refer to as consumer surplus. This consumer surplus is a person's non-market value and does not require a person to actually use the resource. One such study to evaluate willingness to pay for the protection of cultural and heritage resources completed for the Graveyard of the Atlantic (which includes Monitor National Marine Sanctuary) found that people's willingness to pay for maritime heritage increased with expansion of the number of shipwrecks protected and the level of investments in museum exhibits, maritime heritage trails – including virtual trails using video and mobile phone technology – and educational workshops on maritime heritage and training in maritime archaeology.[63] Given this, the increase in non-market value from a sanctuary designation is expected to have **significant beneficial impacts** to the general public. The significant beneficial impact can be attributed to the fact that to receive consumer surplus from the sanctuary designation, a person does not have to actually use the resource; they only must value the protections. Consequently, unlike the previous sections on human use and the local economy, this section accounts for the benefits received by both users and non-users of a sanctuary designation.

5.3.2.1.4 Reduced Entanglement of Fishing Gear and Related Costs to Commercial and Recreational Fishing

Sanctuary activities could indirectly benefit commercial and recreational fishing by reducing the likelihood of fishing gear entanglement with shipwrecks or other lake bottom structures that could tear, damage, or otherwise destroy fishing gear. For example, NOAA's management plan includes efforts to better characterize the lake bottom, including the location of structures that could damage fishing gear; installing buoys to clearly identify shipwreck locations; and disseminating such information through public maps and other sources. These activities would benefit commercial and recreational fishing by helping fishers better avoid these areas, limiting entanglement of fishing gear, and avoiding user conflict between fishers and divers near shipwrecks. The proposed action does not include any regulations specific to commercial

[63] Mires, C.H., 2014. The value of maritime archaeological heritage: an exploratory study of the cultural capital of shipwrecks in the graveyard of the Atlantic. Doctoral dissertation. East Carolina University, Greenville, NC.

fishing. NOAA determined that the preferred alternative would result in **negligible beneficial impacts** due to the indirect benefits to commercial and recreational fishing from reducing the likelihood of fishing gear entanglement with shipwrecks or other lake bottom structures that could tear, damage, or otherwise destroy fishing gear.

5.3.2.1.5 Summary of Beneficial Impacts to Human Uses and Socioeconomic Resources

The preferred alternative would result in several beneficial impacts to human uses and socioeconomic resources, including:

- An increase in tourists driven by:
    - Name recognition associated with the significance of becoming a national marine sanctuary;
    - Collaboration with state and local partners to create more public exhibits, improve outreach, and raise awareness and knowledge of sanctuary resources; and
    - An improved dive experience from the implementation of a mooring buoy program and distribution of sanctuary maps that would make the wrecks more easily accessible.
- An increase in potential revenue and positive contributions to the local economy since tourists may stay at hotels, eat at restaurants, purchase supplies from dive shops, and visit other local businesses.
- An increase in willingness to pay (non-market value) for additional protection to cultural and heritage resources, trails, interactive experiences, and educational opportunities.
- Indirect benefits to commercial and recreational fishing by reducing the likelihood of fishing gear entanglement with shipwrecks or other lake bottom structures that could tear, damage, or otherwise destroy fishing gear.

Based on the above activities, NOAA anticipates that under the NEPA analysis framework, the preferred alternative would result in **less than significant beneficial** effects on human uses and socioeconomic resources in the study area. Again, NOAA cannot state this conclusion with certainty. Future monitoring, in addition to the collection of baseline data, will help to determine if the benefits derived from designation resulted in larger benefits than reported here.

5.3.2.2 Adverse Impacts to Human Uses and Socioeconomic Resources

5.3.2.2.1 Potential User Conflicts from Increased Tourism

The number of boats operating within the proposed sanctuary would likely increase under the preferred alternative because of management activities using NOAA-authorized or operated vessels and visitors using recreational boats. This projected increase in boats could potentially cause conflicts among recreational boaters and the various industries that currently operate within the proposed sanctuary (e.g., commercial shipping, commercial fisheries). Given that the increase in boating tourists would be relatively small compared to overall boating activity on Lake Michigan, and tourists would remain within the proposed sanctuary for a limited amount of time, NOAA does not expect this increase in boats to be on a scale that would cause user conflicts. In addition, NOAA expects that field operations would result in relatively few vessel

trips per year compared to overall boating activity of Lake Michigan, and each vessel trip would be of a short duration. Therefore, boat traffic is not expected to rise to the level where conflicts between users or safety issues would occur. The mooring buoy program and NOAA-issued maps would also help minimize the likelihood of user conflicts since industry and recreational boaters would be aware of and avoid popular dive locations and submerged shipwrecks. Based on the relatively small increase in boats on the lake and the implementation of the mooring buoy program and distribution of maps to clearly mark popular diving locations, NOAA determined that the preferred alternative would have **negligible adverse impacts** on human uses of the study area from potential user conflicts within the proposed sanctuary.

5.3.2.2.2 Potential Burden on Infrastructure

An increase in visitors could result in more vehicular traffic on roads and use of other public services when tourists visit the proposed sanctuary and adjacent shoreline. However, given that the increase in tourists would be relatively small compared to the overall vehicular traffic, and tourists would remain within the proposed sanctuary for a limited amount of time, NOAA does not expect this increase to be on a scale that existing public facilities and roadways would be unable to accommodate. Furthermore, NOAA does not anticipate an increase in population in the study area, because tourists would not likely permanently relocate to the Wisconsin coastal area near the proposed sanctuary. Similarly, if workers are hired due to increased patrons at hotel, restaurant, dive, or tour company businesses, population and employment numbers suggest that additional workers could be hired from within the local population. As such, the increased business would not result in an influx of workers that permanently relocate to the area surrounding the proposed sanctuary. Given that NOAA does not anticipate any permanent relocation of workers or tourists, there would be **negligible adverse impacts** from any potential increased traffic to the area.

5.3.2.2.3 Summary of Adverse Impacts to Human Uses and Socioeconomic Resources

Based on the temporary increase in tourists that would be spread out over a large area, and maps that would help avoid user conflicts, NOAA determined that the potential **adverse** impacts on infrastructure and resources from increased human use would be **negligible**.

5.3.2.3 Human Use Activities that Would Not Be Impacted

Implementation of regulations in the proposed sanctuary would not affect commercial shipping and military activities, as all harbors, marinas, and shipping lanes would be excluded from the sanctuary boundaries, no sanctuary regulation would limit regular military activities, and sanctuary regulations would not impose any restrictions on vessels transiting the sanctuary. NOAA excluded the commercial ports and marinas of Two Rivers, Manitowoc, Sheboygan, and Port Washington from the preferred alternative in order to avoid any potential use conflicts with the shipping industry. In addition, with the passage of the Coast Guard Authorization Bill of 2015, USCG and EPA regulations prohibiting ballast water exchange in national marine sanctuaries would not apply to this proposed sanctuary since this is a Great Lakes sanctuary that protects maritime heritage resources.

As noted in Section 3.3.3.2, anchoring within the sanctuary would only be prohibited on shipwreck sites. NOAA designed this regulation to protect historic shipwreck sites from dive-vessel related anchor damage, while still allowing anchoring outside of these discrete areas in order to avoid any impacts to commercial shipping.

The proposed action does not include any regulations related to oil and gas drilling. These activities have been prohibited in the Great Lakes by Section 386 of the Energy Policy Act of 2005, and therefore, the sanctuary designation would not have an effect on this activity.

5.3.3 Impacts to Physical Resources (Preferred Alternative)

Under the preferred alternative, regulations and management plan objectives would be designed to protect sanctuary underwater cultural resources in the proposed sanctuary. Management activities in support of these objectives, such as vessel operations and research activities, may increase some negative effects on physical resources in the action area. The proposed sanctuary designation may also attract more public users to the area, resulting in increased boat traffic and associated air and water pollution.

5.3.3.1 Beneficial Impacts to Physical Resources

5.3.3.1.1 Less Disturbance of the Lakebed

Under the preferred alternative, NOAA would prohibit grappling into or anchoring on a shipwreck site. Although the purpose of the prohibition is to protect underwater cultural resources, the prohibition could also result in beneficial impacts to physical resources by reducing disturbance of the lakebed. Anchoring can gouge depressions into sediment or create new holes in substrate if anchors are dragged along the lakebed or dropped in soft sediments. Altering the lakebed structure and other physical interactions between the anchor and the lakebed could stir up or resuspend sediments, causing localized increases in turbidity. In addition, installing mooring buoys at popular shipwreck sites would provide users a means of anchoring their vessels close to shipwrecks but would eliminate disruption of sediments and possible water quality degradation that may be caused by anchoring to the lakebed. Therefore, prohibiting anchoring near shipwrecks and encouraging the use of mooring buoys would limit lakebed disturbance, thereby resulting in a **negligible beneficial impact** to the lakebed and water quality.

Regulations that prohibit moving, removing, recovering, or otherwise injuring underwater cultural resources, such as shipwrecks, would also indirectly protect the lakebed below and near the shipwreck. Recreational divers would not be allowed to cause any injury or to take any underwater cultural resources. If damage to these resources were restricted, damage to the adjacent and underlying lakebed would be less likely to occur, because less activity would be concentrated near the shipwreck sites. In addition, salvage activities that would likely damage the substrate would be prohibited. Restricting lakebed disturbance from salvaging or other activities that could disturb shipwrecks would also result in a **negligible beneficial impact** to the lakebed and water quality.

5.3.3.1.2 Summary of Beneficial Impacts to Physical Resources

In summary, prohibiting anchoring on and damage to underwater cultural resources and encouraging the use of mooring buoys would result in a **negligible beneficial impact** on physical resources in the study area. These activities would reduce the likelihood for anchors to disturb the lakebed, which could alter the lakebed structure and stir up sediments to cause increased turbidity and a localized decline in water quality. Additionally, prohibitions on activities such as salvaging would reduce opportunities for the lakebed to be disturbed when it is associated with a sanctuary resource.

5.3.3.2 Adverse Impacts

5.3.3.2.1 Minor Direct Disturbance of the Lakebed in Small Areas

Installation and maintenance of mooring buoys and other equipment on the lakebed could result in direct local disturbances to the physical properties of the lakebed. Installation of a mooring system requires placing a steel block (typically a train wheel) on the lakebed. While this activity could very minimally change the structural properties of the lakebed, **adverse impacts** from installation and maintenance of mooring buoys and lakefloor equipment would be **negligible** due to the very small amount of area that would be directly disturbed (less than 2 square meters) and the implementation of best management practices, such as selecting installing sites that avoid important lakefloor structures.

5.3.3.2.2 Potential for Localized, Temporary Decline in Water Quality

Vessel operations and the installation and maintenance of mooring buoys could result in a localized, temporary degradation of water quality during certain activities. Turbidity could temporarily increase during the installation and maintenance of mooring buoys when NOAA would use drills to anchor equipment to the lakebed. Vessel operations could result in minimal adverse impacts to water quality due to the small potential for a localized decline in water quality from unintended fuel, lubricant, sewage, or garbage spills from sanctuary vessels. Adherence to ONMS best management practices and NOAA's guidance would minimize the likelihood of a spill and the impacts if a spill were to occur. In addition, any localized decline in water quality would dissipate quickly. Therefore, NOAA determined that the **adverse effects** of these activities on water quality would be **negligible** because the activities would be short-term and localized, and sanctuary staff would employ training procedures and a variety of other best management practices to avoid or minimize impacts to water quality.

5.3.3.2.3 Low Generation of Air Emissions

Under the preferred alternative, air quality could be affected by the generation of emissions during NOAA-authorized vessel operations and indirectly from the potential increase in recreational boaters. Adherence to ONMS best management practices would minimize impacts of NOAA-authorized vessel activity. Similarly, education and outreach efforts would help promote responsible use of the sanctuary and increase public appreciation and stewardship of these resources. Therefore, under this alternative, there would be **negligible adverse** impacts to air quality from vessel exhaust in the sanctuary.

5.3.3.2.4 Summary of Adverse Impacts to Physical Resources

Under the preferred alternative, adverse impacts to physical resources could result from the direct disturbance of installing mooring buoys, the potential localized and temporary decline in water quality from unintended spills, and the low generation of emissions during vessel operations. NOAA determined that these activities would result in **negligible adverse impacts** on physical resources in the study area due to the small amount of lakebed that would be directly disturbed, the implementation of best management practices such as selecting installing sites that avoid important lakefloor structures, the low potential for an unintended spills or leaks, and the low level of vessel operations.

5.3.4 Impacts to Biological Resources (Preferred Alternative)

5.3.4.1 Beneficial Impacts

5.3.4.1.1 Biological Habitat

Any disturbance of underwater cultural resources not only jeopardizes the preservation of these resources, but could also disturb associated habitat for aquatic biota. The regulations proposed under the preferred alternative would regulate salvage, artifact taking, activities using suction equipment, anchoring on the shipwrecks, and other activities that could damage or otherwise injure shipwrecks and potentially degrade biological habitat for aquatic organisms. Mooring buoys would protect benthic habitat by providing boaters an option to remain near shipwrecks without damaging habitat by dropping anchors on the lake bottom. Given that sanctuary regulations would protect underwater cultural resources that may provide habitat for aquatic biota, but only at 36 discrete locations (shipwreck sites), the preferred alternative would result in **negligible beneficial** impacts to benthic habitats.

5.3.4.2 Adverse Impacts

5.3.4.2.1 Temporary Displacement or Disturbance of Fish, Birds, and Other Wildlife

When vessels transit within the proposed sanctuary, minor acoustic disturbance from engine noise could impact fish, birds, or other wildlife in the area of vessel activity. Scuba divers visiting shipwreck sites, whether recreational or for management or research purposes, may also disturb and displace mobile organisms through their physical movements or noise. If any species were to be within close enough proximity to a NOAA-authorized vessel, recreational boat, or scuba divers, the interaction could result in a response ranging from no reaction to a startled reaction that leads to a rapid fleeing from the area. In such cases, organisms would be able to move to nearby suitable habitat. For sonar surveys, sound detection by the majority of freshwater fishes, and hence behavioral disturbance and hearing impairment, is unlikely to occur due to the much higher frequencies of these instruments relative to fish hearing capabilities. For those species capable of detecting the frequencies of sonar equipment, the greatest potential for adverse impacts as a result of active underwater acoustic sound sources would be related to changes in behavior. Fish usually avoid human activity. As a result, the most likely effect on fish from interactions with vessels, scuba divers, or sonar equipment, would be a moderate to high energy avoidance behavior resulting in the animal temporarily leaving the immediate area unharmed. This disturbance would be brief and is not likely to significantly impact the organism's ability to

feed, reproduce, or avoid predators. Species occurring near popular docks or shipwrecks would likely be familiar with the current levels of recreational diving that occurs. Therefore, these activities would be unlikely to cause species to avoid or abandon habitat within the proposed sanctuary.

Disturbance from vessel activities would be minimized because of the low level of NOAA-authorized vessel trips likely to occur within a year, and the relatively short duration of each trip. Disturbance from research activities such as diving would be minimized because staff are highly trained and would follow best management practices to protect biological resources and to avoid, or minimize, disturbing species. Many proposed management plan activities involve educating the public and researchers about and promoting the responsible use of biological resources in the sanctuary (see Appendix A). These outreach and educational activities would help ensure that all user groups are aware of the need to avoid or minimize impacts to habitat. Thus, the **adverse effects** from vessel disturbances and scuba activities within the proposed sanctuary would be **negligible** given that noise from operational activity would be of limited duration, NOAA-authorized vessels and divers would follow best management practices, and in the event of disturbance organisms could move to adequate suitable habitat nearby.

5.3.4.2.2 Minor Direct Disturbance of Benthic Habitat in Small Areas

Installation and maintenance of mooring buoys and other equipment on the lakebed could result in direct local disturbances to the lakebed. Installation of a mooring system requires placing a steel block (typically a train wheel) on the lakebed. While this activity could very minimally change the structural properties of the lakebed, **adverse impacts** from installation and maintenance of mooring buoys and lakefloor equipment would be **negligible** due to the very small amount of area that would be directly disturbed (less than 2 square meters) and the implementation of best management practices such as selecting sites that avoid important lakefloor structures.

5.3.4.2.3 Localized, Temporary Decline in Water Quality

Installation and maintenance of mooring buoys and vessel operations could result in a localized, temporary degradation of water quality and pelagic habitat during certain activities. Turbidity could temporarily increase during the installation and maintenance of mooring buoys when NOAA would use drills to anchor equipment to the lakebed. Vessel operations could result in minimal adverse impacts to water quality due to the small potential for a localized decline in water quality from unintended fuel, lubricant, sewage, or garbage spills from sanctuary vessels. Adherence to ONMS best management practices and NOAA guidance would minimize the likelihood of a spill and the impacts if a spill were to occur. In addition, any localized decline in water quality would dissipate quickly. Based on similar field operations at other national marine sanctuaries, such as Thunder Bay National Marine Sanctuary, the **adverse effects** of these activities on biological resources in the action area would be **negligible** because the activities would be short-term and localized, and sanctuary staff would employ training procedures and a variety of other best management practices to avoid or minimize impacts to water quality and pelagic habitats.

5.3.4.3 Impacts to Federally Protected Species and Habitats

NOAA analyzed the potential environmental consequences to protected species and habitats within the regulatory framework of the relevant statute, including the ESA and the MBTA. As noted in Section 4.5.4, no Essential Fish Habitat, as defined under the MSA, occurs within Lake Michigan. See Section 6.1 for additional information regarding other federal and state consultations, and the regulatory framework for other federal and state laws.

5.3.4.3.1 Endangered Species Act

As noted in Section 4.5.4.1, NOAA determined that seven species listed under the ESA may occur in the action area. In addition to these seven species, NOAA determined that the rusty patched bumble bee would not occur within the action area, and therefore, the proposed action would have **no effect** on this species. NOAA analyzed the potential for impacts to the seven species that may occur within the action area, as discussed below.

The red knot and the piping plover may infrequently occur within the action area during the limited portions of the year that they breed, foraging, or migrate through Lake Michigan. NOAA determined that the proposed action would result in **no effect** to these species because of following:

- The low intensity of activities that would occur within the sanctuary, especially along the shoreline where these species would be most likely to occur;
- The small migratory period when the red knot may transit through the sanctuary or forage within coastal areas of the lake; and
- The infrequent observations of piping plovers along the shoreline within the action area.

The northern long-eared bat and the Hine's emerald dragonfly would not occur within the proposed sanctuary, but may infrequently roost, travel, or forage within riparian forests that are adjacent to the proposed sanctuary. NOAA determined that the proposed action would result in **no effect** on these species because sanctuary management activities would not occur in these habitats adjacent to the proposed sanctuary.

Three terrestrial plants, the dwarf lake iris, the eastern prairie fringed orchid, and the Pitcher's thistle, may occur within terrestrial habitats adjacent to the proposed sanctuary. NOAA determined that the proposed action would result in **no effect** to these three terrestrial plants because no ground-disturbing or other activities would occur outside the sanctuary, where these species would occur.

Therefore, NOAA determined that the proposed action would result in **no effect** on species listed or proposed to be listed under the ESA (see Table 5.2).

Table 5.2. Effect Determination for ESA-listed Species Under USFWS Jurisdiction Potentially Found in the Action Area

Species Common Name	Species Name	Status	Effect
Northern long-eared bat	*Myotis septentrionalis*	Threatened	No effect
Red knot	*Calidris canutus rufa*	Threatened	No effect
Piping plover	*Charadrius melodus*	Endangered	No effect
Hine's emerald dragonfly	*Somatochlora hineana*	Endangered	No effect
Rusty patched bumble bee	*Bombus affinis*	Endangered	No effect
Dwarf lake iris	*Iris lacustris*	Threatened	No effect
Eastern prairie fringed orchid	*Platanthera leucophaea*	Threatened	No effect
Pitcher's thistle	*Cirsium pitcheri*	Threatened	No effect

As noted in Section 4.5.4.1, designated critical habitat for the piping plover occurs along sandy beaches adjacent to the proposed sanctuary. The proposed action would not include any ground-disturbing activities along the shoreline. Field operations and other activities to implement the proposed management plan would primarily occur within buildings or on the water. Therefore, NOAA determined that the proposed action would have **no effect** on designated critical habitat because the proposed action would not result in a direct or indirect alteration that would appreciably diminish the value of critical habitat for both the survival and recovery of the piping plover.

5.3.4.3.2 Migratory Birds

Section 4.5.4.2 describes the 24 bird species protected under the MBTA that may be found transiting, resting, or foraging within the sanctuary. The MBTA prohibits pursuing, hunting, taking, capturing, or killing migratory birds, their nests, or their eggs. Based on the Department of Interior's memo dated December 22, 2017,[64] this prohibition is limited to activities whereby the purpose of the activity is to pursue, hunt, take, capture, or kill migratory birds, their nests, or their eggs. Incidental take, where a take may occur during an activity but is not the purpose of that activity, is no longer considered a take under the MBTA.

Any impacts to migratory birds would be negligible and incidental, such as human disturbances from vessel traffic, noise from recreational activities, or from other activities in support of the sanctuary management such as research or educational activities. Since any disturbances would be negligible and incidental, no take under the MBTA would occur under the proposed action.

[64] See doi.gov/sites/doi.gov/files/uploads/m-37050.pdf.

5.4 Impacts of Other Action Alternatives (Alternatives 1, 3, and 4)

This section describes the beneficial and adverse impacts from the other action alternatives (alternatives 1, 3, and 4), as described in detail in Section 3.3. The other action alternatives are as follows:

- Alternative 1 (Boundary A, Regulatory Option A, management plan)
- Alternative 3 (Boundary B, Regulatory Option A, management plan), and
- Alternative 4 (Boundary B, Regulatory Option B), management plan).

