



# Lake Ontario National Marine Sanctuary Final Management Plan



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Cover photo: Tibbetts Point Lighthouse sits where Lake Ontario meets the St. Lawrence River.  
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## Section 1: Introduction

### Background

The 1,722-square-mile Lake Ontario National Marine Sanctuary (LONMS) encompasses the waters and bottomlands of eastern Lake Ontario, adjacent to Wayne, Cayuga, Oswego, and Jefferson counties. The sanctuary's northern boundary lies approximately along the U.S. and Canadian border in both Lake Ontario and the entrance to the St. Lawrence River. The western sanctuary boundary is along the western border of Wayne County, and the eastern boundary is a line from approximately the international border between the U.S. and Canada near Point Alexandria, Ontario to Tibbetts Point Lighthouse. Along New York's Lake Ontario shoreline, the sanctuary boundary lies at the Low Water Datum (LWD).

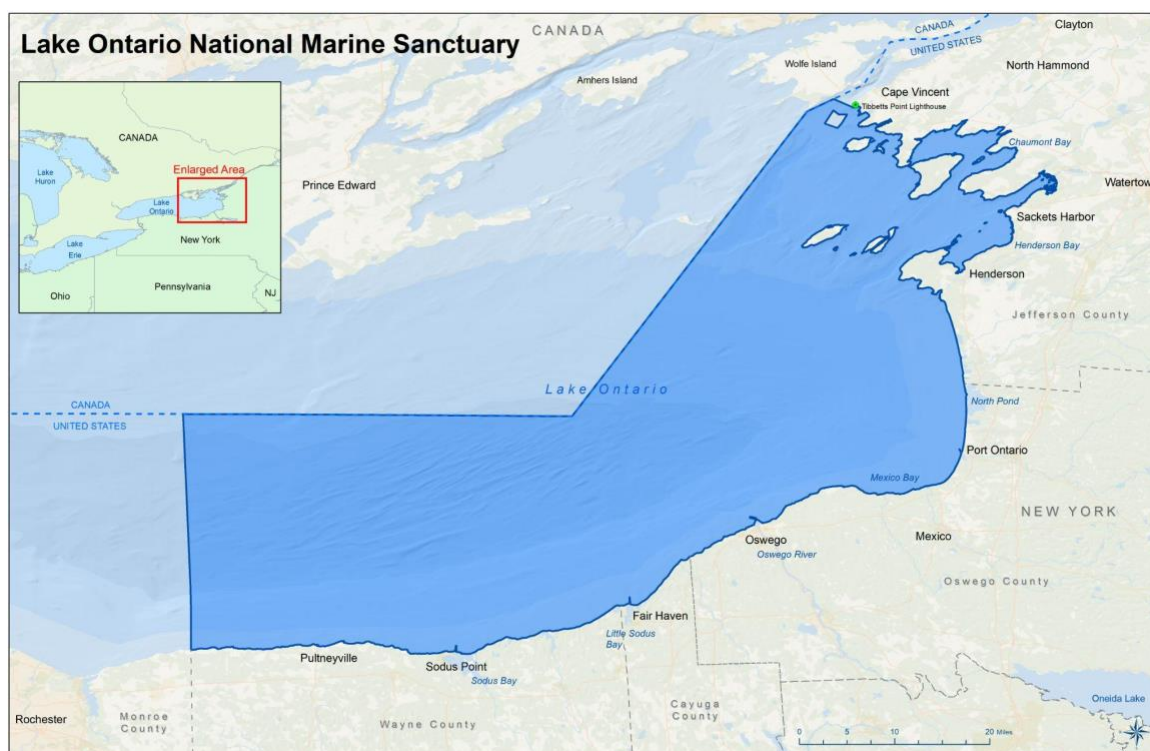


Figure A.1. Boundary of the Lake Ontario National Marine Sanctuary. Source: NOAA

LONMS highlights the national significance of the area's underwater cultural and historical resources, including 41 known shipwrecks, such as the schooner *St. Peter* which is listed on the National Register of Historic Places (NRHP). Additional underwater cultural and historical resources that may be within the boundaries include other archaeological features such as remnants of piers, aids to navigation, and historic properties and artifacts that may be of religious and cultural significance to Indigenous nations and tribes. This area may also include approximately 19 potential shipwreck sites (where shipwrecks may exist, but additional research is needed to verify and describe these shipwrecks), three aircraft, and several other underwater archaeological sites.