The major differences between Boundary B and the Boundary A are that under Boundary B:

- The proposed sanctuary would be larger (1,260-square miles vs. 962-square miles).
- More known shipwrecks would be included in the proposed sanctuary (40 vs 36).
- More unknown shipwrecks would be included in the proposed sanctuary (73 vs 59).
- The proposed western (shoreline) sanctuary boundary would be the ordinary high water mark rather than the low water datum.

The major differences between Regulatory Option A and Regulatory Option B are that under Regulatory Option A:

- Grappling into or anchoring on shipwrecks would only be prohibited at shipwrecks marked with a mooring buoy, not at all shipwrecks in the proposed sanctuary.

Given the similarities among the various alternatives, the analysis below focuses on any differences in consequences between the preferred alternative and the other action alternatives.

5.4.1 Impacts to Underwater Cultural Resources (Alternatives 1, 3, and 4)

5.4.1.1 Direct Protection of Underwater Cultural Resources

NOAA's regulations and management activities that would occur under the other action alternatives would have the same type of beneficial and adverse impacts on the sanctuary's underwater cultural resources as described for the preferred alternative (see Section 5.3.1). However, the intensity of the impacts would vary slightly, as explained below, given that Boundary B is larger than Boundary A, and that Regulatory Option B is slightly more protective than Regulatory Option A.

Alternatives 3 and 4 (which include Boundary B) would protect and manage 40 known shipwrecks, which is four additional known shipwrecks as compared to alternatives 1 and 2 (the preferred alternative), which include Boundary A. Alternatives 3 and 4 would also protect 73 unknown shipwrecks, which is 14 additional unknown shipwrecks as compared to alternatives 1 and 2 (the preferred alternative) that include Boundary A. Overall, the sanctuary under alternatives 3 and 4 (Boundary B) would extend over a 298 mi_2 (771.8 km_2) larger area in Lake Michigan waters off Ozaukee, Sheboygan, Manitowoc, and Kewaunee counties in Wisconsin. Including these additional shipwrecks within the boundary of the proposed sanctuary would allow NOAA to conduct research and monitoring activities on more sites, which would increase

the amount of new archaeological information available for the research community and the public. In addition, NOAA would have more information about shipwrecks to better inform its management decisions and long term plans. Nonetheless, all the action alternatives would protect a substantial number of nationally significant shipwrecks. Based on the number of nationally significant shipwrecks within all the action alternatives, all the action alternatives (alternatives 1, 2. 3, and 4) would result in **significant beneficial impacts** on underwater cultural resources in the study area.

Implementing Regulatory Option A under alternatives 1 or 3 would provide slightly less protections to shipwrecks than Regulatory Option B under alternatives 2 (preferred) and 4. Specifically, under alternatives 1 and 3, NOAA would implement a prohibition on the use of grappling hooks and other anchoring devices only on shipwreck sites when there is a mooring buoy present. For shipwrecks where a mooring buoy is not located, divers and other visitors to the shipwreck site would be allowed to use grappling hooks or other anchoring devices at shipwreck sites. However, the prohibition on damaging underwater cultural resources (defined as "injury" under the regulations) would apply to all shipwrecks in the proposed sanctuary. Therefore, grappling and anchoring on a shipwreck could only occur if it did not damage the shipwreck. Based on this protection that would prohibit any damage to underwater cultural resources, NOAA determined that all the action alternatives (alternatives 1, 2, 3, and 4) would result in **significant beneficial impacts**.

All other beneficial and adverse impacts to underwater cultural resources would be the same as those described in Section 5.3.1 due to the similar type and intensity of field operations and management plan activities that NOAA would implement under alternatives 1, 2, 3, or 4.

5.4.2 Impacts to Human Uses and Socioeconomic Resources (Alternatives 1, 3, and 4)

NOAA's regulations and management activities that would occur under the other action alternatives would have the same types of beneficial and adverse impacts on human uses and socioeconomic resources as described for the preferred alternative (see Section 5.3.2). However, the intensity of the impacts would vary slightly, as explained below, given that Boundary B is larger than Boundary A.

Under all the action alternatives, the national visibility of a marine sanctuary would likely attract more tourists to the sanctuary and local region, especially divers interested in viewing shipwrecks. This increase in tourism would be driven by name recognition associated with the significance of becoming a national marine sanctuary and NOAA's own outreach and advertising activities for the sanctuary and region. NOAA's research, education, interpretation, and outreach activities would also have a positive impact on tourism by heightening public awareness of, and interest in, the underwater cultural resources found in Lake Michigan. However, because of the additional shipwrecks protected under Boundary B (included in alternatives 3 and 4), NOAA's promotion of the sanctuary would be slightly wider in scope than in alternatives 1 and 2. As noted above, Boundary B would protect an additional four known shipwrecks and 14 potential shipwrecks compared to Boundary A and extend over a 298 mi^2 (771.8 km^2) larger area in Lake Michigan. A recent study analyzing the economic contributions

of Thunder Bay National Marine Sanctuary found that nearly half of out-of-town visitors cited the sanctuary visitor center (the Great Lakes Maritime Heritage Center) and Alpena Shipwreck Tours (a glass bottom boat that visits shipwrecks) as having "a lot" to do with their decision to visit the area (Schwarzmann et al. 2019). A larger sanctuary that protected a larger number of shipwrecks could result in slightly more tourists, and therefore, slightly more spending at local businesses, such as hotels, restaurants, dive shops, and other local businesses. Nonetheless, the national visibility of a marine sanctuary from all the action alternatives would likely attract more tourists to the sanctuary and local region, and result in **less than significant beneficial impacts** to human uses and socioeconomic resources due to the improved recreational experiences and positive economic benefits. The finding of less than significant beneficial impacts is based upon a conservative evaluation with high confidence. Further, it is expected that the sanctuary designation will have positive impacts to human uses, but given an absence of baseline data NOAA is unable to state the impacts would be significant with certainty.

All other adverse and beneficial impacts to human uses and socioeconomic resources would be the same as those described in Section 5.3.2 due to the similar type and intensity of field operations and management plan activities that NOAA would implement under alternatives 1, 2, 3, or 4.

Similar to the preferred alternative (Alternative 2), alternatives 1, 3, and 4 would have no effect on commercial shipping, military activities, or the population size in adjacent communities since sanctuary regulations or other activities would not impose any restrictions on those industries or interfere with their activities occurring in the proposed sanctuary.

5.4.3 Impacts to Physical Resources (Alternatives 1, 3, and 4)

Under alternatives 1, 3, and 4, NOAA anticipates that the type and intensity of activities that would occur in the proposed sanctuary that may affect physical resources would be similar to those described for the preferred alternative (Alternative 2). However, these anticipated activities would occur throughout a larger geographic area (298 mi_2 [771.8 km_2] additional area) under Boundary B (included in alternatives 3 and 4). Additionally, under alternatives 1 and 3, anchoring and grappling would only be prohibited at shipwreck sites with mooring buoys, not at all shipwreck sites in the proposed sanctuary. As noted above in Section 5.3.3, anchoring can result in gouging depressions into sediment or creating new holes in substrate if anchors are dragged along the lakebed or dropped in soft sediments. Altering the lakebed structure and other physical interactions between the anchor and the lakebed could also stir up or resuspend sediments, causing localized increases in turbidity. Similarly, while NOAA intends to pursue a mooring buoy program under all action alternatives, the larger sanctuary boundaries included in alternatives 3 and 4 may require more buoys and more minor disturbances of the lakebed during installation.

However, since NOAA would prioritize the installation of mooring buoys at the most popular dive sites, NOAA anticipates **negligible adverse impacts** to water quality and lakebed sediment as a result of the additional grappling and anchoring that may occur throughout the proposed sanctuary where mooring buoys are not installed.

All other beneficial and adverse impacts to physical resources would be the same as those described in Section 5.3.3 due to the similar type and intensity of field operations and management plan activities that NOAA would implement under alternatives 1, 2, 3, or 4.

5.4.4 Impacts to Biological Resources (Alternatives 1, 3, and 4)

Under alternatives 1, 3, and 4, NOAA anticipates that the type and intensity of activities that would occur in the proposed sanctuary that may affect biological resources would be similar to those described for the preferred alternative (Alternative 2). However, they would occur throughout a larger geographic area (298 mi_2 [771.8 km_2] additional area) under Boundary B (included in alternatives 3 and 4), and possibly in the area between the OHWM and the LWD if discoveries of cultural resources are made in this area. Additionally, under alternatives 1 and 3, anchoring and grappling would only be prohibited at shipwreck sites with mooring buoys, not at all shipwreck sites in the proposed sanctuary. As noted above in Section 5.3.4, anchoring can result in gouging depressions into sediment or creating new holes in substrate if dragged along the lakebed or dropped in soft sediments. Altering the lakebed structure and other physical interactions between the anchor and the lakebed could stir up or resuspend sediments, causing localized increases in turbidity. However, since NOAA would prioritize the installation of mooring buoys at the most popular dive sites, NOAA anticipates **negligible adverse impacts** to benthic habitat as a result of the additional grappling and anchoring that may occur throughout the proposed sanctuary where mooring buoys are not installed.

All other beneficial and adverse impacts to biological resources would be the same as those described in Section 5.3.4 due to the similar type and intensity of field operations and management plan activities that NOAA would implement under alternatives 1, 2, 3, or 4.

5.4.4.1 Impacts to Federally Protected Species and Habitats

5.4.4.1.1 Endangered Species Act

Based on the similar activities and action area among all the action alternatives, alternatives 1, 3, and 4 would result in **no effect** to species listed or proposed for listing on the ESA or their designated critical habitat because NOAA's activities would be concentrated within the water or in buildings. In addition, no ground-disturbing activities would be included in the proposed action.

5.4.4.1.2 Migratory Birds

Based on the similar activities and proposed sanctuary area among all the alternatives, as described above, alternatives 1, 3, and 4 would result in **no take** to species listed under the MBTA because any impacts to migratory birds would be negligible and incidental.

5.5 Comparison of Impacts

Under the no-action alternative, NOAA would not designate a national marine sanctuary in Wisconsin's Lake Michigan waters. Implementation of the no-action alternative would result in no changes to existing management of the resources or other activities taking place in this area described above in Chapter 4. The no-action alternative would forgo the beneficial effects

associated with implementing regulations and a management plan to provide comprehensive, long-term management of resources located within the proposed sanctuary.

All of the action alternatives would have significant beneficial impacts on cultural and historical resources as they directly and indirectly protect several important cultural and historical resources. Since alternatives 1 and 2 are slightly smaller than alternatives 3 and 4, those alternatives would protect fewer shipwrecks and historic reported vessel losses, respectively. All four action alternatives would have no impact or negligible adverse impacts on socioeconomic resources and human uses, and less than significant beneficial impacts on socio economic resources and human uses. The impacts on physical and biological resources would be the same across all of the alternatives but would be spread over different spatial extents.

Table 5.3. Summary of the Four Action Alternatives

	Alternative 1	**Alternative 2 (Preferred Alternative)**	**Alternative 3**	**Alternative 4**
Boundary	Boundary A (926 square miles)	Boundary A (926 square miles)	Boundary B (1,075 square miles)	Boundary B (1,075 square miles)
Regulatory Component	Regulatory Option A	Regulatory Option B	Regulatory Option A	Regulatory Option B
Management Plan	Final Management Plan	Final Management Plan	Final Management Plan	Final Management Plan
Known Shipwrecks	36	36	40	40
Potential Shipwrecks	59	59	73	73

5.5.1 Comparison of Alternatives: Environmentally Preferred Alternative

CEQ regulations for implementing NEPA state that an agency must describe the environmentally preferred alternative (40 C.F.R. 1505.2(b)). NOAA's Administrative Order 216-6A companion manual, "Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities," further explains that the environmentally preferred alternative is determined based on two criteria:

Criterion 1: the alternative that provides the greatest benefit to the human environment

Criterion 2: the alternative that causes the least damage to the human environment

Given the multiple criteria, in some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative.

In terms of Criterion 1, all the action alternatives would benefit the human environment because they would protect and preserve historical and cultural resources, such as shipwrecks. Alternatives 3 and 4 would protect and preserve the greatest number of historical and cultural resources, as compared to the other alternatives. Under alternatives 2 and 4, NOAA would implement a prohibition on the use of grappling hooks and other anchoring devices on all shipwreck sites, whereas alternatives 1 and 3 would only prohibit grappling hooks and other anchoring devices when there is a mooring buoy present. Nonetheless, the prohibition on damaging underwater cultural resources (defined as "injury" under the regulations) would apply to all shipwrecks in the proposed sanctuary. Based on this protection that would prohibit any damage to underwater cultural resources, NOAA determined that all the action alternatives (alternatives 1, 2, 3, and 4) would result in significant beneficial impacts on underwater cultural resources. In addition, as a byproduct of protecting historical and cultural resources, the structure provided by sunken ships often becomes artificial reef habitat for fish and aquatic biota. Based on the larger boundary size and the more protective regulations, Alternative 4 would provide the greatest benefit to the human environment.

For Criterion 2, all the alternatives would result in negligible adverse impacts to the human environment primarily due to minor disturbances from vessel operations and potential disturbances to the lake bed during installation and maintenance of mooring buoys. The type and intensity of activities that would result in negligible adverse impacts would be the same for alternatives 1 through 4. Nonetheless, the adverse impacts from all alternatives would be negligible.

Therefore, Alternative 4 is the environmentally preferable alternative.

5.6 Cumulative Impacts

The CEQ regulations for implementing the provisions of NEPA define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 C.F.R. § 1508.7). The regulations further define cumulative impacts as those that can result from individually minor but collectively significant actions that take place over a period of time. The CEQ guidance for considering cumulative effects states that NEPA documents "should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant."[65]

This section presents the methods used to evaluate cumulative impacts, lists projects that may have cumulative effects when combined with the impacts from the proposed action or alternatives discussed in this FEIS, and evaluates potential cumulative impacts.

5.6.1 Cumulative Impact Assessment Methods

CEQ's cumulative effects guidance sets out several different methods for assessment, such as checklists, modeling, forecasting, and economic impact assessment, where changes in

[65] CEQ 1997; https://ceq.doe.gov/publications/cumulative_effects.html.

employment, income, and population are evaluated.[66] This FEIS uses a variety of methods, depending on the resource area, to determine cumulative effects. In general, past, present, and future foreseeable projects are assessed by topic area. Cumulative effects may arise from single or multiple actions and may result in additive or interactive effects. Interactive effects may be countervailing, where the adverse cumulative effect is less than the sum of the individual effects, or synergistic, where the net adverse effect is greater than the sum of the individual effects.[67] The projects in Table 5.4 are anticipated to occur in the reasonably foreseeable future within the study area. NOAA has considered the effects of these actions in combination with the impacts of the proposed action to determine the overall cumulative impact on the resources in the study area.

Table 5.4. Other Federal and Non-Federal Actions with Potential to Contribute to Cumulative Impacts

Action	Action Location	Action Agency	Action Description	Projected Completion
Coastal park management	Harrington Beach State Park, Forest Beach Migratory Preserve, Ulao Waterfowl Production Area, Port Washington South Beach Park, Cedar Gorge Swamp Area, Cedar Gorge Ravine Nature Area, Amsterdam Park, Cedar Grove Hawk Research Station State Natural Area, Lake View Park, King Park, Deland Park, North Point Park, Vollrath Park, 6th Street Park, Pigeon River Park, Hika Bay Park, Fischer Creek State Conservation Area, Point Creek Natural Area, Manitowoc Silver Creek Park, Neshotah Park	Wisconsin state, coastal counties, and city parks	Parks management	Ongoing
Lake Michigan Water Trail	Coastal paddling trail - runs through the study area near shore	Bay-Lake Regional Planning Commission, Wisconsin Coastal Management Program, WDNR, NPS	Partnership providing recreational opportunities	Ongoing

[66] CEQ 1997.
[67] CEQ 1997.

Action	Action Location	Action Agency	Action Description	Projected Completion
Coastal tourist areas	Lake Park Bluffs, Port Washington; Kohler-Andrae State Park, Sheboygan; Point Beach State Park/Rawley Point Lighthouse, Manitowoc/Two Rivers; Lion's Den Gorge Nature Preserve, Port Washington; Sanderling Nature Center, Sheboygan County; Woodland Dunes, Two Rivers; Donges Bay Gorge, Fairy Chasm State Natural Area, Amsterdam Dunes, Kohler Park Dunes State Natural Area, Point Beach Ridges, Two Creeks Buried Forest (nonprofits, state, and counties); Riveredge Nature Center, Ozaukee County (releases lake sturgeon into the Milwaukee River).	Wisconsin state, coastal counties, and city parks	Parks management	Ongoing
Fisheries regulations	Rivers, Lake Michigan	WDNR	Fisheries regulations	Ongoing
Watercraft regulations	Rivers, Lake Michigan	WDNR	Watercraft regulations	Ongoing
Urbanization	Coastal Wisconsin/Lake Michigan: Two Rivers, Manitowoc, Sheboygan, Port Washington, Milwaukee	Wisconsin coastal county management	Continued growth and development	Ongoing
Cultural resources Wisconsin state regulations	Coastal Wisconsin/Lake Michigan	WDNR, WHS Maritime Preservation and Archaeology Program	Shipwreck protection, info	Ongoing
Navigational channels	Two Rivers, Manitowoc, Sheboygan, Port Washington	USCG, WDNR	Navigational and vessel regulations	Ongoing
Power stations: Kewaunee, Point Beach, Manitowoc, Port Washington,	Manitowoc, Edgewater, Port Washington Generating Station, Point Beach Nuclear Plant, Tisch Mills Wind, Custer Energy Center, Lincoln Turbines, Sheboygan Falls Energy Facility, Ridgeview Wind Turbine, Germantown Power Plant, Omega Hills Gas Recovery, Dairyland WTE Plant, Milwaukee County Valley (WEPCO), FCPC Renewable Generation, MMSD Jones Island Wastewater, Shirley Wind, Glenmore Turbines	Wisconsin state, counties, utilities, federal agencies	Power plant operations	Ongoing

Action	Action Location	Action Agency	Action Description	Projected Completion
WDNR - Wisconsin Pollutant Discharge Elimination System (WPDES) permits	Manitowoc Public Utilities & Man. WWTF, Port Washington WWTP & Wisconsin Electric Power Co. PW Generation Station, Sheboygan WWTP, Wisconsin Power & Light Edgewater Generation Station, Cleveland WWTF, Two Rivers WWTF, Nextera Energy Point Beach, Domino Energy Kewaunee	WDNR	WPDES permit reviews and renewals	Ongoing
Visitor Centers, museums	Wisconsin Maritime Museum, Manitowoc; Rogers Street Fishing Village, Two Rivers; Port Exploreum, Port Washington	Private groups	Research, education, and outreach	Ongoing
NOAA's Great Lakes Environmental Research Laboratory (GLERL)	Throughout Great Lakes	NOAA, partner universities, municipalities, state, federal, international agencies, non-governmental institutions, etc.	Regional environmental research	Ongoing
USGS Great Lakes Science Center	Throughout Great Lakes	USGS	Regional environmental research	Ongoing
Navigational channels	Two Rivers, Manitowoc, Sheboygan, Port Washington	USCG, WDNR	Navigational and vessel regulations	Ongoing

5.6.2 Past, Present, and Reasonably Foreseeable Future Projects

The numerous actions that could contribute to cumulative impacts are listed in Table 5.4. This list was compiled from several sources. Only those actions with potential to contribute to cumulative impacts are listed. These actions are similar in scope to the proposed action, relate to coastal activities, have similar types of impacts within the study area, affect similar resources, or are large enough to have far-reaching effects on a resource. This approach was taken to include actions for which detailed descriptions and expected impacts are known, as well as actions that have less defined impacts but may contribute to the regional impacts.

As the proposed action for WSCNMS is a regulatory and management action rather than a specific development action, the cumulative effects are related primarily to local and regional management of underwater cultural resources. Several of the actions listed in Table 5.4 are regulatory as well. For the purposes of this cumulative analysis, it is assumed that the actions in Table 5.4 that have not already been implemented would be approved and implemented.

The combination of the alternatives and actions in Table 5.4 would result in cumulative beneficial impacts to underwater cultural resources and human uses and socioeconomic resources. The cumulative actions identified in Table 5.4 would not cause adverse impacts on

those resource categories. In other issues, as described below, the proposed alternatives' contribution to any adverse cumulative impacts would be minor.

5.6.2.1 Cumulative Impacts on Underwater Cultural Resources

The proposed action would cause no significant adverse effects on underwater cultural resources. Cumulative effects that could impact underwater cultural resources may include disturbance and physical impacts from increased visitation to historic shipwrecks resulting from public use and management activities. However, the sanctuary would mitigate the intensity of these human use effects through regulatory prohibitions and public outreach, which would lower the risk of damage to the sanctuary's shipwrecks.

Commercial and recreational fishing in the area may damage cultural and historical resources by entangling fishing gear on a resource. However, through research and survey of the lakebed, the sanctuary would identify resources and share these locations with fishers to avoid future entanglements.

5.6.2.2 Cumulative Impacts on Human Uses and Socioeconomic Resources

Table 5.4 includes several attractions that are similar to national marine sanctuaries, such as parks and maritime museums. These attractions also draw visitors to the coastal communities adjacent to the proposed expansion area. These sites' efforts to attract tourism, in conjunction with efforts to attract tourists to the proposed sanctuary, would have overlapping beneficial impacts on the tourism industry in the coastal communities next to the proposed sanctuary. Designating the national marine sanctuary would add a major water-based attraction that would encourage both land-based tourism (e.g., visitor centers and museums) and water-based tourism (e.g., scuba diving).

Increased tourism from these other activities could also increase the number of recreational users within the sanctuary, potentially resulting in densely-used local areas. Nonetheless, the sanctuary would regularly review its management plan and regulations and could update these documents, if necessary, to respond to changing threats to sanctuary resources. Thus, although the actions listed in Table 5.4 would have positive, beneficial impacts, the cumulative impacts can be estimated with high confidence to at a minimum have **less than significant cumulative** impacts on human uses or socioeconomic resources in the proposed sanctuary. Baseline monitoring and future monitoring of the proposed area would help to determine if the actual impacts from designation rise to the level of significant impacts (defined at the beginning of Chapter 5).

5.6.2.3 Cumulative Impacts on Biological and Physical Resources

The proposed action would not contribute to any significant adverse impacts on habitats, wildlife, protected species, climate, air, or water. NOAA's implementation of actions of the preferred alternative may result in increased public user and management activities, which may cause minor local adverse cumulative effects on biological and physical resources. However, these would be mitigated by best management practices and other regulatory and management activities that would protect habitats and substrate near shipwreck sites against physical disturbances of vessel anchoring.

Threats to aquatic and physical resources from other federal and non-federal activities within the sanctuary include the rise in invasive species, climate change, and pollution from point and nonpoint sources. The Great Lakes aquatic ecosystem has been constantly destabilized over many decades by the cumulative effects of chemical contamination, nutrient pollution that results in eutrophication and low dissolved oxygen levels, and invasive non-native species. Lake Michigan has undergone cycles of degradation and remediation, and these lake-wide effects affect the aquatic resources within the proposed sanctuary. Continued releases of nutrients, particularly from nonpoint sources, continued introductions of invasive non-native species, continued federal and state remediation efforts, and continued changes in temperature and rainfall due to climate change, will prevent stabilization over the next decade. While the proposed sanctuary would not directly protect biological or physical resources, the adverse impacts from field activities would be negligible, and therefore, would not significantly contribute to cumulative impacts.

CHAPTER 6

ADDITIONAL CONSIDERATIONS

6.1 Consultation and Environmental Compliance

The following is a list of federal consultation and environmental regulations that apply to the proposed action, as well as a description of compliance by NOAA with applicable requirements.

6.1.1 Consultations Under the NMSA

Under Section 303(b)(2) of the NMSA, NOAA is required to conduct a series of consultations with Congress, federal and state agencies, and other interested parties. Per this requirement, consultation letters were sent along with a copy of the DEIS and the proposed rulemaking to the following:

- U.S. House of Representatives Natural Resources Committee
- U.S. Senate Committee on Commerce, Science, and Transportation
- Department of Defense
- Department of State
- Department of Transportation
- Department of the Interior
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Fish & Wildlife Service
- U.S. Coast Guard

The EPA responded on January 18, 2017, with a *Lack of Objections* rating. The U.S. Army Corps of Engineers responded on March 27, 2017 suggesting specific language be added to the FEIS in the section addressing ports, harbors, and marinas in boundary options. That language has been added, and appears in Section 3.3.3.3 of this FEIS.

6.1.2 Relation to Existing Laws and Executive Orders

NEPA requires that a discussion of the relation of the action to other existing laws and executive orders be included. The relation of this action to other legal requirements is discussed as follows.

6.1.2.1 Coastal Zone Management Act (CZMA)

The CZMA creates a partnership between the federal and state governments that allows states to develop coastal zone management programs within a set of federal guidelines but tailored to their individual needs. The act also requires that each federal agency's activities within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner that is, to the maximum extent practicable, consistent with the enforceable policies of the federally-approved state coastal zone management program. NOAA has worked with the state of Wisconsin on drafting the proposed action, since it takes place wholly within Wisconsin state waters.

On February 16, 2018, NOAA sent a letter to the Wisconsin Coastal Management Program stating NOAA's determination that the proposed sanctuary would be consistent with the enforceable policies of the federally-approved Wisconsin coastal zone management program. NOAA has presumed the state's concurrence given that the CZMA regulations state that a federal agency may presume concurrence if a response is not received within 60 days (15 C.F.R. § 930.41).

6.1.2.2 Endangered Species Act (ESA)

The ESA requires all federal agencies, in consultation with the departments of the Interior (USFWS) and Commerce (NMFS), to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of such species. For any action with a potential for impacts to federally protected species, NOAA's Office of National Marine Sanctuaries evaluates the potential impacts and, if needed, prepares a biological assessment to inform the biological opinion produced by NMFS. This consultation informs the analysis of impacts on federally listed species to determine their significance. As explained in Section 4.5.4.1, seven threatened or endangered species may occur within the action area. In addition, designated critical habitat for the piping plover occurs within the action area. In Section 5.3.4.3.1, NOAA concludes that the proposed action would have **no effect** on these species since sanctuary activities would not occur onshore or within terrestrial habitats, which is where the seven listed species would be most likely to occur.

NOAA's designation of a national marine sanctuary in Wisconsin waters would have **no effect** on designated critical habitat for the piping plover, which is limited to onshore habitat, because the sanctuary would not extend onto the shore and no sanctuary management activities are expected to occur there.

6.1.2.3 National Historic Preservation Act of 1966

The NHPA, amended in 1992, requires that responsible agencies taking action that potentially affects any property with historic, architectural, archaeological, or cultural value that is listed on, or eligible for listing on, the National Register of Historic Places comply with the procedures for consultation and comment issued by the Advisory Council on Historic Preservation (ACHP). The responsible agency also must identify properties affected by the action that are listed on or potentially eligible for listing on the National Register of Historic Places, usually through consultation with the state historic preservation officer. Section 106 of the NHPA defines requirements and policy for the preservation, restoration, and maintenance of the historic and cultural environment of the United States. NOAA is coordinating its responsibilities under Section 106 with its ongoing NEPA process, pursuant to 36 C.F.R. § 800.8, including the use of NEPA documents and public and stakeholder meetings to also meet the requirements of Section 106. No adverse impacts to historic or cultural resources are anticipated as a result of any of the action alternatives presented in this FEIS. Per an ONMS request for state historic preservation officer comment and consultation on a federal undertaking, the state historic preservation officer indicated agreement with the finding that the proposed undertaking will have no adverse effect on one or more historic properties located within the project area of potential effect under 36 C.F.R. § 800.5. The letter of concurrence was dated May 30, 2017.

6.1.2.4 Regulatory Flexibility Act (RFA)

The RFA, as amended and codified at 5 U.S.C. § 601 *et seq*., requires an agency to prepare a regulatory flexibility analysis of any rule subject to the notice and comment rulemaking requirements under the Administrative Procedure Act (5 U.S.C. § 553) or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Under Section 605(b) of the RFA, however, if the head of an agency (or his or her designee) certifies that a rule will not have a significant impact on a substantial number of small entities, the statute does not require the agency to prepare a regulatory flexibility analysis. Pursuant to Section 605(b), the chief counsel for regulation, Department of Commerce, submitted a memorandum to the chief counsel for advocacy, Small Business Administration, certifying that the original proposed rule would not have a significant impact on a substantial number of small entities. The rationale for that certification was set forth in the notice of proposed rulemaking.

6.1.2.5 Rivers and Harbors Act of 1899

The Rivers and Harbors Act of 1899 regulates the following: (1) construction of bridges, causeways, dams or dikes; (2) obstruction of excavations and filling of navigable waters; (3) establishment of harbor lines and conditions related to grants for the extension of piers; and (4) penalties related to the regulated actions, and to the removal of existing structures. No activities regulated under the Rivers and Harbors Act of 1899 are part of the proposed action or any of the alternatives.

6.1.2.6 Executive Order 12866 Cost-Benefit Analysis

Under Executive Order 12866, if a rule is determined to be significant, then a socioeconomic impact study (i.e., assessment of the costs and benefits of the regulatory action) must be conducted. Under 12866 a regulatory action is significant if the rule may:

- Have an annual effect on the economy of $100 million or more or adversely affecting in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impacts of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the president's priorities, or the principles set forth in this executive order.

NOAA has concluded that the final rule analyzed in this FEIS is significant under E.O. 12866.

6.1.2.7 Executive Order 13132 Federalism

Under Executive Order 13132, each agency must consult, to the extent practicable and permitted by law, with state and local officials early in the process of developing regulations. These consultations should seek comment on the compliance costs or preemption, as appropriate to the nature of the rulemaking under development. NOAA has concluded that this regulatory

action does not have federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order 13132 because NOAA supplements and complements state and local laws under the NMSA.

6.1.2.8 Executive Order 13175 Consultation and Coordination with Indian Tribal Governments

There are no federally recognized tribes in the immediate area of this proposed action for consultation under E.O. 13175. However, in January 2017, NOAA via letter invited state recognized tribes to be consulting parties: (1) under Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108) pursuant to 36 C.F.R. § 800.2; (2) in accordance with Executive Order 13175 "Consultation and Coordination with Indian Tribal Governments"; and (3) in accordance with NOAA's Tribal Consultation Policy. This is intended to ensure that tribes are given the opportunity to provide meaningful and timely input regarding proposed NOAA actions that could affect tribal interests.

6.1.2.9 Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," directs that the programs of federal agencies identify and avoid disproportionately high and adverse effects on human health and the environment of minority or low-income populations. The designation of national marine sanctuaries by NOAA helps to ensure the enhancement of environmental quality for all populations in the United States. None of the alternatives described in this document or the cumulative actions would result in any disproportionate high and adverse impacts on any minority or low-income population because none of the adverse impacts would be significant, as described in Chapter 5. In addition, many of the impacts from the proposed action would result in long-term or permanent beneficial impacts by protecting underwater cultural resources, which may provide employment opportunities and result in improved ecosystem services.

6.2 Unavoidable Adverse Impacts

An environmental impact statement must describe any significant unavoidable impacts for which either no mitigation or only partial mitigation is feasible. The environmental impacts of the proposed action and alternatives are described in Chapter 5. No unavoidable significant adverse impacts were identified for the action alternatives.

6.3 Relationship of Short-Term and Long-Term Productivity

NEPA requires consideration of the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. The short-term uses of the environment relating to each of the action alternatives may increase the number of visitors to the area, while at the same time improve the health and quality of the environment by protecting the maritime cultural heritage resources that provide habitat for living resources through: (1) regulations prohibiting damaging the underwater cultural resources; (2) providing a mechanism through the NMSA to respond to hazardous spills that damage the underwater cultural resources; and (3) monitoring human activities through regulations and non-regulatory programs that incorporate community involvement in the stewardship of sanctuary underwater

cultural resources. Long-term productivity derived from the action alternatives is based on the goals of the sanctuary and the proposed management actions to achieve the goal of long-term protection of the underwater cultural resources that would preserve the living resource habitat. These proposed actions include action plans related to resource protection, recreation and tourism, education, science and research, infrastructure, and operations. Benefits to both short-term uses and long-term productivity based on implementation of sanctuary designation and management actions are proportional to the number of underwater cultural resources that provide habitat encompassed within the area of each alternative. NOAA anticipates any growth inducing impacts from the proposed action to be less than significant.

6.4 Irreversible and Irretrievable Commitment of Resources

NEPA requires an analysis of the extent to which the proposed project's primary and secondary effects would commit nonrenewable resources to uses that future generations would be unable to reverse (42 U.S.C. § 4332(C)(v); 40 C.F.R. § 1502.16). The mission of a national marine sanctuary is to conserve resources for future users, but routine management activities and protective regulations may require some irreversible and irretrievable commitments of resources.

Irreversible commitments of natural resources include the consumption or destruction of non-renewable resources or degradation of renewable resources over long periods of time. The proposed action would result in the following irreversible commitments of natural resources:

- Nonrenewable resources that would be consumed during management and research activities include fuel, water, power, and other resources necessary to maintain and operate the sanctuary's research vessels and potential future sanctuary offices.
- Electricity to power sanctuary facilities would be an irreversible use of resources, if derived from a non-renewable electrical power source (e.g., natural gas or nuclear energy).

Irretrievable commitment of resources includes opportunities foregone, expenditure of funds, loss of production, and restrictions on resource use. The proposed action would result in the following irretrievable commitments of natural resources:

- Monetary funds would be expended to support management activities in the purchase of fuels, electricity, water, and other non-renewable supplies, for wages and rents, and for potential construction of facilities.
- Natural resources may be used in construction of sanctuary facilities and structures, such as buildings, signs, navigational markers, and mooring buoys.
- Benthic habitat would be physically altered in the installation of mooring buoy anchors, navigational markers, and other permanently fixed informational and regulatory signs.

The irreversible and irretrievable commitment of resources would be minimized and mitigated by best management practices, staff training, and sustainability goals and procedures documented in the sanctuary management plan.

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APPENDIX A

Wisconsin Shipwreck Coast National Marine Sanctuary

Final Management Plan

May 2020

Executive Summary

The 962-square-mile Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS) encompasses the waters and bottomlands of Lake Michigan adjacent to Kewaunee, Manitowoc, Sheboygan, and Ozaukee counties. The boundary includes 82 miles of shoreline and extends 7 to 16 miles from the shoreline. The sanctuary will protect and interpret a nationally significant collection of underwater cultural resources, including 36 known shipwrecks and other underwater cultural resources; according to archival documents over 59 shipwrecks are yet to be discovered. The sanctuary will also facilitate broader lake conservation efforts in the region and enhance heritage tourism initiatives within the many communities that have embraced their centuries-long maritime relationship with Lake Michigan, the Great Lakes region, and the nation. The sanctuary includes the principal cities of Port Washington, Sheboygan, Manitowoc, and Two Rivers, all core supporters and contributors to the nomination and designation efforts. The sanctuary will be co-managed by the state of Wisconsin and NOAA.

The historic shipwrecks in the sanctuary are representative of vessels that sailed and steamed Lake Michigan and the Great Lakes, carrying grain and raw materials east as other vessels came west loaded with coal, manufactured goods, and people. Twenty-one of the 36 shipwrecks are listed on the National Register of Historic Places. Many of the shipwrecks in the sanctuary retain an unusual degree of archaeological and architectural integrity, with several vessels virtually intact. Well-preserved by Lake Michigan's cold, fresh water, the shipwrecks and related underwater cultural sites in and around WSCNMS possess exceptional historical, archaeological, and recreational value. WSCNMS will protect and manage these underwater cultural resources as sanctuary resources. The sanctuary resources do not include the biological and ecological resources of the area already managed by the state of Wisconsin.

Establishing a national marine sanctuary in Wisconsin waters will complement and expand existing state-led preservation efforts, research programs, local initiatives, and public outreach initiatives. Since 1988 the Wisconsin Historical Society has actively inventoried, documented, and interpreted the state's underwater cultural heritage, evolving into one of the nation's most respected state underwater archaeology programs. A sanctuary designation will enhance these efforts and add further protections due to its comprehensive research, resource protection, and education programs. The presence of a sanctuary will also provide access to NOAA's extended network of scientific expertise, partners, and technological resources, enhance ongoing research, and provide an umbrella for the coordination of these activities. A sanctuary will support and build on the educational initiatives in place and provide exciting programming that would reach K-12 and university students, as well as the general public, across the state. A sanctuary designation, the local commitment to the sanctuary, the existing state agency interest, and

NOAA's existing network of affiliated programs have the potential to create long lasting, impactful synergies.

About this Management Plan

Management plans are sanctuary-specific planning and management documents used by all national marine sanctuaries. They identify immediate, mid-range, and long-term challenges and opportunities, and develop a course for the future. A management plan describes resource protection, research, and education and outreach programs that guide sanctuary operations, specifies how a sanctuary should best protect its resources, and describes sanctuary regulations if appropriate. The final management plan for WSCNMS outlines the administrative framework, goals, and range of activities necessary to achieve the vision of WSCNMS.

This first management plan for the sanctuary is relatively general, consisting of broad goals and strategies. This level of detail is intentional, since it takes several years to explore how to best integrate the sanctuary into communities, explore opportunities for partnerships, and determine more specific priorities. Management plans are created with input from the Sanctuary Advisory Council, general public, local governments, state and federal agencies, and other stakeholders. The WSCNMS final management plan consists of four action plans: Resource Protection; Education and Outreach; Research; and Sanctuary Operations.

While WSCNMS will be co-managed by NOAA and the state of Wisconsin, the sanctuary will also rely heavily on a range of partners to help carry out its mission. NOAA will continue to work in full cooperation with the Wisconsin Historical Society, Wisconsin Department of Natural Resources, Wisconsin Sea Grant Program, and the Wisconsin Coastal Management Program. In addition, partnerships with local communities, private businesses, non-governmental organizations, educational and cultural institutions, and other local, state, and federal agencies provide the synergies needed to establish and accelerate sanctuary research, site monitoring, education and outreach, and enforcement, among other areas. The many partnerships developed over the course of the nomination and designation process have been, and will continue to be, critical to the success of the sanctuary.

This final management plan is specific to NOAA's actions, but will also link to the complementary actions and responsibilities of partner management agencies, communities, and local government, all of which will be integral to WSCNMS success. Public involvement has been valuable throughout the nomination and designation processes, and will continue to be valuable, through opportunities to volunteer and to participate on the Sanctuary Advisory Council.

NOAA's Office of National Marine Sanctuaries

NOAA's Office of National Marine Sanctuaries (ONMS) is the federal program within the National Oceanic and Atmospheric Administration (NOAA) National Ocean Service (NOS) charged with managing national marine sanctuaries. ONMS serves as the trustee for a network of underwater parks encompassing more than 600,000 square miles of marine and Great Lakes waters. The network includes a system of 15 national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments. Few places on the planet can compete with the diversity of the National Marine Sanctuary System, which protects America's most iconic natural and cultural marine resources. The system works with diverse partners and

stakeholders to promote responsible, sustainable ocean and Great Lakes uses that ensure the health of our most valued underwater places. ONMS also leads the National Marine Protected Areas Center, the nation's hub for building innovative partnerships and tools to protect our special ocean places. Within sanctuary waters, giant whales feed, breed, and nurse their young, coral colonies flourish, and shipwrecks tell stories of our maritime history. Sanctuaries include beautiful rocky reefs, lush kelp forests, whale migration corridors and destinations, spectacular deep-sea canyons, and underwater archaeological sites.

ONMS raises public awareness of sanctuary resources and conservation issues through programs of scientific research, monitoring, exploration, education, and outreach. ONMS provides oversight and coordination of the National Marine Sanctuary System by setting priorities for addressing resource management issues and directing program and policy development. To protect the living marine and non-living resources of sanctuaries, ONMS works cooperatively with the public in developing sanctuary management plans and regulations consistent with the National Marine Sanctuaries Act (NMSA).

State of Wisconsin

The sanctuary will be co-managed by NOAA and the state of Wisconsin. The Wisconsin Historical Society (WHS) is the state of Wisconsin's principal historic preservation agency and charged under state statutes (44.02 and 44.30-44.31) with the research, protection, restoration, and rehabilitation of historic properties within Wisconsin. Under Wisconsin Statute 44.47, the WHS is also charged with the identification, evaluation, and preservation of Wisconsin's underwater archaeological resources, including submerged prehistoric sites, historic shipwrecks, and aircraft on state-owned bottomlands. The State Historic Preservation Office within the WHS reviews federal, state, and local projects for their effect on historic and archaeological properties.

Created in 1988, Wisconsin's Maritime Preservation and Archaeology Program works to survey, inventory, and evaluate Wisconsin's underwater archaeological resources, develop preservation strategies, administer field management practices, and enhance public appreciation and stewardship for Wisconsin's precious and fragile underwater cultural resources. The State Archaeology and Maritime Preservation Program is administered by the State Historic Preservation Office at the WHS.

Comprehensive Management

The National Marine Sanctuaries Act (NMSA) includes direction from Congress that ONMS will "improve the conservation, understanding, management and wise and sustainable use of marine resources" (16 U.S.C. § 1431(a)(4)(A)). The NMSA further recognizes that "while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of the marine environment" (Id.§ 1431(a)(3)). Accordingly, ONMS subscribes to a broad and comprehensive management approach, including interpretive enforcement, to meet the NMSA's primary objective of resource protection.

System-wide, comprehensive sanctuary management serves as a framework for addressing long-term protection of a wide range of living, nonliving, and marine heritage resources, while allowing multiple uses of the sanctuary to the extent that they are compatible with the primary goal of resource protection. The resources managed by the ONMS span diverse geographic, administrative, political, and economic boundaries. Building and maintaining strong partnerships among resource management agencies, the scientific community, stakeholders, and the public at-large are an essential component in coordination and program integration that the NMSA calls for in order to comprehensively manage national marine sanctuaries.

Charting the First Management Plan

On December 2, 2014, pursuant to Section 304 of the National Marine Sanctuaries Act and Sanctuary Nomination Process (79 Fed. Reg. 33851 [June 13, 2014]), the state of Wisconsin submitted a nomination asking NOAA to accept this area onto the inventory of places that NOAA would consider as a national marine sanctuary. The nomination cited conservation goals to protect and conserve the nation's cultural heritage as well as opportunities to leverage the sanctuary to expand public access, recreation, tourism, research, and education.

On October 7, 2015, NOAA announced that it would initiate the sanctuary designation process for Wisconsin Shipwreck Coast (80 Fed. Reg. 60631 [Oct. 7, 2015]). That announcement initiated a 90-day public comment period during which NOAA solicited additional input related to the scale and scope of the sanctuary, including ideas presented in the community nomination. NOAA hosted three public meetings in November 2015 and provided additional opportunity for comments through the web and traditional mail. All comments received were made available to the public through the www.regulations.gov web portal.

During this period, approximately 135 individuals provided input. Comments were overwhelmingly supportive of the goals of sanctuary designation, including conservation of nationally-significant resources, enhanced public use and recreation, and enhanced tourism. The comments also supported the development of programs for education, science, and public interpretation as described in the community nomination. The comments underscored the need for conservation and interpretation, particularly the importance of educating the public about the significance of the Great Lakes and the role that shipbuilding and shipping commerce has played, and continues to play, in the history of the region and our nation. There was strong support from local community members, local units of government, and organizations supporting sanctuary designation and offering opportunities to partner for education, research, outreach, and other activities.