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 Ontario, the Great Lakes region, and the nation. Through co-management with the state of New York, the National Oceanic and Atmospheric Administration (NOAA) would work to ensure future generations can learn about and explore these underwater treasures above and beneath the waves. In partnership with local communities, NOAA would provide a national stage for promoting heritage tourism and recreation to connect more Americans with this special place.

Establishing a national marine sanctuary in New York waters will complement and expand existing state-led preservation efforts, research programs, local initiatives, and public outreach initiatives. The state of New York, through the State Education Law and the New York Historic Preservation Act of 1980, inventories, documents, and interprets the state's underwater cultural heritage. 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 grades 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.

In addition to the many non-regulatory actions identified in the management plan action plans such as research and monitoring, education and outreach, and tourism and economic development, NOAA promulgated the following regulations to complement existing state laws and to manage the sanctuary's resources.

- Moving, removing, recovering, altering, destroying, possessing, or otherwise injuring, or attempting to move, remove, recover, alter, destroy, possess, or otherwise injure a sanctuary resource;
- Possessing, selling, offering for sale, purchasing, importing, exporting, exchanging, delivering, carrying, transporting, or shipping by any means any sanctuary resource within or outside of the sanctuary;
- Grappling into or anchoring on shipwreck sites (delayed implementation of two years following sanctuary designation);
- Deploying a tethered underwater mobile system at shipwreck sites;
- 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 act with enforcement of the National Marine Sanctuaries Act or any regulation or any permit issued under the act.

These prohibitions 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.

## ***Comprehensive Management***

The National Marine Sanctuaries Act (NMSA) includes direction from Congress that NOAA’s Office of National Marine Sanctuaries (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, outreach, and education 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 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.

## ***About This Management Plan***

Management plans are tailored to be sanctuary-specific planning and management documents. They reflect the best available science and include input from the community and government agencies to identify current and future activities, programs, and partners in order to address important issues and opportunities for the sanctuary. They provide guidance for sanctuary staff to prioritize annual work plans based on the resources and staffing allocated to them in any given year.

As part of the sanctuary designation process, NOAA created the management plan for this site with input from the [Sanctuary Advisory Council](#), state of New York, local governments, federal agencies, members of the public, and in consultation with Indigenous nations and tribes who have interest in the management and operation of the sanctuary. NOAA held three public comment periods to get input on the development of the proposed sanctuary, including the scope of the sanctuary boundaries, regulations, and management plan activities. Scoping consisted of a 105-day public period during which NOAA solicited public comments related to the scale and scope of the proposed sanctuary, including ideas presented in the sanctuary nomination (April 17 to July 31, 2019). NOAA then held a public comment period following the publication of the DEIS (July 7 to September 10, 2021). During this comment period, NOAA solicited comments on boundary alternatives, regulatory concepts, the name of the sanctuary, and the management plan. NOAA then published a notice of proposed rulemaking that identified the preferred boundary, proposed sanctuary regulations, and the terms of designation. Together, these documents constituted NOAA’s proposal to designate Lake Ontario National Marine Sanctuary, which would protect shipwrecks and related underwater cultural and historical resources that possess exceptional historic, archaeological, and recreational value.

The management plan and its action plans described below are designed to strengthen and complement existing protections and programs currently in place from state and local agencies, existing museums and science centers, and other organizations. The aspirational plan includes shared goals and activities that can be taken by NOAA or other entities or individuals that live in the area, or manage and/or enjoy the resources. The existing protections on the resources will be enhanced by the sanctuary designation.

The management plan identifies specific resource protection, research, education, and stewardship programs that will guide future sanctuary management and operations over the next five years or until the plan is updated. NOAA recognizes that it will take several years to fully integrate the sanctuary into communities, explore opportunities for partnerships, and determine more specific priorities and activities. As such, the management plan is intended to adapt over time as the sanctuary implements elements of the plan. NOAA and the state of New York will periodically revisit to identify and advance near-term priorities. NOAA, in cooperation with the Haudenosaunee Confederacy, may also develop an Indigenous engagement action plan in the future. Annual operating plans and more details about individual activities will be developed prior to implementation.

For each of the action plans, NOAA's ability to fully implement the management plan is dependent on federal funding and staffing availability over the initial five-year period. For each of these action plans, implementation would also be dependent on continued collaboration with the state of New York, as well as additional funding, grants, donations, staffing, and contributions from partners.

## ***Management Plan Implementation Partners***

### **NOAA's Office of National Marine Sanctuaries**

NOAA's Office of National Marine Sanctuaries is the federal program within the NOAA National Ocean Service with the responsibility and legal authority to designate and manage national marine sanctuaries, including, but not limited to:

- Hiring of federal staff and associated personnel management
- Management plan implementation and revision (with state, territory, tribal and Indigenous community, and broader public input)
- Development and enforcement of sanctuary regulations
- Issuance and oversight of sanctuary permits
- Government-to-government consultation with federally recognized nations and tribes consistent with Executive Order 13175
- Periodic federal regulatory review and rulemaking for the sanctuary under the NMSA and other applicable laws
- Management of the ONMS appropriation
- Procurements made with federal funds
- Environmental compliance responsibilities that rest with NOAA/ONMS related to sanctuary actions being considered
- Adherence to National Historic Preservation Act (especially sections 106 and 110)

- Maintenance and operation of federally owned or funded office facilities, associated information technology (IT) functions, and necessary security requirements
- Vessel acquisition, ownership, and responsibility for operation and maintenance, including compliance with all NOAA safety protocols
- Establishment (under NMSA authority) of a Sanctuary Advisory Council, with seat structures, charter details, and operations to be overseen by ONMS
- Raising public awareness about the sanctuary
- Establishing partnerships to support research, monitoring, exploration, education, and outreach programs and activities

Although ONMS has many fundamental responsibilities for managing the sanctuary, many sanctuary activities will be implemented in partnership with other organizations. ONMS is committed to working closely with the state of New York, Indigenous communities, and the Sanctuary Advisory Council to prioritize the activities in the management plans and create partnerships to help implement them.

## **State of New York**

The sanctuary will be co-managed by NOAA and the state of New York. NOAA's expertise in cultural resource management will complement the state's current historical resource protection activities and bring a comprehensive and coordinated management approach to this historic collection of nationally significant, underwater cultural and historical resources. NOAA will work with the state and other partners to conduct research and monitoring activities to fill important gaps in the archeological knowledge and historical context of these shipwrecks, enforce sanctuary regulations, enhance public appreciation of the significance of these resources, mitigate human impacts, maintain sustainable access to the resources, and encourage public stewardship of the area. NOAA will work in cooperation to implement the various activities in the sanctuary management plan with the New York State Office for Parks, Recreation, and Historic Preservation; New York State Museum; New York State Office of General Services; New York State Department of Environmental Conservation; and New York State Department of State (including the New York Coastal Management Program) in their role as trustees for state resources.

## **Indigenous Partners**

To move forward with ONMS' commitment to building relationships and collaborating equitably with Indigenous partners, ONMS has included strategies and action plans throughout the management plan that are focused on identifying potential research priorities, conducting collaborative research, identifying historic properties and cultural landscapes, and establishing student research opportunities with Indigenous communities. ONMS will work through reciprocity and enhanced outreach efforts to foster dialogue with Indigenous communities about their priorities for managing LONMS.