On January 9, 2017, based on public comments received during the scoping period and in consultation with the state of Wisconsin, NOAA published a draft environmental impact statement, draft management plan, and proposed rule. Together, these documents constituted a proposal by NOAA to designate a 1,075-square-mile Wisconsin–Lake Michigan National Marine Sanctuary (ultimately named Wisconsin Shipwreck Coast National Marine Sanctuary) which would protect 37 shipwrecks and related underwater cultural resources that possess exceptional historic, archaeological, and recreational value. The increased area reflected the public scoping comments and updated shipwreck location information from the state of Wisconsin.

NOAA opened an 81-day comment period on the draft environmental impact statement, draft management plan, and proposed rule, which closed on March 31, 2017, and resulted in 566 written comments. NOAA also held four public meetings during the week of March 13 in the Wisconsin towns of Algoma, Manitowoc, Sheboygan, and Port Washington. Approximately 400 people attended the meetings, with 75 people providing verbal comments. Based on these public comments, interest from Kewaunee County, and state input, NOAA ultimately chose to designate a 962-square-mile area containing 36 known historic shipwrecks (see final environmental impact statement).

Input gathered from state partners, community partners, and members of the public during scoping and on the sanctuary proposal was considered in developing the final management plan, including comments regarding education and outreach, recreation and tourism, research, and sanctuary operations. NOAA worked closely with local and state governmental partners, including a state agency working group consisting of the Wisconsin Historical Society, Wisconsin Department of Natural Resources, Wisconsin Coastal Management Program, Wisconsin Department of Transportation, Wisconsin Department of Tourism, Wisconsin Public Service Commission, and the Wisconsin Public Lands Commission.

The four action plans in the WSCNMS final management plan each include background information on resource management issues and an overview of the direction the sanctuary will take to address management needs. The goals for each action plan are summarized and the strategies describe how the goals will be accomplished for a particular issue or program area.

Resource Protection Action Plan

Description

The purpose of this action plan is to strengthen resource protection by conducting on-water resource protection activities, promoting responsible use of sanctuary resources, developing resource protection-focused education initiatives, and enhancing enforcement efforts.

Background

The definition of “sanctuary resources” for WSCNMS means all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwreck sites. The term “shipwreck site” is further defined as any historic sunken watercraft and its components, cargo, contents, and associated debris field. WSCNMS regulations prohibit any person from moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess, or otherwise injure a sanctuary resource. Additionally, WSCNMS prohibits the use of grappling into or anchoring on shipwreck sites, to protect these sites from damage.

Natural and human processes can threaten the long-term sustainability of Wisconsin’s shipwrecks and other underwater cultural resources. While the effects of natural processes such as ice or invasive mussel damage on shipwrecks will be studied using strategies found in the Research Action Plan, the Resource Protection Action Plan is designed to assess and reduce human impacts on sanctuary resources. In practice, the two plans will be highly integrated. Human activities have the greatest potential for harming shipwrecks and other underwater

cultural resources. These activities include improper anchoring, inadvertent and intentional diving practices that damage resources, and looting. The sanctuary encourages public access to its resources and strives to balance increased visitation with resource management and preservation.

Adopting sanctuary regulations that complement and enhance the current state of Wisconsin underwater cultural resource regulations is a fundamental resource protection activity. During the multi-year designation process, NOAA and its state partners developed underwater cultural resource-specific regulations to ensure protection of nationally significant resources in WSCNMS. These regulations are referenced throughout the final management plan. The text of NOAA's draft regulations can be found in Appendix C.

Goal

Strengthen resource protection in WSCNMS through resource-specific initiatives and compliance with sanctuary regulations, while increasing public access.

Objectives

- Better understand recreational use patterns and the effects of recreational use on the resources.
- Develop a robust shipwreck mooring program.
- Increase public access and awareness of sanctuary resources while promoting and facilitating responsible use.
- Establish interagency collaboration for enforcement, including on-water and interpretive enforcement, as a resource protection tool.

Strategies

STRATEGY RP-1: Produce baseline assessment of recreational use of sanctuary resources.

Activity 1.1: Work with partners such as the NOAA National Centers for Coastal Ocean Science (NCCOS) to establish current recreational activities and use patterns in the sanctuary.

A. Complete NCCOS-funded socioeconomic baseline study.
B. Work with dive charters, recreational divers and clubs, and state partners to document recreational use of sanctuary resources.
C. Collaborate with enforcement partners to document recreational use of sanctuary resources.

STRATEGY RP-2: Develop and begin implementation of a systematic monitoring program for shipwrecks and other underwater cultural resources that will inform sanctuary management.

Activity 2.1: In collaboration with the state, local user groups, and other partners, develop a five-year plan for monitoring sanctuary shipwrecks to assess human and natural impacts.

A. Assess and collate available baseline data on sanctuary shipwrecks.
B. Establish monitoring criteria.
C. Develop a phased, five-year monitoring plan.

STRATEGY RP-3: Develop a shipwreck mooring program to protect sites from anchor damage and facilitate public access.

Activity 3.1: Enhance and expand shipwreck moorings within the sanctuary.

A. Building on the Wisconsin Historical Society's mooring program, develop and begin implementation of a five-year mooring buoy plan that addresses mooring buoy design and prioritization of mooring buoy deployment; and operational plans for installation, redeployment, and maintenance of mooring buoys.
B. Develop best practices for anchoring at sites where moorings are not yet installed or are not feasible, and develop a companion public awareness plan.
C. Evaluate permitting options and guidelines for special circumstances that may involve an otherwise prohibited activity (e.g., allowing divers to attach mooring lines directly to shipwreck sites).
D. Use Sanctuary Advisory Council and diver working groups to provide input on plans outlined above; work with local dive charters to monitor moorings throughout the dive season.
E. For mooring installations, ensure that appropriate regulatory agencies are consulted, such as the Wisconsin Department of Natural Resources and the United States Coast Guard.

STRATEGY RP-4: Increase and encourage access and responsible use of sanctuary resources by fostering greater awareness among recreational users.

Activity 4.1: Provide practical information for users such as shipwreck locations and information, access points, and regulations.

A. Determine what information will be most effective, audiences to be reached, and best formats/venues for presenting information.
B. Explore the use of innovative outreach materials, web (i.e. story maps), and mobile-device-based information for recreational users of sanctuary resources.
C. Provide information about shipwrecks, sanctuary regulations, and enforcement contact information at marinas, boat ramps, and other access points; provide similar information to stakeholders such as commercial fishing and commercial shipping.
D. Explore ways to improve public access to sanctuary resources for kayakers and snorkelers.
E. Evaluate the effectiveness of approaches taken.

STRATEGY RP-5: Develop a plan to increase awareness of sanctuary regulations and state law, and to enhance law enforcement efforts.

Activity 5.1: Create an outreach campaign aimed at creating public awareness of sanctuary regulations.

A. Develop user-friendly webpages and mobile applications that foster awareness, appreciation, and value of sanctuary resource protection regulations.
B. Develop digital and hardcopy materials to support public outreach.

C. In collaboration with state and local stakeholders, develop innovative, low-cost methods of broadening public awareness and appreciation of sanctuary regulations (e.g., public presentations, shared media opportunities, etc.).
D. Develop and implement a strategy to work directly with business owners (dive charters, dive shops, outfitters, etc.) that interact directly with sanctuary resources.
E. Make presentations on the sanctuary's management at diving industry trade shows and other relevant events that have concentrations of core sanctuary users.

Activity 5.2: Ensure sufficient patrol presence in the sanctuary through partnerships and interagency coordination.

A. Develop agreements with the U.S. Coast Guard, NOAA Office of Law Enforcement, and state agencies for enforcement of sanctuary regulations.
B. Provide information to law enforcement personnel on interpretive enforcement.
C. Develop outreach materials for enforcement officers to distribute while patrolling the sanctuary.
D. Develop an interagency communication and response plan.

Requirements

The sanctuary's ability to fully implement the management plan will be dependent on the realities of funding and other resources over the initial five-year period. Full implementation of these action plans is dependent on continued collaboration with the state, as well as federal funding, grants, donations, staffing, and contributions from partners.

Education and Outreach Action Plan

Description

The purpose of this action plan is to enhance public awareness, understanding, and stewardship of sanctuary resources, the Great Lakes, and the ocean.

Background

Sanctuary education and outreach programs are designed to raise public awareness about the sanctuary and its resources, encourage public involvement in resource protection, increase knowledge about Great Lakes maritime heritage, and expand ocean, climate, and Great Lakes literacy. Education and outreach includes both formal and informal programs for learners of all ages including students, teachers, sanctuary visitors, and other constituents.

The sanctuary will use education and outreach as a tool to address specific priority issues identified in the management plan. Education is essential to achieving many of the sanctuary's management objectives and will be used to both complement and promote resource protection and research programs.

Goal

Provide innovative, technology-driven, and placed-based educational opportunities that promote understanding, appreciation, and involvement in the protection and stewardship of sanctuary resources, the Great Lakes, and the ocean.

Objectives

- Provide leadership in assessing educational interests of residents, visitors, and schools locally, regionally, and statewide.
- Develop and integrate existing ONMS education and outreach programs and begin initial implementation of programs that complement and promote sanctuary resource protection and stewardship, including expanding existing sanctuary programs from other sites.
- In collaboration with the WHS, develop and begin initial implementation of education programs that promote awareness and understanding of sanctuary resources, Wisconsin's maritime heritage, and the region's maritime cultural landscape.
- Develop and begin initial implementation of education programs and partnerships that promote awareness and interaction with the National Marine Sanctuary System and NOAA.
- Encourage the involvement of volunteers to help foster understanding and participation in the protection and stewardship of sanctuary resources.

Strategies

STRATEGY ED-1: Increase awareness and knowledge of sanctuary resources, the Great Lakes, and the ocean through education and outreach programs.

Activity 1.1: Develop a plan to begin offering sanctuary and maritime heritage content to elementary, secondary, and higher education teachers and students.

A. Working with educational partners and WHS, develop a plan that identifies areas to integrate NOAA and sanctuary content into school curricula.
B. Promote and coordinate consistency of sanctuary education materials with the state of Wisconsin's Department of Public Instruction Academic Standards.
C. Facilitate trainings and workshops for educators, leveraging NOAA resources.
D. Conduct sanctuary-related educational programs for regional schools.

Activity 1.2: Develop or adopt existing sanctuary maritime heritage education programs, outreach, and exhibits for use in museums, visitor centers, and outdoor venues.

A. Working with educators, communities, and state partners, identify initial areas of collaboration between NOAA and museums and visitor centers in sanctuary communities; this could be an initial facet of the "NOAA Presence" plan outlined in Strategy SO-1.
B. Identify grant and other funding opportunities that will help establish a sanctuary interpretive presence in local partner venues.
C. Leverage existing partnerships to facilitate use of tall ship *Denis Sullivan* throughout sanctuary as a mobile, on-water classroom and sanctuary flagship.
D. Develop shipboard education programs and seek new shipboard education partners and opportunities.
E. Conduct sanctuary-related presentations at museums, visitor centers, and other relevant locations within sanctuary communities.

Activity 1.3: Facilitate distance learning with Wisconsin museums and other locations statewide.

A. Work in conjunction with ONMS distance learning program or social media campaign, such as Earth Is Blue, to create, showcase, and distribute curriculum and multimedia content from around NOAA, the sanctuary system, and partner expeditions worldwide (e.g., Nautilus Live).
B. Collaborate with Thunder Bay National Marine Sanctuary, WHS, University of Wisconsin (UW) Sea Grant, Wisconsin Coastal Management Program, UW-Milwaukee School of Freshwater Sciences, and other partners on joint distance learning projects.

Activity 1.4: Promote marine technology as a way to enhance STEAM education (science, technology, engineering, arts, mathematics).

A. Leveraging experience and assistance from Thunder Bay National Marine Sanctuary and other marine sanctuaries, foster awareness and participation in the Marine Advanced Technology Education Center's (MATE) remotely operated vehicle competition.
B. In cooperation with local educators, develop a strategy for engaging mentors and students in MATE competition and other relevant marine technology learning initiatives.
C. In cooperation with UW Sea Grant, UW-Milwaukee School of Freshwater Sciences, and other academic partners, explore multidisciplinary STEAM initiatives that support NOAA science and initiatives.
D. Host relevant workshops for educators and mentors.

STRATEGY ED-2: Enhance sanctuary communications to create greater awareness.

Activity 2.1: Develop a communications plan.

Activity 2.2: Create and leverage local, regional, and national media contacts.

Activity 2.3: Develop content for sanctuary's website and social media to provide quality, up-to-date information about the sanctuary.

Activity 2.4: Sponsor, organize, and participate in outreach opportunities that promote the sanctuary's mission and that allow for dissemination of sanctuary information.

Requirements

The sanctuary's ability to fully implement the management plan will be dependent on the realities of funding and other resources over the initial five-year period. Full implementation of these action plans is dependent on continued collaboration with the state, as well as federal funding, grants, donations, staffing, and contributions from partners.

Research Action Plan

Description

The purpose of this action plan is to outline the sanctuary's research objectives and priorities. Sanctuary research is conducted in support of resource protection, resource management, and education initiatives. The action plan is intended to guide the sanctuary, as well as encourage and guide archaeological and multidisciplinary research by sanctuary partners.

Background

Developing knowledge of the sanctuary's underwater cultural resources through research will be a primary function of the sanctuary. Developing the knowledge base will build on decades of research by the WHS, avocational groups, and private individuals. Since 1988, the WHS has actively inventoried and documented the state's underwater cultural heritage, evolving into one of the nation's most respected state underwater archaeology programs. However, these inventory and documentation efforts have gaps and will continue to face a number of challenges. Access to new technology and other resources that will become available through WSCNMS will ensure these efforts can not only continue, but also accelerate.

Sanctuary resources include all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwrecks. Sanctuary staff will conduct, support, promote, and coordinate all research with an aim toward sanctuary characterization. Characterization is the process through which sanctuary resources are inventoried, located, documented, analyzed, and ultimately understood within a broader cultural, historical, and archaeological context. Knowledge acquired through research is used to evaluate existing management practices and enhance future management decisions. Research products also form the foundation of outreach materials aimed at educating the public about the importance of the Great Lakes and their history.

Characterization of the sanctuary begins with historical research to create an inventory of potential underwater cultural resources located in and around the sanctuary. Physically locating underwater cultural resource sites is the next step in sanctuary characterization. Finally, documentation is perhaps the most intense and important aspect of the sanctuary's characterization efforts. Archaeological documentation provides baseline data to evaluate the current state of preservation, and can identify threats to sites, such as invasive mussels, ice and anchor damage, looting, and other intentional and unintentional human impacts.

Goal

Protect the sanctuary resources by inventorying, locating, documenting, assessing, managing, and interpreting the sanctuary's archaeological, historical, and environmental resources.

Objectives

- Characterize the sanctuary's underwater cultural resources.
- Develop and encourage collaborative research programs to meet the sanctuary's ongoing management needs.
- Use research findings to inform required sanctuary condition reports.

Strategies

STRATEGY R-1: Characterize the sanctuary's underwater cultural resources and cultural landscape features.

Activity 1.1: Conduct historical and archival research on underwater cultural resources and cultural landscape features in the sanctuary.

A. Research and compile historical documentation relevant to sanctuary resources, including vessel enrollment and registration documents, court records, insurance files, and regional newspapers.
B. Maintain files and databases on potential shipwrecks and other underwater cultural resources within the sanctuary.
C. Coordinate archival research and databases with WHS.
D. Per the 2017 ONMS Strategic Plan, work with ONMS Headquarters to become one of four sanctuaries to complete and publish a maritime cultural landscape survey.
E. Collaborate with the WHS to write National Register of Historic Places nominations; explore a National Register of Historic Places district nomination and companion maritime cultural landscape report for the sanctuary.

Activity 1.2: Conduct systematic remote sensing and visual surveys to locate and identify underwater cultural resources and landscape features in the sanctuary.

A. Define survey requirements for characterization.
B. Conduct remote sensing and mapping; leverage NOAA network and other partners for vessel, equipment, and personnel.
C. Disseminate research results to professional and public audiences.
D. Complete NCCOS-led environmental assessment and mapping project; leverage project to increase longer-term remote sensing capacity.

Activity 1.3: Prioritize archaeological documentation of identified underwater cultural resources to establish baseline data for long-term monitoring.

A. In collaboration with the WHS, determine priorities for archaeological research and documentation.
B. Complete baseline documentation of prioritized shipwrecks and archaeological sites including site plans, underwater video, still imagery, and photomosaics.
C. Disseminate research results to professional and public audiences in a timely and accessible manner.

Activity 1.4: Develop and maintain a sanctuary geographical information system (GIS).

A. Build on and enhance the state and Wisconsin Sea Grant GIS for archaeological, historical, and geographical data management; use GIS for sanctuary resource management, and to increase data sharing among sanctuary co-managers and facilitate public dissemination of information.

STRATEGY R-2: Develop partnerships with local, state, national, and international researchers and organizations to enhance sanctuary research programs and support broader Great Lakes conservation efforts.

Activity 3.1: Develop partnerships that accelerate characterization of the sanctuary's underwater cultural resources using new technologies.

Activity 3.2: Develop partnerships with multi-disciplinary researchers and organizations to facilitate characterization of the sanctuary's natural environment and accelerate broader conservation efforts.

A. Leverage the multidisciplinary stakeholder participation effort developed by NCCOS during the 2017 and 2018 WSCNMS mapping prioritization and fieldwork.

Activity 3.3: In support of sanctuary condition report and ONMS Sentinel Site initiative, facilitate the study of Great Lakes ecology including the study of climate change, invasive species, lake biology, geology, and water quality.

Requirements

The sanctuary's ability to fully implement the management plan will be dependent on the realities of funding and other resources over the initial five-year period. Full implementation of these action plans is dependent on continued collaboration with the state, as well as federal funding, grants, donations, staffing, and contributions from partners.

Sanctuary Operations and Administration Action Plan

Description

The purpose of this action plan is to create sanctuary infrastructure, staffing, and program support to ensure effective implementation of the management plan.

Background

WSCNMS is established to preserve and protect the region's unique and irreplaceable underwater cultural resources. Protecting these resources requires appropriate facilities and vessels, trained personnel and volunteers, funding and partnerships, and specialized equipment. Developing an effective and sustainable infrastructure will be a major focus of the sanctuary.

The NOAA Office of National Marine Sanctuaries, the state of Wisconsin, and local communities will work together to support the functions of the sanctuary. The roles and responsibilities that NOAA and the state will have in sanctuary management will be identified in a memorandum of agreement (MOA). The overarching purpose of the MOA is to provide the mechanism for coordination of the efforts of NOAA and the state to meet the common commitment to protect and manage sanctuary resources. Additionally, a programmatic agreement under Section 106 of the NHPA will describe the specific roles and responsibilities of the federal and state government in the permit review process.

Establishing a Sanctuary Advisory Council is an essential component of the management plan. Advisory council members will represent the community's different interests, and may include local government, education, maritime history and interpretation, fishing, diving, tourism,

economic development, industry, and the community-at-large. Advisory council members serve as liaisons between their constituents and the sanctuary leadership, keeping sanctuary staff informed of issues and concerns and performing outreach to their respective constituents on the sanctuary's behalf.

Finally, the sanctuary will benefit greatly from partnerships within NOAA and non-governmental organizations, private businesses, education and cultural institutions, community groups, private citizens, and local, state, and federal agencies. The sanctuary will develop these partnerships to create or improve a number of essential capacities, including research vessels and equipment, administrative space, law enforcement, and education and outreach.

Goal

Ensure sanctuary operations and administrative capabilities are sufficient to effectively and safely implement the sanctuary's mission.

Objectives

- Ensure necessary sanctuary infrastructure.
- Create a "NOAA presence" within sanctuary communities.
- Secure resources to support sanctuary operations and programs.
- Build staffing and enhance program support through partnerships and volunteers.

Strategies

STRATEGY SO-1: Develop a "NOAA presence" within sanctuary communities that supports the sanctuary's mission and infrastructure needs, and that recognizes, leverages, and complements individual assets in sanctuary communities.

Activity 1.1: Conduct an infrastructure and operations requirements evaluation.

A. In cooperation with sanctuary communities, develop a strategic plan for creating a "NOAA presence" in each community, to include infrastructure, research, education, outreach, interpretive/exhibit, and marketing/branding considerations.

STRATEGY SO-2: Develop infrastructure for research vessels, equipment, and field operations.

Activity 2.1: Work with NOAA's Great Lakes Environmental Research Laboratory to safely and efficiently meet the sanctuary's research vessel and research equipment needs.

A. Conduct a needs assessment for WSCNMS vessel operations requirements, including research vessels, research equipment, diving, staffing, and maintenance requirements.

STRATEGY SO-3: Identify staff needed to support sanctuary operations, resource protection, education and outreach, and research programs.

Activity 3.1: Identify and fill appropriate staff requirements at the sanctuary.

Activity 3.2: Provide staff with opportunities and resources for professional development training.

STRATEGY SO-4: Establish a Sanctuary Advisory Council.

Activity 4.1: Acknowledging the geographical expanse and multiple communities of the sanctuary, develop an appropriate Sanctuary Advisory Council structure.

A. Create a Sanctuary Advisory Council charter.
B. Provide support, training, resources, and guidance to help the advisory council engage and educate the public about sanctuary management issues.
C. Strengthen the structure of the advisory council by evaluating and amending the advisory council's charter when needed and developing strategies to enhance the council's participation and effectiveness.
D. Ensure that key stakeholders, such as divers, commercial and recreational fishers, and commercial shipping, are aware of opportunities to serve on the Sanctuary Advisory Council.