## ***Sanctuary Advisory Council***

Sanctuary advisory councils are established by ONMS under the authority of section 315 of the NMSA (16 U.S.C. 1445a) to “advise and make recommendations to [NOAA] regarding the designation and management of national marine sanctuaries.” In February 2020, NOAA established a Sanctuary Advisory Council for this sanctuary to bring members of the local community together to provide advice to NOAA, to serve as a liaison with the nominating community, and to assist in guiding NOAA through the designation process. The council consists of 15 members representing the following seats: citizens-at-large, divers/dive clubs/shipwreck explorers, maritime history, education, tourism, economic development, recreational fishing, and shoreline property owners. In addition, representatives of the four counties, the city of Oswego, the U.S. Coast Guard, the Port of Oswego Authority, New York Sea Grant, and the state of New York are non-voting members. The Sanctuary Advisory Council has met on average five times per year, and helped develop the draft management plan for NOAA’s review, organized a lecture series on topics related to the sanctuary, and set up several working groups on sanctuary priorities and communications. Upon sanctuary designation, they will continue to provide advice and recommendations to the sanctuary superintendent and ONMS on issues relevant to effective implementation of the management plan, including management, science, service, and stewardship. After sanctuary designation, NOAA will renew the charter for the Sanctuary Advisory Council.

## Section 2: Action Plans

The management plan for Lake Ontario National Marine Sanctuary consists of five action plans intended to guide ONMS over the coming five years. Each action plan contains strategies with specific activities to achieve the intended goal:

1. Sanctuary Operations
2. Research and Monitoring
3. Education and Outreach
4. Tourism and Economic Development
5. Resource Protection

### *Sanctuary Operations Action Plan*

#### **Description**

The purpose of this action plan is to create sanctuary infrastructure and program support to ensure effective implementation of the management plan. Managing nationally significant resources requires appropriate facilities and vessels; trained personnel and volunteers; funding and partnerships; and specialized equipment. NOAA's priority after designation would be to hire staff and to develop effective and sustainable infrastructure to support sanctuary priorities.

All national marine sanctuaries benefit greatly from partnerships between NOAA and nongovernmental organizations, private businesses, education and cultural institutions, community groups, private citizens, tribal governments, and local, state, and federal agencies. NOAA will develop these partnerships at LONMS to create or improve upon a number of essential capacities, including research vessels and equipment, administrative space, law enforcement, and education and outreach programs.

#### **Goal**

Ensure sanctuary operations and administrative capabilities are sufficient to effectively, efficiently, and safely implement the sanctuary's mission.

#### **Objectives**

- Ensure necessary sanctuary infrastructure (e.g., office space, research vessels), staffing, and administration
- Ensure that sanctuary infrastructure and work policies integrate sustainability, emission reductions, and climate resilience best practices
- Create a "NOAA presence" within sanctuary communities
- Secure resources to support sanctuary operations and programs
- Enhance program support through partnerships and volunteers
- Capitalize on the sanctuary as a means for the sanctuary and its partners to apply to and secure additional funding for projects
- Create a non-profit organization to partner with the sanctuary

## Strategies

### **STRATEGY SO-1: Identify staff and office needs to support sanctuary operations, resource protection, education and outreach, and research programs.**

- **Activity SO 1.1:** Identify and fill appropriate staffing requirements at the sanctuary. The first priority will be to hire a sanctuary superintendent, who can help identify and fill other priority staffing needs.
- **Activity SO 1.2:** Provide staff with opportunities and resources for professional development and training.

### **STRATEGY SO-2: Develop infrastructure and a “NOAA presence” within communities that supports the sanctuary’s mission and programs.**

- **Activity SO 2.1:** Conduct an infrastructure needs assessment for the sanctuary.
  - a. Gather input from local communities, the state of New York (including agencies, such as the Department of Conservation), and other stakeholders that recognizes, leverages, and complements local and statewide assets, including office and community meeting spaces.
  - b. Ensure that the study includes creating a “NOAA presence” in each community, to include infrastructure, research, education, outreach, exhibits, and engagement opportunities.
- **Activity SO 2.2:** In the development of facilities plans or other infrastructure, include consideration of facility locations and design to minimize greenhouse gas emissions and seek carbon neutrality or even aim for zero emissions to the extent possible with best practices.

### **STRATEGY SO-3: Maintain the Lake Ontario National Marine Sanctuary Advisory Council.**

- **Activity SO 3.1:** Provide support, resources, training, and guidance to help the advisory council engage and educate the public about sanctuary management issues and ensure they are a respected voice in the community.
- **Activity SO 3.2:** Facilitate opportunities for advisory council members to connect and share information with other sanctuary advisory councils and staff throughout the National Marine Sanctuary System.

### **STRATEGY SO-4: Establish sanctuary volunteer programs.**

- **Activity SO 4.1:** Attract, train, use, recognize, and retain volunteers and citizen scientists to support and enhance sanctuary programs, including the development of a volunteer diving program and a trained naturalist corps.
- **Activity SO 4.2:** Develop a volunteer handbook and training opportunities, consistent with national guidance, that outlines policies and opportunities for volunteers to help support the goals and purposes of the sanctuary.

## ***Research and Monitoring Action Plan***

### **Description**

The purpose of this action plan is to outline the sanctuary's research and monitoring objectives and priorities. Sanctuary research is conducted in support of resource protection, resource management, socioeconomic uses, 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. The process of inventorying, assessing, and monitoring directly meets mandates for federal agencies under Section 110 of the National Historic Preservation Act (NHPA).

### **Background**

Research and monitoring programs are integral to documenting, characterizing, managing, and protecting national marine sanctuary resources. Sanctuary staff will conduct, support, promote, and coordinate research with an aim toward sanctuary characterization, visitor use, and resource management. Characterization is the process through which sanctuary resources are inventoried, located, documented, analyzed, and ultimately interpreted within a broader cultural, historical, archaeological, and use context. Management is an active process involving identification of threats and disturbances to a resource and implementation of strategies that ameliorate or negate these processes. It may also include the safeguarding of sensitive historic or cultural site locations or other characteristics that may not be appropriate for public dissemination.

The ultimate goal of cultural resource management is resource preservation for both current and future generations. Knowledge acquired through research is used to evaluate existing management practices, identify emerging threats, understand visitor use patterns, and inform future management decisions. Research products will also form the foundation of outreach materials aimed at educating the public and producing outreach materials about the importance of the Great Lakes, its past, present, and future history, and how people can sustainably use and enjoy this sanctuary.

Characterization and monitoring of sanctuary resources will continue with historical research to build on the inventory of known and potential underwater cultural and historical resources located in and around the sanctuary. Physically locating underwater cultural and historical resource sites is the next step in sanctuary characterization. Resource documentation is then conducted to provide baseline data that evaluate the current state of preservation and identify threats and disturbances present to sites, such as invasive mussels, ice and anchor damage, looting, and other intentional and unintentional human impacts. This information can then be used to develop specific management responses, including restoration, to address impacts. Finally, a monitoring program will be implemented to periodically assess resource change and implement mitigation or stabilization strategies, as well as drive research questions and inform management actions and regulatory review over time.

## Goal

Protect the sanctuary resources and maritime landscape by inventorying, locating, documenting, assessing, managing, and interpreting the sanctuary's archaeological, historical, and cultural resources.

## Objectives

- Characterize the sanctuary's underwater cultural and historical resources
- Study the relationship between the underwater resources, culture, and activities of the area
- Develop and encourage collaborative research programs to meet the sanctuary's ongoing management needs
- Create a monitoring program and site database to take inventory of and understand resources and threats, and feed information into system-wide databases
- Assess human use by activity within sanctuary waters
- Conduct socioeconomic research and determine visitation/visitor use in the region to inform the "value" of the sanctuary to local economies and how it relates to and affects resource protection
- Use research findings to inform sanctuary condition reports

## Strategies

### **STRATEGY RM-1: Characterize the sanctuary's underwater cultural and historical resources and cultural landscape features.**