Activity 4.2: As appropriate, work with the Sanctuary Advisory Council to consider conducting an analysis of potential sanctuary expansion areas.

STRATEGY SO-5: Seek development partnerships and opportunities that support the sanctuary's mission.

A. Create a National Marine Sanctuary Foundation chapter or local nonprofit to support the sanctuary's mission, including research, education, community engagement, and operations.

STRATEGY SO-6: Establish a sanctuary volunteer program.

A. Attract, train, use, recognize, and retain volunteers to support and enhance sanctuary programs.
B. Develop a volunteer handbook with policies and opportunities for volunteers.

Requirements

The sanctuary's ability to fully implement the management plan will be dependent on the realities of funding and other resources over the initial five-year period. Full implementation of these action plans is dependent on continued collaboration with the state, as well as federal funding, grants, donations, staffing, and contributions from partners.

Final Management Plan Appendices

Final Management Plan Appendix 1: Potential sanctuary operating budgets and partner contributions.

Final Management Plan Appendix 1: Potential Sanctuary Operating Budgets and Partner Contributions

The potential operating budget below is an estimate to show options for activities that can be funded at varying levels. The base level of operations characterized below can be executed within existing funds without any negative impact on the National Marine Sanctuary System as a whole. In this table each column's list of activities for a given funding level also includes all activities from preceding columns. The operating budget each year for the sanctuary will be contingent on several factors, including the overall operation budget for ONMS and spending priorities determined by ONMS and NOAA. In addition, the budget may also include "construction" funds to support infrastructure capital and maintenance. These will be contingent on factors similar to the operational funds.

$250,000

- Sanctuary designation.
- Establish Sanctuary Advisory Council (SAC).
- Establish administrative office(s) (could be temporary).
- Identify sanctuary superintendent.
- With partners, develop a strategic plan for creating a “NOAA presence” in each community, to include infrastructure, research, exhibits, education, and outreach considerations.
- Establish resource protection program, focusing on mooring buoy initiative; initiate law enforcement collaborations.
- Establish education program/partnerships; evaluate opportunities.
- Establish research program/partnerships; begin sanctuary characterization.
- Develop/expand programs to enhance awareness and interpretation of sanctuary and resources.

$500,000

The above, and:

- Identify Program and Operations Coordinator.
- Identify Education Coordinator, Research Coordinator, or Resource Protection Coordinator.
- Fully operational SAC.
- Continue to implement management plan priorities.
- Begin interpretive/recreation/tourism/co-branding opportunities via “NOAA Presence” plan.
- Establish volunteer program.
- Establish local sanctuary foundation.
- Expand resource protection: additional moorings.
- Expand education program: create programming for partner venues.
- Expand research program: mapping, accelerate characterization, GIS.

- In partnership with GLERL, acquire trailerable research vessel and conduct broader vessel/research needs assessment.

$600,000

The above, and:

- Identify Education Coordinator, Research Coordinator, or Resource Protection Coordinator.
- Continue to implement management plan priorities.
- Continue interpretive/recreation/tourism/co-branding opportunities via "NOAA Presence" plan.
- Continue fundraising for interpretive projects.
- Expand education program: science, technology, engineering, and mathematics (STEM) and MATE ROV initiatives.
- Expand resource protection: additional moorings; establish monitoring.
- Expand research program: continue mapping; accelerate characterization.

$750,000

The above, and:

- Identify Education Coordinator, Research Coordinator, or Resource Protection Coordinator.
- Implement prioritized aspects of "NOAA Presence" plan and related infrastructure.
- Continue to implement management plan priorities.
- Expand resource protection, education, and research programs.
- Begin sanctuary condition report.

$900,000

The above, and:

- Identify Education Coordinator, Research Coordinator, or Resource Protection Coordinator.
- Implementation of "NOAA Presence" plan.
- Implementation of management plan.
- Initiate review of management plan with partners, community, and SAC.
- Finalize sanctuary condition report.

Partner Contributions

As indicated in the sanctuary nomination package, the state of Wisconsin, through the Wisconsin Historical Society, Wisconsin Coastal Management Program, Wisconsin Department of Natural Resources, Wisconsin Department of Tourism, and other state agencies, is a committed partner in ensuring that Wisconsin Shipwreck Coast National Marine Sanctuary reaches its full potential. Areas of collaboration that will supplement and complement federal funding include research, resource protection, law enforcement, co-writing and obtaining grant funding, marketing, and tourism.

Additionally, the communities of Two Rivers, Manitowoc, Sheboygan, and Port Washington are committed to the sanctuary's success. Each community offers unique local maritime infrastructure components that will significantly complement sanctuary management, public outreach, education, and tourism efforts. This includes harbors and dock space, developable lake and riverside land, and available waterside office space. These coastal communities share a common interest in protecting Lake Michigan and are committed to continuing to invest in Lake Michigan for tourism and recreation. Located along the highly traveled I-43 corridor, these communities include experienced tourism organizations that will benefit the sanctuary, while their educational and cultural institutions can help with programming. Key institutions identified in the nomination include the Wisconsin Maritime Museum, Port Exploreum, and the Rogers Street Fishing Village.

Federal partners, such as the NOAA Office of Coast Survey and the National Centers for Coastal Ocean Science, will be important partners in ensuring full implementation of the sanctuary's management plan, and, in fact, are supporting the designation. Similarly, regional and nationwide university partners will help the sanctuary meet research and resource protection goals, contribute to securing grant funding, and possibly support sanctuary infrastructure. Notably, the University of Wisconsin Sheboygan and Manitowoc campuses have already contributed office and administrative support to the designation effort.

APPENDIX B

Response to Comments on Draft EIS/MP/Proposed Rule

Responses to Comments on the Proposed Designation of Wisconsin Shipwreck Coast National Marine Sanctuary

For the purposes of managing responses to public comments, NOAA grouped similar comments by theme. These themes align with the content of the proposed rule and environmental impact statement that identified the purposes and needs for a national marine sanctuary, and the draft management plan that identified the proposed non-regulatory programs and sanctuary operations. They are summarized below, followed by NOAA's response. Similar comments have been grouped together for purposes of response.

Positive Impact on Communities Through Tourism, Economic Development, Education, and Research

1. **Comment:** NOAA received many comments supporting the opportunity for a new sanctuary to promote tourism to coastal communities. Commenters believe that national exposure and increased cooperation among the communities will result in increased visitors to the region.

   Response: NOAA agrees that Wisconsin Shipwreck Coast National Marine Sanctuary (WSCNMS) would create positive impacts to tourism. The partnerships developed between NOAA, the state of Wisconsin, and the communities during the nomination and designation processes will help in achieving this goal. The WSCNMS final management plan includes a strategy and action plan that support this goal.

2. **Comment:** NOAA received many comments supporting educational opportunities for a sanctuary to work with local museums and school districts to engage people in Wisconsin's maritime history and the Great Lakes.

   Response: National marine sanctuaries across the system have robust education programs. It is a priority for NOAA to educate and engage people in national marine sanctuaries. The final management plan includes strategies and action plans to develop education programs with state and community partners that will provide a variety of educational experiences. The WSCNMS final management plan includes actions that support this goal.

3. **Comment:** NOAA received many comments highlighting the opportunity for a new sanctuary to promote Wisconsin's maritime heritage.

   Response: The sanctuary designation is an opportunity to partner with the state of Wisconsin and communities to tell the many stories of centuries of exploration, travel, and commerce on the Great Lakes. The sanctuary provides a platform to share Wisconsin's stories with local, regional, and national audiences. The WSCNMS final management plan includes actions that support this goal.

4. **Comment:** NOAA received several comments by researchers expressing interest in partnering with the sanctuary on both archaeological and multidisciplinary projects.

   Response: Across the nation, national marine sanctuaries partner with researchers to explore, document, and better understand sanctuary resources. NOAA expects to attract and partner with a variety of researchers in the sanctuary, and the final management plan includes actions that support this goal.

Proposed Sanctuary Boundary

5. **Comment:** NOAA received many comments from lakeshore landowners expressing concern about the proposal to use the ordinary high water mark (OHWM) as the sanctuary's western/shoreline boundary. The key concerns were: (1) that this boundary choice would negatively impact riparian rights of lakeshore property owners; (2) that the proposal would allow public access to areas below the OHWM where riparian owners currently have exclusive access; (3) that using the OHWM as the sanctuary's western boundary would impact property values because the land would change from state to federal ownership; and (4) that, more generally, using the OHWM was seen as federal overreach and would result in more "red tape" and permitting.

   Response: NOAA's proposal to designate a national marine sanctuary recognizes the state's sovereignty over its waters and submerged lands and does not change state ownership of public bottomlands; that is, no federal ownership of Wisconsin public lands is created by the sanctuary designation. Likewise, NOAA's proposal to designate a national marine sanctuary would not change existing riparian rights of the property owners of Wisconsin, nor would it change state law regarding public access to the area in which shoreline property owners have exclusive access. NOAA proposed the OHWM in the draft designation because it would be consistent with the state's regulatory boundary.

   Furthermore, after considering public comments about using the OHWM as the western/shoreline sanctuary boundary, NOAA is now proposing adopting the low water datum (LWD) as that boundary. NOAA is doing so because the LWD is more lakeward than the OHWM, and would move the sanctuary boundary "lower down the beach" than the OHWM, thereby removing much of the beach from NOAA jurisdiction and related riparian rights concerns.

   Notably, the LWD is set at an elevation of 577.5 feet. The lowest recorded water level on Lake Michigan is 576.02 feet. This effectively places the sanctuary boundary nearly at the all-time low water level mark for Lake Michigan. Since riparian owners have exclusive use of the beach between the OHWM and the water's edge, using the LWD effectively places the sanctuary boundary at the most lakeward extent of this area as practicable. See Section 3.3.2 in the final environmental impact statement for a detailed discussion of the difference between OHWM and LWD.

   NOAA realizes that proposing using the LWD rather than the OHWM differs from its original proposal in that it leaves a portion of the shoreline (the area between the OHWM and LWD) outside of sanctuary management; any cultural resources found in this area would not benefit from sanctuary resource protection. NOAA and the state of

Wisconsin are not currently aware of shipwrecks in the sanctuary that come up to the OWHM, but depending on lake levels, it is possible that shipwrecks or parts of shipwrecks that are currently buried can become unburied. The Wisconsin Historical Society has determined that several undiscovered shipwrecks may lie in the surf zone. If a cultural resource was discovered between the OHWM and the LWD, that resource would still be under state jurisdiction because all land from the OHWM lakeward are state bottomlands.

6. **Comment:** Certain key industry stakeholders commented that NOAA should use the low water datum as the shoreward boundary of the sanctuary to ensure that the current beneficial practice of beach nourishment using dredged materials is continued.

   Response: NOAA agrees and proposes that the LWD should be used as the sanctuary's landward boundary. In addition, NOAA recognizes in the FEIS several activities important to commercial shipping, including beach nourishment, and has not proposed regulations specifically prohibiting use of dredge spoil within the sanctuary. Beach nourishment using dredge spoil is already regulated by the USACE and the state of Wisconsin. NOAA, through its co-management arrangement with the state and relationship with USACE, intends to coordinate a response if a particular renourishment project has the potential to injure known or suspected cultural resources within the sanctuary.

7. **Comment:** NOAA received comments from industry stakeholders that certain areas important to commercial shipping should be excluded from the sanctuary. NOAA also received suggested clarifying language to be included in the FEIS on the topic of dredging, and questions about the impact of the designation on dredging.

   Response: To ensure compatible use with commercial shipping and other activities (such as dredging for commercial ship traffic), NOAA in the DEIS excluded the ports, harbors, and marinas of Two Rivers, Manitowoc, Sheboygan, and Port Washington from the sanctuary boundary. In the FEIS, NOAA has also excluded federally authorized areas (channels) from the sanctuary.

   NOAA also included in Section 3.4.3.3 of the FEIS additional language, as suggested by the USACE, that specifies the types of activities important to commercial shipping. Specifically, "…routine operations and maintenance activities such as dredging, dredge material placement (nearshore/beach nourishment), and breakwater maintenance." Although NOAA would not regulate these activities per se, the sanctuary prohibition on injuring a sanctuary resource would ensure that these activities would not negatively impact underwater cultural resources.

8. **Comment:** NOAA received several comments noting that the water's edge should be used as the sanctuary's western/shoreline boundary.

   Response: NOAA did not consider using the water's edge for a boundary, because it would create a dynamic "moving" sanctuary boundary where cultural resources were variously within or beyond the sanctuary boundary, depending on lake levels at a given time.

NOAA proposes using the LWD as the sanctuary's westerrn/shoreline boundary. See Comment 5 for more information.

9. **Comment:** NOAA received several comments that the sanctuary's western/shoreline boundary should be consistent with state law.

   Response: As indicated in the DEIS, NOAA selected the OHWM as the landward boundary as its preferred alternative because it was consistent with the state's jurisdiction for managing underwater cultural resources. However, as indicated above in response to Comment 5, NOAA proposes to use the LWD as the sanctuary's landward boundary. Addressing the public's concern about riparian interests outweighs the benefit of an identical shoreline boundary.

10. **Comment:** NOAA received several comments asking how the establishment of the sanctuary would impact the findings of the Wisconsin Supreme Court case regarding property owner rights (*Doemel v. Jantz,* 1923).

    Response: Sanctuary designation would not change the interpretation or application of the Wisconsin Supreme Court case.

11. **Comment:** NOAA received a few comments urging use of a different boundary, because no shipwrecks come up to the OHWM.

    Response: Refer to Comment 5 above. This comment is addressed by NOAA use of the LWD as the sanctuary's western/shoreline boundary.

12. **Comment:** NOAA received many comments supporting Boundary Alternative B (1,260 square miles, includes additional waters off Kewaunee County), which was larger than NOAA's preferred alternative in the DEIS.

    Response: NOAA's preferred boundary alternative includes one shipwreck in Kewaunee County (schooner *America*), but does not include additional waters off Kewaunee County. *America* is listed on the National Register of Historic Places, supporting its inclusion in the sanctuary and the aim of protecting nationally significant resources.

13. **Comment:** NOAA received one comment that Kewaunee County should not be included because a diverse group of stakeholders has not been involved to ensure there is no negative impact to the county. The commenter noted it would be better to see first how the sanctuary impacts the counties in NOAA's preferred boundary alternative.

    Response: Overall, public comments from Kewaunee County were in favor of including Kewaunee County. Additionally, NOAA held one of its public comment meetings in Algoma (located in Kewaunee County), and any member of the public could comment via online or mail. Based on an evaluation of public comments and discussions with the state of Wisconsin, NOAA's preferred boundary includes a small portion of Kewaunee County waters which contains the county's only known shipwreck (schooner *America*).

14. **Comment:** NOAA received one comment that no formal comprehensive remote sensing surveys have been conducted within the proposed boundary, which suggests more shipwrecks will be found in Kewaunee County. Consequently, NOAA should consider adding the entire county to the sanctuary boundary.

    Response: Based on historical research by the Wisconsin Historical Society, NOAA agrees that there is high potential for new historic sites to be discovered in the entirety of waters off Kewaunee County. Refer also to Comment 12.

    NOAA's draft environmental impact statement published on January 9, 2017, includes a clarification that places the shipwreck *Daniel Lyons* in Door County rather than Kewaunee County, leaving only one known shipwreck in Kewaunee County (schooner *America*). This clarification was made by the Wisconsin Historical Society when more accurate GPS coordinates of the shipwreck became available.

15. **Comment:** NOAA received several comments supporting the addition of the waters of Door County to the sanctuary, now or in the future.

    Response: Because the addition of Door County would have been well beyond the geographic scope of the originally nominated area, NOAA chose not to include it in the final boundary.

16. **Comment:** NOAA received several comments asking for clarification on why a large geographic area was required for the protection of 37 shipwreck sites. In particular, one commenter asked why NOAA did not propose creating a regulatory area around each individual shipwreck.

    Response: Research by the Wisconsin Historical Society suggests that as many as 59 shipwrecks are yet to be discovered in the sanctuary. Consequently, NOAA, in consultation with the state of Wisconsin, chose to propose a management area that would include these potential historic sites and facilitate resource management as these new sites are discovered. This would ensure that newly discovered sites are protected and managed under sanctuary regulations at the time of discovery. This management approach has been used successfully at Thunder Bay National Marine Sanctuary. The sanctuary area also reflects what the state of Wisconsin put forth in its nomination to NOAA.

17. **Comment:** NOAA received a few comments concerned that it would expand the boundaries at a later time without public input. One comment suggested that the boundary could be expanded inland via Lake Michigan watershed tributaries.

    Response: If NOAA expanded the sanctuary's boundary in the future, including via Lake Michigan watershed tributaries, that would constitute a change in the sanctuary's terms of designation. Under the National Marine Sanctuaries Act, a change in the terms of designation, including boundary changes, would require NOAA to go through the same process that was undertaken for designation, including public notice and comment, public hearings, preparation of an environmental impact statement, and review periods for the governor and Congress. These statutory requirements also include Section

304(b)(1), which provides the governor of Wisconsin authority to certify that a term of a designation, including a proposed boundary expansion, is unacceptable, and the expansion of the boundary will not take effect in state waters. The state of Wisconsin, as a co-manager, would be involved in all discussions about proposed changes. Additionally, NOAA would follow the procedures of the Administrative Procedure Act, requiring that adequate public notice and opportunity for public comment be given for new regulations, including boundary changes.

18. **Comment:** NOAA received a few comments that it did not explain why the preferred boundary alternative was selected. One comment asked if cost was a factor in choosing the smaller of the two boundary alternatives.

    Response: Chapter 3 of the DEIS and FEIS provide details regarding NOAA's analysis of boundary alternatives. Cost is not a primary factor in NOAA's selection of a boundary alternative.

Commercial Shipping (Non-Boundary) and Fishing

19. **Comment:** NOAA received several comments that the prohibition on anchoring could be problematic for commercial vessels, and that NOAA should publish both the known and potential locations of shipwrecks sites. A related comment noted that if the no-anchoring prohibition extends to undiscovered shipwrecks, shippers might not be able to avoid anchoring on a shipwreck if they do not know where it is, and as such, all locations, known or approximated, should be published by NOAA in a format accessible and useful to all mariners.

    Response: Under the proposed regulations, anchoring within the sanctuary is not prohibited. However, grappling into or anchoring on a shipwreck site (sanctuary resource) is prohibited. This regulation is narrowly worded to protect historic shipwreck sites from anchor damage, while still allowing anchoring inside the sanctuary outside of these discrete areas. The prohibition does not apply to any activity necessary to respond to an emergency threatening life or the environment.

    Existing state regulations already prohibit damaging historic shipwrecks sites within the area proposed as a sanctuary. To help vessels avoid inadvertently anchoring on known shipwrecks sites, NOAA will publish maps with coordinates of known and estimated shipwreck locations. It should be noted that historical research on shipwrecks yet to be found (potential/estimated shipwrecks) only approximates a potential shipwreck location. This information is currently available via the UW Sea Grant and Wisconsin Historical Society maintained website www.wisconsinshipwrecks.org. NOAA will work with the state to update and publish this information and share directly with stakeholders such as the Lake Carriers' Association. Additionally, NOAA will prioritize its sonar-based cultural resource surveys in areas where commercial shipping vessels are likely to anchor, such as off Manitowoc. This will help locate cultural resources and provide information useful to both the sanctuary and commercial shippers.

20. **Comment:** NOAA received a comment that language be added to Section 922.213(b) that not only considers emergency situations but adds: "…or anchoring to prevent unsafe

conditions, as determined by the vessel's master and recorded in the vessel's official log book."

Response: The proposed regulations provide for an exemption from the prohibitions in unsafe conditions. The proposed regulations specify, at 15 CFR 922.213 (b): "The prohibitions in paragraphs (a)(1) through (3) of this section do not apply to any activity necessary to respond to an emergency threatening life, property or the environment…" As such, NOAA believes that anchoring to prevent unsafe conditions is covered under current sanctuary regulations.

21. **Comment:** NOAA received one comment expressing concern that if NOAA broadens the scope of the Wisconsin sanctuary beyond maritime heritage resources, this would negatively impact the ability of shippers to conduct ballast water exchange.

    Response: NOAA is committed to ensuring that the creation of the sanctuary would support businesses and organizations that use the lake and surrounding ports. NOAA has not proposed any regulations prohibiting ballast water exchange in the sanctuary. Also, the Coast Guard Authorization Act of 2015 (Public Law 114-120) prevents the Coast Guard and U.S. Environmental Protection Agency from prohibiting ballast water exchange in national marine sanctuaries in the Great Lakes that protect maritime heritage resources. Ballast water operations would continue as currently conducted. In terms of future changes to the sanctuary's scope beyond underwater cultural resources, such a change would require a public process similar to the original designation, thereby affording commercial interests and the public an opportunity to comment on how any change in the scope might affect ballast water exchange.

22. **Comment:** NOAA received several comments that the sanctuary would have a negative impact on shipping and could result in businesses being closed. The comments indicated that the proposed sanctuary, as a cultural asset, should not encumber critical commercial activity related to maritime transportation into Wisconsin ports and through Wisconsin waters. Current legal navigational practices should continue to be allowed.

    Response: NOAA's proposal does not include restrictions to shipping. The proposal excludes the ports, marinas, and harbors of Two Rivers, Manitowoc, Sheboygan, and Port Washington from the sanctuary boundaries to avoid any unintended consequences of sanctuary designation on those operations. In addition, NOAA is proposing to eliminate the federally authorized areas (channels) from the sanctuary.

23. **Comment:** Several comments asked if the sanctuary designation gives NOAA the right to regulate commercial and recreational fishing. One comment indicated that federal regulations as a result of sanctuary designation should not affect the ability of commercial fishermen to conduct their fishing operations (particularly in "Zone 3").