- **Activity RM 1.1:** Conduct historical and archival research on underwater cultural resources and cultural landscape features in the sanctuary.
  - a. Continue to compile historical documentation relevant to sanctuary resources, including primary and secondary historical documents, ethnographic resources, folklore, vessel enrollment, and registration documents, court records, insurance files, and regional newspapers.
  - b. Assess the condition of underwater cultural and historical resources, including human or environmental factors that influence this condition, to inform decision-making and resource protection strategies.
  - c. Maintain records and databases on known and potential shipwrecks, and other underwater cultural and historical resources, within the sanctuary.
  - d. Coordinate archival research and databases with private and public entities and individuals with an interest in studying sanctuary resources.
  - e. Complete and publish a maritime cultural landscape survey.
  - f. Coordinate and consult with Indigenous nations and communities to identify potential research priorities and identify historic properties, including cultural landscapes.
  - g. Submit National Register of Historic Places nominations; explore a National Register of Historic Places district or multiple property nomination.

- **Activity RM 1.2:** Conduct systematic archaeological surveys to locate and identify underwater cultural and historical resources, as well as landscape features in the sanctuary.
  - a. Define survey requirements for site characterization in compliance with the Federal Archaeology Program (FAP), NHPA, and ONMS guidance. Any requirements for archaeological survey or site characterization that includes removal of artifacts, should also include a plan for artifact conservation and the needs for long-term maintenance and storage of the resulting collection. This will be done in consultation with the New York State Museum.
  - b. Conduct surveys and mapping using remote sensing, divers, ROVs, multibeam sonars, and video as required. Leverage NOAA and other partners for vessel, equipment and personnel. Conduct high resolution three-dimensional (3D) scanning imagery.
  - c. Encourage and facilitate partner participation in survey work.
  - d. Disseminate research results to professional and public audiences, following guidance on the release of sensitive or proprietary information.
- **Activity RM 1.3:** Prioritize archaeological documentation of identified underwater cultural and historical resources to establish baseline data for long-term monitoring.
  - a. Determine priorities for archaeological research and documentation in collaboration with stakeholders.
  - b. Complete baseline documentation of underwater cultural and historical resources, including site plans, underwater video, still imagery, 3D side scan imagery, and photomosaics.
  - c. Partner with citizen science groups for training in monitoring initiatives.
  - d. Disseminate research results to professional and public audiences in a timely and accessible manner.
- **Activity RM 1.4:** Develop and implement a long-term monitoring plan to assess and potentially mitigate natural and human impacts on maritime heritage sites, including climate change impacts.
  - a. Collect and evaluate data about the current status and trends of the sanctuary's underwater cultural and historical resources (i.e., condition of shipwrecks and historic resources), environmental conditions (e.g., lake water quality, fishery populations, invasive species, climate change indicators), and socioeconomic information (i.e., demographics, visitor uses) to establish baseline data sets.
  - b. Establish short- and longer-term site-specific monitoring requirements for tracking and reporting on trends.
  - c. Monitor and understand threats, and as appropriate, address threats and take advantage of opportunities.
  - d. Use the data collected and analyzed in part a of this activity to develop and implement appropriate cultural and historical resource stabilization or threat mitigation measures; continue to evaluate monitoring requirements.
  - e. Make monitoring results publicly accessible and actively communicate the findings to the public.
  - f. Structure monitoring approach with trackable metrics to evaluate efficacy.

- **Activity RM 1.5:** Develop and maintain a sanctuary geographic information system (GIS).
  - a. Build and continue to enhance GIS for archaeological, historical, cultural, and geographical data management; use GIS for sanctuary resource management; and use GIS to increase data sharing among sanctuary co-managers and facilitate public dissemination of information. GIS should integrate with the state of New York’s Cultural Resource Information System.
- **Activity RM 1.6:** Work with local and state governments, the Sanctuary Advisory Council, and user groups to identify and estimate the type and amount of visitor use to the sanctuary and/or nearby communities to better understand the various user groups being served, patterns of use, (e.g., cultural, commercial, recreation, science, and education), and the effects of use on the resources. NOAA will not require visitors and users to “report” sanctuary visitor use, however, it will work with its partners to estimate and track use over time.
  - a. Develop a plan and implement monitoring programs to inventory and assess baseline conditions and human use, and to track changes over time.
  - b. Work with outfitters, dive charters, recreational divers and clubs, and state partners, local businesses, and government agencies to document visitation to the sanctuary and use of the resources, and develop outreach materials that convey uses to the community.
  - c. Develop procedures for users to voluntarily report visitation to the sanctuary and use of the resources.
  - d. Explore the use of technologies (e.g., website links, social media, on-site QR codes) to facilitate monitoring and reporting of visitors and the type of uses.

**STRATEGY RM-2: Study the relationship between, and context of, underwater resources and regional culture and history, including Indigenous culture and activities; describe the maritime cultural landscape and heritage of shipwrecks.**

- **Activity RM 2.1:** Conduct historical and archival research on the connection between sanctuary resources and the culture and activities of the area.
  - a. Study and compile historical documentation relevant to sanctuary resources, emphasizing the relationship of cultural resources, natural resources, and local communities.
  - b. Inventory, catalog, and coordinate the compilation of existing heritage knowledge and research from private and public groups and individuals interested in partnering with sanctuary research efforts; identify and fill gaps in this knowledge; establish a central location where communities can access this research.
  - c. Evaluate connections to places like the Erie Canalway Heritage Corridor (part of the National Park System), national marine sanctuaries in the Great Lakes, and other areas that have a strong focus on maritime heritage.

**STRATEGY RM-3: Develop partnerships with local, state, national, and international researchers and organizations and Indigenous nations and tribes to enhance sanctuary research programs and support broader Great Lakes conservation efforts.**

- **Activity RM 3.1:** Develop partnerships that accelerate characterization of the sanctuary's underwater cultural resources using new technologies.
- **Activity RM 3.2:** Develop partnerships with multidisciplinary researchers and organizations to facilitate characterization of the sanctuary's natural environment and accelerate broader conservation efforts.
- **Activity RM 3.3:** In support of sanctuary condition reports and the National Marine Sanctuary Sentinel Site program:
  - a. Develop observation infrastructure and capabilities to have the new sanctuary serve as a National Marine Sanctuary Sentinel Site;
  - b. Facilitate, and work with others, in the study of Great Lakes ecology, including the study of climate change, invasive species, lake biology, geology, and water quality; and
  - c. Study and track the social and economic impact of the sanctuary and its resources and the services they provide to the public.
- **Activity RM 3.4:** Establish partnerships with local educational institutions to establish underwater research programs and curriculums that build capacity and encourage the next generation of researchers and conservationists.
- **Activity RM 3.5:** Consult with Indigenous communities to conduct collaborative research.
- **Activity RM 3.6:** Build international relationships and investigate partnership opportunities for United States-Canada collaboration on historic and cultural preservation initiatives.
- **Activity RM 3.7:** Build relationships with archival institutions and repositories to preserve historical and archival Lake Ontario materials.
  - a. Seek out opportunities to acquire historical and archival materials following establishment of collections and accession guidance.
  - b. Partner with archival institutions and repositories to store these materials and make them accessible to the public.

**STRATEGY RM-4: Develop citizen science research programs and educational opportunities.**

- **Activity RM 4.1:** Facilitate the establishment of citizen science research programs that can help collect information about the condition of sanctuary resources, as well as visitor use.
  - a. Recruit and train volunteers to assist sanctuary staff with research projects.
  - b. Establish a training program or adopt an existing maritime archaeology training course to provide local training opportunities for certified divers.



- c. Train volunteer teams to undertake periodic monitoring of beaches to look for shipwrecks washing up on shore or becoming exposed on beaches due to flooding.
  - d. Develop assessment protocols for newly located shipwrecks.
  - e. Explore opportunities for citizen scientists to share their knowledge and information about the sanctuary to local residents and visitors.
- **Activity RM 4.2:** Work with partner institutions, organizations, and Indigenous communities to establish research opportunities for students.

## ***Education and Outreach Action Plan***

### **Description**

The purpose of this action plan is to enhance public awareness, understanding, and stewardship of sanctuary resources and their connection to the environment and history of Lake Ontario, the St. Lawrence River, the Great Lakes, and the ocean. Education and outreach activities would focus on the historical significance of these underwater resources on culture and activities in the area, including Indigenous cultures and activities, and the connection of this sanctuary to the natural environment of the region.