    Response: Sanctuary regulations and terms of designation are narrowly defined to protect underwater cultural resources, and under the current terms of designation for WSCNMS, NOAA does not regulate commercial or recreational fishing activities. There are no restrictions on where fishing activities can occur or what gear fishermen can use, as long as the fishing activities do not injure underwater cultural resources. NOAA would

need to amend the terms of designation through a public process in order to regulate commercial and recreational fishing. Through its ongoing lakebed mapping surveys, the sanctuary will work with commercial fishermen to identify and share shipwreck locations to help avoid net entanglements.

Definitions, Fines, Enforcement, and Scope of Regulations

24. **Comment:** NOAA received a comment indicating that the definition of sanctuary resource is too broad and could mean any "debris" (e.g., beach glass, etc.) along the beach and below the ordinary high water mark. This could lead to people being fined for gathering such items along the beach.

    Response: NOAA is proposing the LWD as the sanctuary's landward boundary. Consequently, the area between the OHWM and the LWD (i.e., most of the beach area) is not included in the preferred alternative for the sanctuary. Under the preferred alternative, cultural resources found along the beach between the OHWM and the LWD are not subject to the sanctuary regulations, but will remain subject to state regulation.

25. **Comment:** Could NOAA impose legally enforceable restrictions on lake activities that are currently permissible by state authorities?

    Response: No current state laws would be superseded by the proposed national marine sanctuary. The NMSA gives NOAA the authority to manage national marine sanctuaries in a manner that complements existing regulatory authority (16 U.S.C. § 1431 (b)(2)). Prior to designation, Section 304(6)(1) of the NMSA provides the governor with authority to certify that the designation or terms thereof are unacceptable, and preclude the designation or terms thereof from taking effect in state waters (16 U.S.C. § 1434(6)(1)). This feature of the NMSA is intended to ensure the harmony of federal and state regulations, as well as provides the states with final approval of the designation and its regulations.

    For example, one of the proposed Wisconsin sanctuary regulations, developed in consultation with the state of Wisconsin, is to prohibit anchoring at shipwreck sites. While there is no state prohibition on this activity, it is a violation of state law to damage shipwrecks, including damage from anchoring. To facilitate public access to shipwrecks and to eliminate the need for anchoring at these often fragile sites, NOAA would install moorings at these sites. In this way, the sanctuary strengthens and complements state regulations and facilitates public access through a combination of regulation and proactive resource protection measures.

26. **Comment:** NOAA received questions on who enforces sanctuary regulations, fines associated with violations of sanctuary regulations (including how the fines are calculated), examples of fines, and what happens to the funds NOAA receives from violations.

    Response: NOAA views law enforcement as just one aspect of a sanctuary's comprehensive resource management strategy. Developing a plan to facilitate voluntary compliance with sanctuary regulations is another element of proactive enforcement included in the proposed sanctuary's draft management plan.

NOAA's Office of Law Enforcement enforces all of NOAA's natural and cultural resource laws, while also working with the U.S. Coast Guard (USCG) to enforce sanctuary regulations in the Great Lakes.

Violations of federal sanctuary regulations are violations of the NMSA, a federal statute. Civil violations are governed under NOAA's civil procedure regulations found at 15 CFR part 904. NOAA's Office of General Counsel assesses civil penalties in accordance with the nature, gravity, and circumstances of a violation. NOAA assesses civil penalties through the issuance of a notice of violation and assessment of civil penalty (NOVA). NOAA General Counsel publishes its penalty policy online to provide notice to the public about how it calculates penalties in any given case and to provide information about a typical penalty for a given type of violation. That information can be found at https://www.gc.noaa.gov/documents/Penalty-Policy-CLEAN-June242019.pdf.

Persons charged with civil violations are entitled to an opportunity for an administrative hearing before an administrative law judge (ALJ), and may seek reconsideration of the ALJ's ruling and appeal of the ALJ decision to the NOAA administrator. Persons may seek judicial review of the administrator's decision before a federal district court. Criminal violations are referred to the U.S. Department of Justice for prosecution.

NOAA's Office of General Counsel does not produce an annual report detailing violations and fines levied. However, administrative decisions regarding NOAA violations that are decided by an ALJ and/or decided on appeal to the NOAA administrator are published at http://www.gc.noaa.gov/enforce-office6.html.

Under the NMSA (16 U.S.C. § 1437(f)), amounts received from civil penalties must be used by NOAA in the following priority order: first, to manage and improve the sanctuary with respect to which the violation occurred that resulted in the penalty (e.g., used to restore any damage to a vessel caused by violating the anchoring restrictions); second, to pay a reward to a person who furnishes information leading to the civil penalty; or, third, to manage and improve any other national marine sanctuary.

27. **Comment:** NOAA received a comment asking about the definition of "interfering with" federal investigations and how NOAA would determine if an action constitutes interference.

Response: The NOAA Office of Law Enforcement, along with state officers where authorized under cooperative enforcement agreements, monitor compliance and investigates potential violations of the NMSA and its regulations. The NMSA specifies the authorities of those officers and agents, which includes general authorities to investigate violations of the statute, regulations, or a permit issued pursuant to the NMSA; seize evidence of violations or sanctuary resources taken in violation of the NMSA; and exercise other lawful authorities as sworn federal law enforcement authorities. Sanctuary regulations would prohibit interfering with these investigations.

Violations of the NMSA are primarily handled as civil administrative matters, pursuant to the Administrative Procedure Act. NOAA assesses civil penalties through the issuance of a NOVA. NOAA's Office of General Counsel assesses civil penalties in accordance with the nature, gravity, and circumstances of a violation. NOAA General Counsel publishes

its penalty policy on its website to provide notice to the public as to how it calculates penalties in any given case and to provide information as to a typical penalty for a given type of violation. That information can be found at https://www.gc.noaa.gov/documents/Penalty-Policy-CLEAN-June242019.pdf.

28. **Comment:** Several comments indicated that because NOAA has the authority to regulate a wide variety of resources through the National Marine Sanctuaries Act, there is concern that in the future NOAA will expand its authority beyond protecting maritime heritage resources.

    Response: Refer to comment 21 above.

29. **Comment:** NOAA received a comment asking what happens if a modern vessel sinks or wrecks in the sanctuary boundaries. Does the owner of the sunken property get to salvage his/her vessel or does this become a sanctuary resource?

    Response: Current salvage rules and regulations would continue to apply within WSCNMS. A recently sunken vessel would not be included in the definition of "sanctuary resources" which means "all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwreck sites." Additionally, "shipwreck site" means "any historic sunken watercraft, its components, cargo, contents, and associated debris field."

    NOAA revised the definition in Section 922.211(a)(2) for "shipwreck site" by adding "historic" to clarify its focus on historic shipwrecks (i.e., not all shipwrecks, but those that demonstrate an important role in or relationship with maritime history). This addition was specifically added to respond to concerns about defining recent or contemporary sunken craft or objects as sanctuary resources. For the purposes of the final rule, "historic" takes its definition from "historical resource" located in Section 922.3 of the generally applicable sanctuaries regulations.

30. **Comment:** Several comments indicated that shipwrecks are not mentioned in the 1972 Marine Protection, Research, and Sanctuaries Act, so NOAA does not have the authority to designate a "shipwreck" sanctuary.

    Response: The NMSA expressly provides that "the Secretary may designate any discrete area of the marine environment as a national marine sanctuary…(if) the area is of special national significance due to its conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities" (16 U.S.C. 1431(a)(2)).

31. **Comment:** One commenter requested to know what NOAA means by the term "lakebottom associated with underwater cultural resources."

    Response: NOAA did not propose any regulation containing the language cited by the commenter.

32. **Comment:** A few comments indicated that NOAA should not take away the public's right to use metal detectors.

Response: NOAA is not proposing to prohibit metal detecting in the sanctuary. In addition, the area between the OHWM and the LWD (where metal detecting on the beach would likely take place) is not included in the sanctuary boundary.

33. **Comment:** One comment raised concerns that NOAA would prohibit exploration for and development of minerals or other natural resources in the proposed sanctuary.

    Response: NOAA is not proposing to prohibit natural resources exploration and development in the sanctuary. The regulations are narrowly defined to protect underwater cultural resources. There are no restrictions to natural resources exploration and development as long as these activities do not injure underwater cultural resources or otherwise conflict with regulations specific to WSCNMS.

34. **Comment:** One comment asked if the proposed sanctuary could ever be abandoned or decommissioned.

    Response: Although the NMSA does not contemplate de-designation of a national marine sanctuary, NOAA engages closely with the state and public to review and revise its sanctuary management plan every five years. The management plan prioritizes resource management goals and describes actions by NOAA and its partners to accomplish them. The plan encompasses all non-regulatory programming—research, resource protection, education, outreach, volunteers, operations—that protects the cultural resources of the sanctuary while supporting responsible uses and enjoyment. A full management review process may take two to three years and involve several opportunities for public participation through scoping and review and comment on a draft and final plan. The Sanctuary Advisory Council would have a key role in the management plan review process.

35. **Comment:** A few comments requested that sanctuary regulations protect natural and biological resources in the Great Lakes ecosystem. Comments suggested regulations to prevent wastewater discharges, discharge of mercury and other toxic materials, risks from aging infrastructure, spread of invasive species, and other risks to wildlife and habitat.

    Response: This is beyond the scope of the state of Wisconsin's nomination to NOAA, which was focused on the protection and interpretation of maritime heritage resources.

36. **Comment:** NOAA received comments asking whether the sanctuary would create any additional restrictions or regulatory requirements related to dredging, pier structure maintenance, or extension of pier structures, and if local entities would require NOAA permission to install a new water intake line into Lake Michigan or to continue grooming beaches, including areas below the OHWM. A related comment requested that all necessary maintenance activities regarding Lake Michigan water intakes should be allowed to proceed uninhibited within the sanctuary boundaries.

    Response: WSCNMS regulations are narrowly focused on protecting underwater cultural resources. If an activity does not injure these sanctuary resources, it is not restricted or prohibited, and does not require a sanctuary permit. Dredging, pier construction and maintenance, and other construction activities are not expressly

prohibited activities under the proposed regulations. However, should these types of activities violate the sanctuary prohibition on "moving, removing, recovering, altering, destroying, possessing, or otherwise injuring" a resource, they would be prohibited.

Activities mentioned in this comment are already regulated by state and other federal entities. Section 106 of the National Historic Preservation Act requires the state of Wisconsin to identify known and potential historic resources that may be impacted by dredging and other activities that affect the lakebed. NOAA, through its co-management arrangement with the state and through the consultation requirement for federal agencies under the NMSA Section 304(d), would coordinate its response, including potential permitting and Section 106 consultation, when historic/cultural resources may be impacted.

As for grooming beaches, NOAA proposes to adopt a boundary of the LWD, which will effectively exclude beaches from the boundaries of the sanctuary.

37. **Comment:** NOAA received a comment requesting that it refrain from depicting the national marine sanctuary on Federal Aviation Administration's aeronautical charts to avoid confusion and misinterpretation of the area by general aviation pilots.

    Response: NOAA is not proposing including overflight restrictions as part of the sanctuary prohibitions, and not proposing that the sanctuary be depicted on aeronautical charts.

38. **Comment:** NOAA received one comment that the proposed sanctuary overlaps the boundaries of a restricted area (R-6903) used by the Volk Field Combat Readiness Training Center. In the unlikely event that the Wisconsin Air National Guard or users of R-6903 would need to conduct some sort of unconventional and/or kinetic operation in R-6903, close coordination with NOAA and the Federal Aviation Administration would be a necessity.

    Response: NOAA agrees and will coordinate with the Air National Guard to ensure compatible use of the sanctuary.

39. **Comment:** NOAA received a comment asking if the sanctuary would impact municipal lakebed grants.

    Response: No. The sanctuary proposal recognizes the state's sovereignty over its waters and submerged lands, including any state lakebed leases.

Public Review Process, State Legislature Involvement, State Role/Authority

40. **Comment:** NOAA received a comment that it did not provide enough time for the public to comment and did not provide the public with enough information about the proposed sanctuary. Relatedly, NOAA received one comment asking NOAA to hold a public session to help the public understand the sanctuary proposal.

    Response: NOAA held an 81-day public comment period, which exceeds the 30-day comment period requirement under the Administrative Procedures Act and the 45-day required comment period for a DEIS under NEPA, to allow the public time to review the proposal and provide comments. NOAA also held four public meetings to discuss the proposal and gather public comments. These meetings were held in four towns along the coastal area to ensure public access. NOAA also published a Federal Register notice and a website (http://sanctuaries.noaa.gov/wisconsin/) with the proposed sanctuary information for the public, meeting NMSA notification requirements. Additionally, NOAA issued a press release and received coverage in the local, regional, and national press. NOAA staff presented at city council meetings in Two Rivers, Sheboygan, Port Washington, and Mequon, and at county council meetings in Sheboygan and Ozaukee counties. A timeline of the sanctuary designation process can be found in the FAQ section at https://sanctuaries.noaa.gov/wisconsin/.

41. **Comment:** NOAA received several comments asking how the state government is involved in the sanctuary designation and how a sanctuary designation can be done without the state legislature's involvement.

    Response: Throughout the sanctuary designation process, NOAA worked closely with the Wisconsin Historical Society, Wisconsin Department of Natural Resources, Wisconsin Coastal Management Program, Wisconsin Department of Transportation, Wisconsin Department of Tourism, Wisconsin Public Service Commission, and the Wisconsin Public Lands Commission. Should NOAA and the Wisconsin governor ultimately concur on the designation, both NOAA and the state would co-manage WSCNMS.

    Furthermore, in national marine sanctuaries that include state waters, the NMSA provides the governor of the state with the opportunity to certify to the Secretary of Commerce that the designation or any of its terms is unacceptable (i.e., objects), in which case the designation or the unacceptable term shall not take effect.

42. **Comment:** Many comments suggested that a federal government program or involvement in Wisconsin is an intrusion into sovereign state waters. Designation of the sanctuary will result in the loss of state control of Lake Michigan, and a takeover of both management and regulation of the Wisconsin waters by the federal government.

    Response: Wisconsin Shipwreck Coast National Marine Sanctuary will not change the ownership or control of state lands or waters; that is, no loss of state sovereignty will occur as a result of designation of a national marine sanctuary. The state's jurisdiction and rights will be maintained and NOAA will not intrude upon or change existing state

or local authorities. All existing state laws, regulations, and authorities will remain in effect. The state will maintain ownership of the shipwrecks within the sanctuary.

43. **Comment:** NOAA received several comments that while the proposal highlights co-management with the state of Wisconsin, the governor only gains power through Section 922.214, Emergency Regulations. NOAA should consider allowing the governor to hold form of a veto, or check and balanced action, or at least part of the leasing or licenses action.

    Response: The co-management of the sanctuary provides a number of opportunities for the state of Wisconsin, either through the governor or by state agencies, to participate in the management of the sanctuary. For sanctuaries in state waters, pursuant to the National Marine Sanctuaries Act 304(b)(1), whenever a sanctuary is proposed to be designated, or the terms of designation changed, the governor has the opportunity to certify to the Secretary of Commerce that the designation or any of its terms is unacceptable, in which case the designation or the unacceptable term shall not take effect.

    The memorandum of agreement between NOAA and the state of Wisconsin will describe the details of co-management. The governor and state agencies will have considerable latitude in shaping the future of the state's co-management framework with NOAA, including the type of regulations that would apply to WSCNMS.

44. **Comment:** NOAA received a comment asking if NOAA does not ultimately establish a sanctuary, where the factors affecting this decision will be published. Will these factors be made a part of public record for future awareness and decision-making?

    Response: Should NOAA decide not to designate a sanctuary, it would publish a notice in the Federal Register to withdraw the proposed rule. The Federal Register notice would describe the reasons for NOAA's decision.

45. **Comment:** NOAA received a comment asking if it would ever have any accountability to existing state government lake regulations or laws, specifically those of the Wisconsin Department of Natural Resources.

    Response: The NMSA gives NOAA the authority to manage national marine sanctuaries in a manner that complements existing regulatory authority (16 U.S.C. § 1431(b)(2)). In a co-management framework with a respective state government, NOAA and the state would work collaboratively on the proposed sanctuary. A memorandum of agreement between NOAA and the state would be established to ensure that state and federal authorities are harmonized and coordinated. In addition, during the designation process and any future changes to the terms of designation, the governor has the authority to certify as unacceptable all or parts of the designation, which prevents the unacceptable terms from taking effect in state waters (16 U.S.C. § 1434(b)(1)).

Diver Access, Recreational Anchoring, Mooring Buoys, and Resource Management

46. **Comment:** NOAA received one comment about the importance of NOAA defining what it means to not be able to anchor in areas "associated with a shipwreck."

Response: The definition of "shipwreck site" in the WSCNMS regulations at 15 CFR 922.211(a)(2) means "any historic sunken watercraft, its components, cargo, contents, and associated debris field." Debris fields associated with shipwrecks sites can have significant archaeological value, including the existence of fragile ship structure and artifacts. By "associated debris field," NOAA means all cultural material adjacent to a shipwreck site, but not necessarily contiguous with it. Each shipwreck site is unique, and the resultant debris field is formed through a variety of site-specific factors including depth, circumstances of sinking, and other factors. As more data are gathered (e.g., through sonar surveys) on individual shipwrecks sites and associated debris fields, NOAA will publish information that helps visitors anchor outside of areas that could be damaged.

47. **Comment:** NOAA received several comments indicating that divers are a small percentage of the population, and questioned why a sanctuary should be established to serve such a small group.

    Response: As demonstrated in many sanctuaries, much of the public often benefits from the sanctuary through diving, kayaking, and snorkeling, as well as through museums, interpretive displays, websites, formal and informal educational programs, enhanced tourism opportunities, multidisciplinary research opportunities, and other unique sanctuary-related partnerships and activities. The sanctuary's final management plan outlines priorities in these areas for the first five years of the sanctuary's operation. These priorities substantially expand the public benefit of the sanctuary beyond that of divers.

48. **Comment:** NOAA received one comment that if NOAA does not install mooring buoys on all shipwrecks, the prohibition on anchoring will be detrimental to public access.

    Response: NOAA promotes public access to shipwrecks, and believes this is a fundamental way to increase their cultural and recreational value. Permanent moorings are an important resource protection measure that eliminates the need to grapple or anchor into the often fragile sites. This priority is described in the final management plan as Strategy RP-3.

    NOAA recognizes that it will take time to install moorings at all shipwrecks sites, and that some sites (particularly deep sites) create challenges for ideal mooring systems. Consequently, NOAA is proposing a two-year delay in the implementation of the no-anchoring prohibition. During this period, the sanctuary will work with the state, Sanctuary Advisory Council, a diver working group, and other relevant stakeholders to develop a moorings implementation plan and best practices document. During the two-year delay, NOAA will also consider guidelines for allowing divers to tie moorings directly on certain shipwrecks sites via a no-fee sanctuary permit.

49. **Comment:** NOAA received one comment that anchoring outside the shipwreck with the "shot line" method is not practical and it increases the dangers of diving.

    Response: NOAA recognizes that anchoring outside the wreck and using a shot line (a weighted line with surface buoy dropped onto a shipwreck site to mark its location and

provide reference for divers) may be a new practice for some users and not possible for all users. NOAA recognizes, too, that it will take time to install sanctuary-maintained moorings (see previous comment). Consequently, NOAA is considering allowing users to apply for a sanctuary permit to tie a suitable long-term mooring line directly into some shipwreck sites, which is a common and more familiar practice. Among other resource protection benefits, a no-fee permit would allow the sanctuary to work directly with users to determine which shipwrecks are most popular, and thereby prioritize future sanctuary-maintained permanent moorings located adjacent to the shipwreck.

50. **Comment:** NOAA received a few comments about who would be in charge of placing mooring buoys, how early in the season buoys would be placed, if there would be online resources outlining the status of shipwrecks as marked or unmarked, and how members of a local community could be involved in buoy management.

    Response: As indicated in the final management plan at Strategy RP-3 (Activity 3.1), NOAA will develop a five-year plan to develop and begin implementation of a plan for design, implementation, and maintenance of mooring buoy system, including priorities for which shipwrecks to buoy. Activity 3.1 includes an item to "work with local dive charters to monitor moorings throughout the dive season." Overall, while NOAA will have the lead responsibility for the mooring buoys in the sanctuary, it will work in close cooperation with the state and with local partners. With regard to online status, in time WSCNMS will have a GIS-based map similar to that of Thunder Bay National Marine Sanctuary (https://thunderbay.noaa.gov/shipwrecks/mooring_program.html). The online tool shows the seasonal status of mooring buoys at shipwreck sites. As indicated in Comment 47, the sanctuary will convene a working group to explore how best to implement the mooring buoy plan, which includes the potential use of volunteers.

51. **Comment:** NOAA received several comments about the importance of NOAA providing additional protection to shipwrecks.

    Response: Protecting shipwrecks and other underwater cultural resources will be a priority of Wisconsin Shipwreck Coast National Marine Sanctuary. As described in the final management plan, there are several ways to accomplish the resource protection goal, including enhanced regulations, installing mooring buoys, engaging with divers about best practices for diving, providing general education regarding the significance of these resources, and enforcing federal and state regulations to address protecting shipwrecks.

52. **Comment:** NOAA received a few comments that people should not be restricted from searching for shipwrecks.

    Response: NOAA is not restricting the ability of the public to search for shipwrecks, or proposing requiring a sanctuary permit for this activity.

53. **Comment:** NOAA received several comments that there should not be any restrictions on access to shipwrecks.

Response: NOAA is not proposing regulation of, or restrictions on, recreational diving activities within the sanctuary, as long as the activities do not injure sanctuary resources or result in anchoring on or grappling onto a shipwreck site. NOAA is not proposing requiring a permit to dive in the sanctuary.

54. **Comment:** NOAA received a few comments asking how locations of newly discovered shipwrecks would be made public.

    Response: While it is the intention of the sanctuary to release coordinates of known shipwrecks, NOAA may decide to withhold the release of coordinates of a newly discovered, historically significant shipwreck for a period of time so that NOAA and the state can document the site and its artifacts. Under this scenario, NOAA will use agency and partner resources (and possibly volunteers) to document the site. A newly discovered site may be particularly fragile or possess a large number of artifacts, and specific management or monitoring measures would need to be put into place before site coordinates are published on the sanctuary's website.

55. **Comment:** NOAA received several comments asking how the sanctuary would actually protect shipwrecks, including whether there is sufficient enforcement to protect shipwrecks.

    Response: The goal of WSCNMS is to comprehensively manage the underwater cultural resources of Lake Michigan. Enforcement is one aspect of the resource protection strategy as indicated in Strategy RP-5 of the final management plan, which states "Develop a plan to increase awareness of sanctuary regulations and state law and to enhance law enforcement efforts." Since NOAA does not currently have enforcement officers in the Great Lakes, NOAA works with the U.S. Coast Guard to enforce sanctuary regulations. NOAA would also work with state partners to explore options for assistance in the enforcement of sanctuary regulations. Developing a plan to facilitate voluntary compliance with sanctuary regulations is another element of proactive enforcement included in the sanctuary's management plan.

56. **Comment:** NOAA received one comment asking if future maritime archaeological research in the sanctuary would be restricted.

    Response: NOAA encourages research and documentation of underwater cultural resources, and in many cases can facilitate and act as a partner in these activities. NOAA is not restricting archaeological research, including Phase 1 (searching for shipwrecks) and Phase 2 (documenting shipwrecks) archaeology. However, given the sanctuary's proposed prohibition on injuring/damaging shipwreck sites, NOAA encourages researchers to obtain a Phase I archaeology permit from the state of Wisconsin, and consult with the sanctuary superintendent ahead of conducting research. For archaeological projects that will alter a site, or seek to remove artifacts, both a state and sanctuary permit would be required. Through a programmatic agreement, NOAA and the state will seek to simplify this process.

57. **Comment:** NOAA received several comments that the threat to shipwrecks will increase with increased tourism. The commenters asked who would monitor the shipwrecks, how the shipwrecks would be protected, and who would pay for these costs.

Response: NOAA believes that increasing public access and tourism to shipwrecks sites is an important way to foster awareness, appreciation, and ultimately protection of these special places. While NOAA encourages public access to shipwrecks, we are aware that increased use can result in additional pressure to these resources. The final management plan takes a broad approach to ensuring that the shipwrecks are protected to the greatest extent possible. This is accomplished through the resource protection, education, and research components of the plan. Monitoring is captured Strategy RP-2 of the final management plan.

Other elements of the final management plan that address increased use of sanctuary resources are the installation of additional mooring buoys, and public outreach programs on the value and fragility of shipwrecks. Appendix 1 of the final management plan addresses potential sanctuary operating budgets and partner contributions.

58. **Comment:** NOAA received many comments that the state of Wisconsin already protects shipwrecks, and that this effort should not be duplicated by the federal government.

Response: NOAA and the state will be co-managers of the sanctuary and work together to ensure that their efforts are complementary and not duplicative. Importantly, this co-management arrangement affords opportunities that neither NOAA or the state could realize on its own. As detailed in the FEIS (see Chapter 2), designation as a national marine sanctuary would provide increased resources to carry out the research, education, and law enforcement activities necessary to more comprehensively manage, protect, and increase the public benefit of these resources. For example, the sanctuary would bring national attention, interest, resources, and partners to the area. The sanctuary nomination put forth in 2014 by the state of Wisconsin on behalf of several lakeshore communities states the reasons the state wanted to partner with NOAA to protect the shipwrecks. The sanctuary nomination can be found at https://nominate.noaa.gov/media/documents/nomination_lake_michigan_wisconsin.pdf.

An example of the types of research programs and activities that a national marine sanctuary could provide in Wisconsin can be found in Thunder Bay National Marine Sanctuary's 2013 condition report (https://sanctuaries.noaa.gov/science/condition/tbnms/).

59. **Comment:** NOAA received a few comments suggesting that shipwrecks are not threatened to the degree that necessitates NOAA involvement, and that shipwrecks are already preserved by the fresh water of the Great Lakes.

Response: While it is true that the cold, fresh water of the Great Lakes preserves shipwrecks better than a saltwater environment, this alone does not negate negative impacts to Wisconsin's shipwrecks. These threats, as described in the FEIS (see Chapter 2), include both natural processes and human activities. Human threats to underwater cultural resources include looting and altering shipwreck sites and damaging shipwreck sites by anchoring. The proposed final rule for WSCNMS includes a prohibition on the use of grappling hooks and anchors at shipwreck sites. This prohibition will more

directly address damage to shipwrecks than the state is able to address. Additionally, as steward of these nationally significant cultural resources, NOAA believes that creating public awareness and engagement in the sanctuary through research, education, and community engagement is an essential means of resource protection and increasing public benefit.

60. **Comment:** NOAA received a comment asking whether NOAA could charge new fees (for a permit or otherwise) on citizens for lake activities that are currently free.

    Response: NOAA is not proposing to charge any fees on any activity within the proposed Wisconsin sanctuary.

Funding

61. **Comment:** NOAA received several comments related to the cost of designating a national marine sanctuary. The comments included a concern about higher taxes as a result of the designation; a concern that the federal government does not have sufficient funds to manage the area; a statement that federal funds would be better used to protect natural resources; a concern that NOAA has not provided a cost or budget analysis; a comment about financial accountability; and two questions asking about the sources of funding for the sanctuary.

    Response: The National Marine Sanctuaries Act (16 U.S.C Chapter 32) directs NOAA to protect these nationally significant ecological and historical resources. As a federal agency, NOAA's annual budget is passed by Congress, signed into law by the president, and includes an annual allocation for the management of all the national marine sanctuaries. NOAA makes funding decisions for each sanctuary based on the funding level, program priorities, and site needs. As a result, site-specific funding can vary with fluctuations in annual appropriations, which may impact the level of activities completed in the management plan each year. As part of the final management plan for this sanctuary, NOAA included a summary of the sanctuary activities that could be completed at several funding levels. NOAA also anticipates that a varying level of in-kind contributions from co-managers and partners, as well as grants and other outside funding, will contribute to the overall sanctuary goals. Additionally, ONMS has received roughly $2 million in donations and in-kind contributions and 120,000 volunteer hours per year at its sites nationwide.

62. **Comment:** If Congress chose to not appropriate sufficient funds for the proposed sanctuary's operations in any given fiscal year, what would occur?

    Response: The NMSA (16 U.S.C. § 1431 et seq.) directs NOAA to protect these nationally significant areas and their ecological and historical resources. Funding for the management of all of the national marine sanctuaries is typically provided as a program allocation in NOAA's annual appropriations. While NOAA makes funding decisions for each sanctuary based on the ONMS funding level, program priorities, and site needs, it executes the ONMS budget to ensure basic operating costs at all national marine sanctuaries are met.

Economic Impact

63. **Comment:** NOAA received several comments that the economic impact of the sanctuary would be limited because not many people dive, and local museums already do the outreach that NOAA is proposing. Similarly, NOAA received several comments stating that the socioeconomic impact study on Thunder Bay National Marine Sanctuary by the University of Michigan does not demonstrate positive impacts. The commenters asked why NOAA expects positive economic impacts in Wisconsin.

    Response: As demonstrated at other national marine sanctuaries, NOAA believes that broader public outreach and education are also important resource protection activities, because they increase awareness, appreciation, and value of our nation's maritime heritage and nationally significant historic sites. That sanctuary activities aimed at the non-diving public could benefit the region was recognized in the 2014 sanctuary nomination, which indicated that a chief goal for the state and communities was to leverage the sanctuary to "Build and expand on state and local tourism initiatives and enhance opportunities for job creation." Letters of support from many area museums accompanied the sanctuary nomination (https://nominate.noaa.gov/media/documents/nomination_lake_michigan_wisconsin.pdf). Consequently, education and outreach activities constitute a significant part of the sanctuary's final management plan.

    Initiatives at NOAA's Thunder Bay National Marine Sanctuary in Alpena, Michigan, provide an example of a wide range of education, outreach, interpretation, tourism, and partnerships aimed at the benefitting the general public. NOAA disagrees with the comment on the 2013 economic study for Thunder Bay National Marine Sanctuary. Questionnaires were administered to 746 tourists and business owners over a 12-week period in 2012, and indicated positive trends. For example, respondents were asked to indicate what impact they felt the sanctuary had on the local economy. Although a scale with both negative and positive choices was offered for this item, no respondents chose either of the negative choices, or the "no impact" option. "Positive" was selected by 54.4% of those answering, and "very positive" was chosen by 45.6%. The study can be found at http://irlee.umich.edu/wp-content/uploads/2016/05/ThunderBayNMS_FinalReport.pdf.

    A 2018 study of visitors to the Thunder Bay National Marine Sanctuary also found positive economic impacts deriving from the sanctuary visitor center and a glass bottom boat operating in the sanctuary. The report can be found at https://sanctuaries.noaa.gov/science/conservation/2020-thunder-bay-socioeconomic-profile-and-uses-vol-3.html.

Draft Management Plan, Sanctuary Name, Operations

64. **Comment:** NOAA received one comment that NOAA should consider modifying the goal statement in the education and outreach plan to include education and dissemination of the maritime cultural landscape perspective as well as the shipwrecks to be protected by the

proposed sanctuary, and that all of the strategies should address the maritime cultural landscape.

Response: NOAA believes the maritime cultural landscape is an essential component of interpreting, understanding, and appreciating historic shipwrecks. The final management plan contains a strategy and two activities aimed at characterizing the sanctuary's maritime cultural landscape. NOAA added a reference to maritime cultural landscapes in the "Objectives" section of the education management plan. As described by the National Park Service, a cultural landscape is a geographic area including cultural and natural resources, coastal environments, human communities, and related scenery that is associated with historic events, activities, or persons, or exhibits other cultural or aesthetic value.

65. **Comment:** NOAA received one comment that NOAA should fund the sanctuary at the $700,000 level (as indicated in a summary of potential funding scenarios in Appendix 1 of the final management plan), as this would include enough resources to hire an education coordinator and implement an education program.

    Response: NOAA agrees it is important to implement elements of the Education and Outreach Action Plan. NOAA makes funding decisions based on annual appropriations to the program, which drive decisions for each sanctuary based on the funding level, program priorities, and site needs. As a result, site level funding can vary from year to year, which may impact the level of activities completed in the management plan each year.

66. **Comment:** NOAA received one comment that NOAA needs to have a presence in each community working on this designation process. Rather than having a new visitor center created post-designation, NOAA should capitalize on the existing informal learning institutions and allied organizations already working to educate and inspire public appreciation of – and involvement in – the Great Lakes.

    Response: One of the strengths of the WSCNMS designation is the many opportunities to partner with, leverage, and complement assets in each of the sanctuary communities. Per final management plan Strategy SO-1, the sanctuary will "Develop a 'NOAA presence' within sanctuary communities that supports the sanctuary's mission and infrastructure needs, and that recognizes, leverages, and complements individual assets in sanctuary communities." The strategic plan supporting Strategy SO-1 will be produced after designation in cooperation with local communities, other appropriate partners, and the Sanctuary Advisory Council to ensure that NOAA is capitalizing on existing efforts and institutions in the region.

67. **Comment:** NOAA received one comment that the proposal should provide more specificity about educational programming and technology for K-12.

    Response: NOAA's final management plan is the initial management plan for this site, and as such describes general objectives for education and outreach activities. As sanctuary staff are hired and as NOAA engages with its education partners after

designation, more specificity will emerge for the sanctuary's education and outreach activities.

68. **Comment:** NOAA received one comment suggesting the sanctuary should be named "Wisconsin Marine Protection Area" as the name is shorter and easier to say, it would result in less clutter on a map, and people could identify the name easier.

    Response: Community and partner discussions during a sanctuary branding workshop sponsored by the Wisconsin Department of Tourism produced the name Wisconsin Shipwreck Coast National Marine Sanctuary, which NOAA proposes as the sanctuary's official name. The new name reflects the sanctuary cultural heritage focus, is responsive to community input, and is conducive to marketing and branding efforts.

69. **Comment:** NOAA received one comment that Sheboygan would be the ideal location for a sanctuary office because it is centrally located, has the most developed riverfront, has Blue Harbor Resort and charter fishing fleets, and is the largest of the cities in the proposed sanctuary. NOAA also received other comments identifying specific communities in a similar way, such as Port Washington.

    Response: One of the strengths of the WSCNMS designation is the many opportunities to partner with, leverage, and complement assets in each of the sanctuary communities. Per final management plan Strategy SO-1, the sanctuary will "Develop a 'NOAA presence' within sanctuary communities that supports the sanctuary's mission and infrastructure needs, and that recognizes, leverages, and complements individual assets in sanctuary communities." NOAA has not made any decisions about sanctuary office locations.

70. **Comment:** NOAA received one comment from the U.S. Environmental Protection Agency that NOAA should address green building practices and climate change and greenhouse gases in the FEIS. EPA recommended that the FEIS explain the geographic and policy definitions of the term "coastline" as it applies to this proposed designation.

    Response: The FEIS does not include a plan for facility construction or operation as part of the proposed action. However, should NOAA propose any of these activities in the future, it will consider environmentally responsible practices suggested in EPA's recommendations. In using the term "coastline," NOAA does not define it as a legal term; instead it is used generally as the land-water interface. The proposed shore side boundary is defined as the LWD.

APPENDIX C

Draft Version of Final Rule and Terms of Designation for Wisconsin Shipwreck Coast National Marine Sanctuary

PART 922–NATIONAL MARINE SANCTUARY PROGRAM REGULATIONS

1. The authority citation for 15 CFR part 922 continues to read as follows:

Authority: 16 U.S.C. 1431 ~~et seq.~~

2. Revise § 922.1 to read as follows:

§ 922.1 Applicability of regulations.

Unless noted otherwise, the regulations in subparts A, D, and E of this part apply to all National Marine Sanctuaries and related site-specific regulations set forth in this part. Subparts B and C of this part apply to the sanctuary nomination process and to the designation of future Sanctuaries.

3. Amend § 922.3 by revising the definition of "Sanctuary resource" to read as follows:

§ 922.3 Definitions.

* * * * *

Sanctuary resource means any living or non-living resource of a National Marine Sanctuary that contributes to the conservation, recreational, ecological, historical, research, educational, or aesthetic value of the Sanctuary, including, but not limited to, the substratum of the area of the Sanctuary, other submerged features and the surrounding seabed, carbonate rock, corals and other bottom formations, coralline algae and other marine plants and algae, marine invertebrates, brine-seep biota, phytoplankton, zooplankton, fish, seabirds, sea turtles and other marine reptiles, marine mammals and historical resources. For Thunder Bay National Marine Sanctuary and Underwater Preserve, Sanctuary resource means an underwater cultural resource as defined at § 922.191. For Mallows Bay-Potomac River National Marine Sanctuary, Sanctuary resource is defined at §922.201(a). For Wisconsin Shipwreck Coast National Marine Sanctuary, sanctuary resource is defined at § 922.211.

* * * * *

4. Revise § 922.44 to read as follows:

§ 922.44 Emergency regulations.

(a) Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss, or injury, any and all such activities are subject to immediate temporary regulation, including prohibition.

(b) The provisions of this section do not apply to the following national marine sanctuaries with site-specific regulations that establish procedures for issuing emergency regulations:

(1) Cordell Bank National Marine Sanctuary, § 922.112(e).

(2) Florida Keys National Marine Sanctuary, § 922.165.

(3) Hawaiian Islands Humpback Whale National Marine Sanctuary, § 922.185.

(4) Thunder Bay National Marine Sanctuary, § 922.196.

(5) Mallows Bay-Potomac River National Marine Sanctuary, § 922.204.

(6) Wisconsin Shipwreck Coast National Marine Sanctuary, § 922.214.

5. Amend § 922.47 by revising paragraph (b) to read as follows:

§ 922.47 Pre-existing authorizations or rights and certifications of pre-existing authorizations or rights.

* * * * *

(b) The prohibitions listed in subparts F through P and R through T of this part do not apply to any activity authorized by a valid lease, permit, license, approval or other authorization in existence on the effective date of Sanctuary designation, or in the case of Florida Keys National Marine Sanctuary the effective date of the regulations in subpart P, and issued by any Federal, State or local authority of competent jurisdiction, or by any valid right of subsistence use or access in existence on the effective date of Sanctuary designation, or in the case of Florida Keys National Marine Sanctuary the effective date of the regulations in subpart P, provided that the holder of such authorization or right complies with certification procedures and criteria promulgated at the time of Sanctuary designation, or in the case of Florida Keys National Marine Sanctuary the effective date of the regulations in subpart P, and with any terms and conditions on the exercise of such authorization or right imposed by the Director as a condition of certification as the Director deems necessary to achieve the purposes for which the Sanctuary was designated.

6. Revise § 922.48 to read as follows:

§ 922.48 National Marine Sanctuary permits—application procedures and issuance criteria.

(a) A person may conduct an activity prohibited by subparts F through O and S and T of this part, if conducted in accordance with the scope, purpose, terms and conditions of a permit issued under this section and subparts F through O and S and T, as appropriate. For Florida Keys National Marine Sanctuary, a person may conduct an activity prohibited by subpart P of

this part if conducted in accordance with the scope, purpose, terms and conditions of a permit issued under § 922.166. For Thunder Bay National Marine Sanctuary and Underwater Preserve, a person may conduct an activity prohibited by subpart R of this part in accordance with the scope, purpose, terms and conditions of a permit issued under § 922.195.

(b) Applications for permits to conduct activities otherwise prohibited by subparts F through O and S and T of this part, should be addressed to the Director and sent to the address specified in subparts F through O of this part, or subparts R through T of this part, as appropriate. An application must include:

(1) A detailed description of the proposed activity including a timetable for completion;

(2) The equipment, personnel and methodology to be employed;

(3) The qualifications and experience of all personnel;

(4) The potential effects of the activity, if any, on Sanctuary resources and qualities; and

(5) Copies of all other required licenses, permits, approvals or other authorizations.

(c) Upon receipt of an application, the Director may request such additional information from the applicant as he or she deems necessary to act on the application and may seek the views of any persons or entity, within or outside the Federal government, and may hold a public hearing, as deemed appropriate.

(d) The Director, at his or her discretion, may issue a permit, subject to such terms and conditions as he or she deems appropriate, to conduct a prohibited activity, in accordance with the criteria found in subparts F through O of this part, or subparts R through T of this part, as appropriate. The Director shall further impose, at a minimum, the conditions set forth in the relevant subpart.

(e) A permit granted pursuant to this section is nontransferable.

(f) The Director may amend, suspend, or revoke a permit issued pursuant to this section for good cause. The Director may deny a permit application pursuant to this section, in whole or in part, if it is determined that the permittee or applicant has acted in violation of the terms and conditions of a permit or of the regulations set forth in this section or subparts F through O of this part, or subparts R through T of this part or for other good cause. Any such action shall be communicated in writing to the permittee or applicant by certified mail and shall set forth the reason(s) for the action taken. Procedures governing permit sanctions and denials for enforcement reasons are set forth in subpart D of 15 CFR part 904.

7. Revise § 922.49 to read as follows:

§ 922.49 Notification and review of applications for leases, licenses, permits, approvals, or other authorizations to conduct a prohibited activity.

(a) A person may conduct an activity prohibited by subparts L through P of this part, or subparts R through T of this part, if such activity is specifically authorized by any valid Federal, State, or

local lease, permit, license, approval, or other authorization issued after the effective date of Sanctuary designation, or in the case of Florida Keys National Marine Sanctuary after the effective date of the regulations in subpart P, provided that:

(1) The applicant notifies the Director, in writing, of the application for such authorization (and of any application for an amendment, renewal, or extension of such authorization) within fifteen (15) days of the date of filing of the application or the effective date of Sanctuary designation, or in the case of Florida Keys National Marine Sanctuary the effective date of the regulations in subpart P, whichever is later;

(2) The applicant complies with the other provisions of this section;

(3) The Director notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization (or amendment, renewal, or extension); and

(4) The applicant complies with any terms and conditions the Director deems reasonably necessary to protect Sanctuary resources and qualities.

(b) Any potential applicant for an authorization described in paragraph (a) of this section may request the Director to issue a finding as to whether the activity for which an application is intended to be made is prohibited by subparts L through P of this part, or subparts R through T of this part, as appropriate.

(c) Notification of filings of applications should be sent to the Director, Office of National Marine Sanctuaries at the address specified in subparts L through P of this part, or subparts R through T of this part, as appropriate. A copy of the application must accompany the notification.

(d) The Director may request additional information from the applicant as he or she deems reasonably necessary to determine whether to object to issuance of an authorization described in paragraph (a) of this section, or what terms and conditions are reasonably necessary to protect Sanctuary resources and qualities. The information requested must be received by the Director within 45 days of the postmark date of the request. The Director may seek the views of any persons on the application.

(e) The Director shall notify, in writing, the agency to which application has been made of his or her pending review of the application and possible objection to issuance. Upon completion of review of the application and information received with respect thereto, the Director shall notify both the agency and applicant, in writing, whether he or she has an objection to issuance and what terms and conditions he or she deems reasonably necessary to protect Sanctuary resources and qualities, and reasons therefor.

(f) The Director may amend the terms and conditions deemed reasonably necessary to protect Sanctuary resources and qualities whenever additional information becomes available justifying such an amendment.

(g) Any time limit prescribed in or established under this section may be extended by the Director for good cause.

(h) The applicant may appeal any objection by, or terms or conditions imposed by the Director to the Assistant Administrator or designee in accordance with the provisions of § 922.50.

8. Revise § 922.50 to read as follows:

§ 922.50 Appeals of administrative action.

(a)(1) Except for permit actions taken for enforcement reasons (see subpart D of 15 CFR part 904 for applicable procedures), an applicant for, or a holder of, a National Marine Sanctuary permit; an applicant for, or a holder of, a Special Use permit issued pursuant to section 310 of the Act; a person requesting certification of an existing lease, permit, license or right of subsistence use or access under § 922.47; or, for those Sanctuaries described in subparts L through P and R through T of this part, an applicant for a lease, permit, license or other authorization issued by any Federal, State, or local authority of competent jurisdiction (hereinafter appellant) may appeal to the Assistant Administrator:

(i) The granting, denial, conditioning, amendment, suspension or revocation by the Director of a National Marine Sanctuary or Special Use permit;

(ii) The conditioning, amendment, suspension or revocation of a certification under § 922.47; or

(iii) For those Sanctuaries described in subparts L through P and subpart R through T, the objection to issuance of or the imposition of terms and conditions on a lease, permit, license or other authorization issued by any Federal, State, or local authority of competent jurisdiction.

(a)(2) For those National Marine Sanctuaries described in subparts F through K and S and T of this part, any interested person may also appeal the same actions described in paragraphs (a)(1)(i) and (ii) of this section. For appeals arising from actions taken with respect to these National Marine Sanctuaries, the term “appellant” includes any such interested persons.

(b) An appeal under paragraph (a) of this section must be in writing, state the action(s) by the Director appealed and the reason(s) for the appeal, and be received within 30 days of receipt of notice of the action by the Director. Appeals should be addressed to the Assistant Administrator for Ocean Services and Coastal Zone Management, NOAA 1305 East-West Highway, 13th Floor, Silver Spring, MD 20910.

(c)(1) The Assistant Administrator may request the appellant to submit such information as the Assistant Administrator deems necessary in order for him or her to decide the appeal. The information requested must be received by the Assistant Administrator within 45 days of the postmark date of the request. The Assistant Administrator may seek the views of any other persons. For Monitor National Marine Sanctuary, if the appellant has requested a hearing, the Assistant Administrator shall grant an informal hearing. For all other National Marine Sanctuaries, the Assistant Administrator may determine whether to hold an informal hearing on the appeal. If the Assistant Administrator determines that an informal hearing should be held, the Assistant Administrator may designate an officer before whom the hearing shall be held.

(2) The hearing officer shall give notice in the Federal Register of the time, place and subject matter of the hearing. The appellant and the Director may appear personally or by counsel at the hearing and submit such material and present such arguments as deemed appropriate by the hearing officer. Within 60 days after the record for the hearing closes, the hearing officer shall recommend a decision in writing to the Assistant Administrator.

(d) The Assistant Administrator shall decide the appeal using the same regulatory criteria as for the initial decision and shall base the appeal decision on the record before the Director and any information submitted regarding the appeal, and, if a hearing has been held, on the record before the hearing officer and the hearing officer's recommended decision. The Assistant Administrator shall notify the appellant of the final decision and the reason(s) therefore in writing. The Assistant Administrator's decision shall constitute final agency action for the purpose of the Administrative Procedure Act.

(e) Any time limit prescribed in or established under this section other than the 30-day limit for filing an appeal may be extended by the Assistant Administrator or hearing office for good cause.

9. Add subpart T to read as follows:

SUBPART T - WISCONSIN SHIPWRECK COAST NATIONAL MARINE SANCTUARY

Sec.

§ 922.210 Boundary.

Wisconsin Shipwreck Coast National Marine Sanctuary consists of an area of approximately 726 square nautical miles (962 square miles) of Lake Michigan waters within the State of Wisconsin and the submerged lands thereunder, over, around, and under the submerged underwater cultural resources in Lake Michigan. The precise boundary coordinates are listed in Appendix A to this subpart. The eastern boundary of the sanctuary begins approximately 9.3 miles east of the Wisconsin shoreline (as defined by the low water datum) in Lake Michigan at Point 1 north of the border between Manitowoc and Kewaunee County. From Point 1 the boundary continues SSW in a straight line to Point 2 and then SW to Point 3 which is located in Lake Michigan approximately 16.3 miles east of a point on the shoreline roughly equidistant between the borders of northern Mequon, WI and southern Port Washington, WI. From Point 3 the boundary continues west towards Point 4 until it intersects the shoreline at the low water datum approximately 2.5 miles north of the northern border of Mequon, WI. From this intersection the boundary continues north following the shoreline at the low water datum, cutting across the mouths of creeks and streams until it intersects the line segment formed between Point 5 and Point 6 at the end of the southern breakwater at the mouth of Sauk Creek at Port Washington. From this intersection the boundary continues to Point 6 through Point 9 in numerical order. From Point 9 the boundary continues towards Point 10 until it intersects the shoreline at the low water datum at the end of the northern breakwater at the mouth of Sauk Creek. From this intersection the boundary continues north following the shoreline at the low water datum cutting across the mouths of creeks and streams until it intersects the line segment formed between Point 11 and Point 12 at the end of the southern breakwater at the mouth of the Sheboygan River. From this intersection the boundary continues to Point 12 through Point 17 in numerical order. From Point 17 the boundary continues towards Point 18 until it intersects the shoreline at the low water datum at the end of the northern breakwater at the mouth of the Sheboygan River. From this intersection the boundary continues north along the shoreline at the low water datum cutting across the mouths of creeks and streams until it intersects the line segment formed between Point 19 and Point 20 at the end of the southern breakwater at the mouth of Manitowoc Harbor. From this intersection the boundary continues to Point 20 through Point 23 in numerical order. From Point 23 the boundary continues towards Point 24 until it intersects the shoreline at the low water datum at the end of the northern breakwater at the mouth of the Sheboygan River. From this intersection the boundary continues north following the shoreline at the low water datum cutting across the mouths of creeks and streams until it intersects the line segment formed between Point 25 and Point 26 at the end of the western breakwater at the mouth of East Twin River. From this intersection the boundary continues to Point 27 through Point 31 in numerical order. From Point 31 the boundary continues towards Point 32 until it intersects the shoreline at the low water datum at the end of the eastern breakwater at the mouth of East Twin River. From this intersection the boundary continues NE following the shoreline at the low water datum cutting across the mouths of creeks and streams around Rawley Point and then continues NNW past the county border between Manitowoc and Kewaunee County until it intersects the line segment formed between Point 33 and Point 34 along the shoreline at the low water datum just south of the mouth of the unnamed stream near the intersection of Sandy Bar Road and Lakeview Road near Carlton, WI. Finally, from this intersection at the shoreline at the low water datum the boundary moves east across Lake Michigan to Point 34.

§ 922.211 Definitions.

(a) The following terms are defined for purposes of this subpart:

(1) Sanctuary resource means all prehistoric, historic, archaeological, and cultural sites and artifacts within the sanctuary boundary, including all shipwreck sites.

(2) Shipwreck site means any historic sunken watercraft, its components, cargo, contents, and associated debris field.

(b) All other terms appearing in the regulations in this subpart are defined at 15 CFR 922.3, and/or in the Marine Protection, Research, and Sanctuaries Act, as amended, 33 U.S.C. 1401 et seq., and 16 U.S.C. 1431 et seq.

§ 922.212 Co-management.

NOAA has primary responsibility for the management of the Sanctuary pursuant to the Act. However, as the Sanctuary is in state waters, NOAA will co-manage the Sanctuary in collaboration with the State of Wisconsin. The Director may enter into a Memorandum of Agreement regarding this collaboration that may address, but not be limited to, such aspects as areas of mutual concern, including Sanctuary resource protection, programs, permitting, activities, development, and threats to Sanctuary resources.

§ 922.213 Prohibited or otherwise regulated activities.

(a) Except as specified in paragraph (b) of this section, the following activities are prohibited and thus are unlawful for any person to conduct or to cause to be conducted:

(1) Moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess or otherwise injure a sanctuary resource.

(2) Grappling into or anchoring on shipwreck sites.

(3) Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of the Act or any regulation or any permit issued under the Act.

(b) The prohibitions in paragraphs (a)(1) through (3) of this section do not apply to any activity necessary to respond to an emergency threatening life, property, or the environment; or to activities necessary for valid law enforcement purposes.

§ 922.214 Emergency regulations.

(a) Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource, or to minimize the imminent risk of such destruction, loss, or injury, any and all

activities are subject to immediate temporary regulation, including prohibition. An emergency regulation shall not take effect without the approval of the Governor of Wisconsin or her/his designee or designated agency.

(b) Emergency regulations remain in effect until a date fixed in the rule or six months after the effective date, whichever is earlier. The rule may be extended once for not more than six months.

§ 922.215 Permit procedures and review criteria.

(a) Authority to issue general permits. The Director may allow a person to conduct an activity that would otherwise be prohibited by this subpart, through issuance of a general permit, provided the applicant complies with:

(1) The provisions of subpart E of this part; and

(2) The relevant site specific regulations appearing in this subpart.

(b) Sanctuary general permit categories. The Director may issue a sanctuary general permit under this subpart, subject to such terms and conditions as he or she deems appropriate, if the Director finds that the proposed activity falls within one of the following categories:

(1) Research - activities that constitute scientific research on or scientific monitoring of national marine sanctuary resources or qualities;

(2) Education - activities that enhance public awareness, understanding, or appreciation of a national marine sanctuary or national marine sanctuary resources or qualities; or

(3) Management - activities that assist in managing a national marine sanctuary.

(c) Review criteria. The Director shall not issue a permit under this subpart, unless he or she also finds that:

(1) The proposed activity will be conducted in a manner compatible with the primary objective of protection of national marine sanctuary resources and qualities, taking into account the following factors:

(i) The extent to which the conduct of the activity may diminish or enhance national marine sanctuary resources and qualities; and

(ii) Any indirect, secondary or cumulative effects of the activity.

(2) It is necessary to conduct the proposed activity within the national marine sanctuary to achieve its stated purpose.

(3) The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's stated purpose and eliminate, minimize, or mitigate adverse effects on sanctuary resources and qualities as much as possible.

(4) The duration of the proposed activity and its effects are no longer than necessary to achieve the activity's stated purpose.

(5) The expected end value of the activity to the furtherance of national marine sanctuary goals and purposes outweighs any potential adverse impacts on sanctuary resources and qualities from the conduct of the activity.

(6) The applicant is professionally qualified to conduct and complete the proposed activity.

(7) The applicant has adequate financial resources available to conduct and complete the proposed activity and terms and conditions of the permit.

(8) There are no other factors that would make the issuance of a permit for the activity inappropriate.

§ 922.216 Certification of preexisting leases, licenses, permits, approvals, other authorizations, or rights to conduct a prohibited activity.

(a) A person may conduct an activity prohibited by § 922.213(a)(1) through (3) if such activity is specifically authorized by a valid Federal, state, or local lease, permit, license, approval, or other authorization, or tribal right of subsistence use or access in existence prior to the effective date of sanctuary designation and within the sanctuary designated area and complies with § 922.47 and provided that the holder of the lease, permit, license, approval, or other authorization complies with the requirements of paragraph (e) of this section.

(b) In considering whether to make the certifications called for in this section, the Director may seek and consider the views of any other person or entity, within or outside the Federal government, and may hold a public hearing as deemed appropriate.

(c) The Director may amend, suspend, or revoke any certification made under this section whenever continued operation would otherwise be inconsistent with any terms or conditions of the certification. Any such action shall be forwarded in writing to both the holder of the certified permit, license, or other authorization and the issuing agency and shall set forth reason(s) for the action taken.

(d) Requests for findings or certifications should be addressed to the Director, Office of National Marine Sanctuaries; ATTN: Sanctuary Superintendent, Wisconsin Shipwreck Coast National Marine Sanctuary, 1305 East-West Hwy, 11th Floor, Silver Spring, MD 20910. A copy of the lease, permit, license, approval, or other authorization must accompany the request.

(e) For an activity described in paragraph (a) of this section, the holder of the authorization or right may conduct the activity prohibited by § 922.213(a)(1) through (3) provided that:

(1) The holder of such authorization or right notifies the Director, in writing, 180 days of the Federal Register notice announcing of effective date of the Sanctuary designation, of the existence of such authorization or right and requests certification of such authorization or right;

(2) The holder complies with the other provisions of this section; and

(3) The holder complies with any terms and conditions on the exercise of such authorization or right imposed as a condition of certification, by the Director, to achieve the purposes for which the Sanctuary was designated.

(f) The holder of an authorization or right described in paragraph (a) of this section authorizing an activity prohibited by § 922.213 may conduct the activity without being in violation of applicable provisions of § 922.213, pending final agency action on his or her certification request, provided the holder is otherwise in compliance with this section.

(g) The Director may request additional information from the certification requester as he or she deems reasonably necessary to condition appropriately the exercise of the certified authorization or right to achieve the purposes for which the Sanctuary was designated. The Director must receive the information requested within 45 days of the postmark date of the request. The Director may seek the views of any persons on the certification request.

(h) The Director may amend any certification made under this section whenever additional information becomes available that he/she determines justifies such an amendment.

(i) Upon completion of review of the authorization or right and information received with respect thereto, the Director shall communicate, in writing, any decision on a certification request or any action taken with respect to any certification made under this section, in writing, to both the holder of the certified lease, permit, license, approval, other authorization, or right, and the issuing agency, and shall set forth the reason(s) for the decision or action taken.

(j) The holder may appeal any action conditioning, amending, suspending, or revoking any certification in accordance with the procedures set forth in § 922.50.

(k) Any time limit prescribed in or established under this section may be extended by the Director for good cause.

Appendix A to Subpart T of Part 922—Wisconsin Shipwreck Coast Sanctuary Boundary Description and Coordinates of the Lateral Boundary Closures and Excluded Areas

Coordinates listed in this appendix are unprojected (Geographic) and based on the North American Datum of 1983.

Table A1- Coordinates for sanctuary boundary

Point_ID	Latitude	Longitude
1	44.35279	-87.34387
2	43.45716	-87.48817
3	43.31519	-87.56312
4*	43.31519	-87.88828
5*	43.38447	-87.86079
6	43.38455	-87.86062
7	43.38353	-87.85936
8	43.38588	-87.85801
9	43.38510	-87.85950
10*	43.38523	-87.85963
11*	43.74858	-87.69479
12	43.74858	-87.69457
13	43.74840	-87.69457
14	43.74778	-87.69191
15	43.74949	-87.69161
16	43.74977	-87.69196
17	43.74935	-87.69251
18*	43.74946	-87.69265
19*	44.09135	-87.64377
20	44.09147	-87.64366
21	44.09081	-87.64206
22	44.09319	-87.64202
23	44.09254	-87.64365
24*	44.09262	-87.64373
25*	44.14226	-87.56161
26	44.14214	-87.56151
27	44.14199	-87.56181

28	44.13946	-87.55955
29	44.14021	-87.55795
30	44.14274	-87.56023
31	44.14256	-87.56059
32*	44.14267	-87.56069
33*	44.35279	-87.53255
34	44.35279	-87.34387

Note:
The coordinates in the table above marked with an asterisk (*) are not a part of the sanctuary boundary. These coordinates are landward reference points used to draw a line segment that intersects with the shoreline at the low water datum.

Appendix B to Subpart T of Part 922—Wisconsin Shipwreck Coast National Marine Sanctuary Terms of Designation

Terms of Designation for Wisconsin Shipwreck Coast National Marine Sanctuary Under the authority of the National Marine Sanctuaries Act, as amended (the “Act” or “NMSA”), 16 U.S.C. 1431 et seq., 962 square miles of Lake Michigan off the coast of Wisconsin's coastal counties of Ozaukee, Sheboygan, Manitowoc, and Kewaunee are hereby designated as a National Marine Sanctuary for the purpose of providing long-term protection and management of the historical resources and recreational, research, educational, and aesthetic qualities of the area.

Article I: Effect of Designation

The NMSA authorizes the issuance of such regulations as are necessary and reasonable to implement the designation, including managing and protecting the historical resources and recreational, research, and educational qualities of Wisconsin Shipwreck Coast National Marine Sanctuary (the “Sanctuary”). Section 1 of Article IV of this Designation Document lists those activities that may have to be regulated on the effective date of designation, or at some later date, in order to protect Sanctuary resources and qualities. Listing an activity does not necessarily mean that it will be regulated; however, if an activity is not listed it may not be regulated, except on an emergency basis, unless Section 1 of Article IV is amended by the same procedures by which the original Sanctuary designation was made.

Article II: Description of the Area

Wisconsin Shipwreck Coast National Marine Sanctuary consists of an area of approximately 726 square nautical miles (962 square miles) of Lake Michigan waters within the State of Wisconsin and the submerged lands thereunder, over, around, and under the underwater cultural resources in Lake Michigan. The eastern boundary of the sanctuary begins approximately 9.3 miles east of the Wisconsin shoreline in Lake Michigan north of the border between Manitowoc and Kewaunee County. From this point the boundary continues in Lake Michigan roughly to the SSW until it intersects a point in Lake Michigan approximately 16.3 miles east of a point along the shoreline that is approximately equidistant between the borders of Mequon, WI and Port Washington, WI. The southern boundary continues west until it intersects the shoreline at the Low Water Datum at this point between Mequon, WI and Port Washington, WI. The western boundary continues north following the shoreline at the Low Water Datum for approximately 82 miles cutting across the mouths of rivers, creeks, and streams and excluding federally authorized shipping channels; specifically those of Sauk Creek at Port Washington, Sheboygan River at Sheboygan, Manitowoc Harbor as Manitowoc, and East Twin River at Two Rivers. The western boundary ends just north of the border between Manitowoc and Kewaunee County along the shoreline near Carlton, WI. The northern boundary continues from the shoreline at the Low Water Datum at this point east across Lake Michigan just north of the border between these same two counties back to its point of origin approximately 9.3 miles offshore.

Article III: Special Characteristics of the Area

The area includes a nationally significant collection of maritime heritage resources, including 36 known shipwrecks, about 59 suspected shipwrecks, and other underwater cultural sites. The historic shipwrecks are representative of the vessels that sailed and steamed on Lake Michigan during the nineteenth and twentieth centuries, carrying grain and raw materials east as other vessels came west loaded with coal, manufactured goods, and people. During this period entrepreneurs and shipbuilders on the Great Lakes launched tens of thousands of ships of many different designs. Sailing schooners, grand palace steamers, revolutionary propeller-driven passenger ships, and industrial bulk carriers transported America’s business and industry. In the process they brought hundreds of thousands of people to the Midwest and made possible the dramatic growth of the region’s farms, cities, and industries. The Midwest, and indeed the American nation, could not have developed with such speed and with such vast economic and social consequences without the Great Lakes. Twenty-one of the 36 shipwreck sites in the sanctuary are listed on the National Register of Historic Places. Many of the shipwrecks retain an unusual degree of architectural integrity, with several vessels nearly intact. Well preserved by Lake Michigan's cold, fresh water, the shipwrecks and related maritime heritage sites in Wisconsin Shipwreck Coast National Marine Sanctuary possess exceptional historical, archaeological and recreational value. Additional underwater cultural resources, such as submerged aircraft, docks, piers, and isolated artifacts also exist, as do the potential for prehistoric sites and artifacts.

Article IV: Scope of Regulations

Section 1. Activities Subject to Regulation. The following activities are subject to regulation, including prohibition, to the extent necessary and reasonable to ensure the protection and management of the historical resources and recreational, research and educational qualities of the area:

a. Injuring sanctuary resources.

b. Grappling into or anchoring on a shipwreck sites.

c. Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of the Act or any regulation issued under the Act.

Section 2. Emergencies. Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality; or minimize the imminent risk of such destruction, loss, or injury, any activity, including those not listed in Section 1, is subject to immediate temporary regulation. An emergency regulation shall not take effect without the approval of the Governor of Wisconsin or her/his designee or designated agency.

Article V: Relation to Other Regulatory Programs

Section 1. Fishing Regulations, Licenses, and Permits. Fishing in the Sanctuary shall not be regulated as part of the Sanctuary management regime authorized by the Act. However, fishing in the Sanctuary may be regulated by other Federal, State, Tribal and local authorities of competent jurisdiction, and designation of the Sanctuary shall have no effect on any regulation, permit, or license issued thereunder.

Section 2. Other Regulations, Licenses, and Permits. If any valid regulation issued by any Federal, State, Tribal, or local authority of competent jurisdiction, regardless of when issued, conflicts with a Sanctuary regulation, the regulation deemed by the Director of the Office of National Marine Sanctuaries, National Oceanic and Atmospheric Administration, or designee, in consultation with the State of Wisconsin, to be more protective of Sanctuary resources and qualities shall govern. Pursuant to section 304(c)(1) of the Act, 16 U.S.C. 1434(c)(1), no valid lease, permit, license, approval, or other authorization issued by any Federal, State, Tribal, or local authority of competent jurisdiction, or any right of subsistence use or access, may be terminated by the Secretary of Commerce, or designee, as a result of this designation, or as a result of any Sanctuary regulation, if such lease, permit, license, approval, or other authorization, or right of subsistence use or access was issued or in existence as of the effective date of this designation. However, the Secretary of Commerce or designee, in consultation with the State of Wisconsin, may regulate the exercise of such authorization or right consistent with the purposes for which the Sanctuary is designated.

Article VI. Alteration of This Designation

The terms of designation may be modified only by the same procedures by which the original designation is made, including public meetings, consultation according to the NMSA.

AMERICA'S UNDERWATER TREASURES