### **Background**

Sanctuary education and outreach programs are designed to raise public awareness about the sanctuary; inspire stewardship of the resources and surrounding environment; increase knowledge about Lake Ontario and Great Lakes maritime heritage; and promote understanding about the Great Lakes environment. Education and outreach includes both formal and informal programs for learners of all ages, including students, teachers, local residents (both full-time and seasonal), visitors, and other constituents.

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

### **Goal**

Provide innovative, technology-driven, authentic, and place-based educational and outreach opportunities that promote learning, understanding, appreciation, and involvement in the protection and stewardship of sanctuary resources, Lake Ontario, the Great Lakes, and the ocean.

### **Objectives**

- Provide leadership in assessing educational interests of residents, visitors, K–12 schools, and higher education, including local, regional, statewide, national, and international educational institutions
- Develop new and integrate existing ONMS education and outreach programs, including those with maritime heritage and ocean and climate literacy content that complement and promote sanctuary resource protection, research, and stewardship efforts
- Create and implement education programs in collaboration with key partners that promote awareness and understanding of sanctuary resources, Lake Ontario's maritime heritage, the maritime cultural landscape, and the Great Lakes environment
- Develop and implement education programs and partnerships that promote awareness and interaction with the National Marine Sanctuary System and NOAA
- Encourage the involvement of volunteers to foster understanding and participation in the protection and stewardship of sanctuary resources

- Engage and provide educational opportunities to all communities surrounding the sanctuary, including underserved communities and Indigenous nations and tribes
- Actively support education programs of state/local agencies and other partners that promote awareness of Lake Ontario's historic and ecological resources.

## Strategies

### **STRATEGY EO-1: Increase awareness and knowledge of sanctuary resources, Lake Ontario, the Great Lakes, and the ocean through education programs.**

- **Activity EO 1.1:** Conduct an inventory of local, state, and regional educational institutions, and the maritime and recreation industry to identify opportunities for partnerships.
- **Activity EO 1.2:** Develop a plan to offer sanctuary maritime heritage and ocean and climate literacy content to educators, community members, and students.
  - a. Work with education and outreach partners and with state and local historical societies to 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 local, county, and state organizations that find an interest in sanctuary programs
  - c. Leverage NOAA's resources to facilitate training sessions and workshops for educators, community members, and students.
  - d. Conduct NOAA and sanctuary-specific educational programs for regional schools.
- **Activity EO 1.3:** Facilitate distance and virtual learning with Lake Ontario museums and other locations statewide and nationwide.
  - a. Leverage ONMS distance learning programs and social media campaigns (e.g., Earth Is Blue) to create, showcase, and distribute curriculum and multimedia content from around NOAA, the National Marine Sanctuary System, and partner expeditions worldwide (e.g., *Nautilus Live*).
  - b. Collaborate with New York Sea Grant, the State University of New York (SUNY) campuses, New York Coastal Management Program, and other partners to plan and participate on joint distance learning projects.
- **Activity EO 1.4:** Collaborate with Indigenous nations and tribes, those within the Haudenosaunee Confederacy, to ensure that content on the Haudenosaunee and other Indigenous cultures in upstate New York is incorporated into educational and outreach materials.
- **Activity EO 1.5:** Promote marine technology as a way to enhance science, technology, engineering, arts, mathematics, and social studies (STEAMS) education and possible entrepreneurial economic development opportunities in the region.
  - a. Foster awareness and participation in the Marine Advanced Technology Education (MATE) Center's remotely operated vehicle competition.
  - b. Collaborate with local educators to develop a strategy for engaging mentors and students in the MATE competition and other relevant marine technology learning initiatives.

- c. Work with partners, such as New York Sea Grant and SUNY Oswego, to identify multidisciplinary STEAMS initiatives that would support NOAA science initiatives.

**STRATEGY EO-2: Increase awareness and knowledge of sanctuary resources, Lake Ontario, the Great Lakes, and the ocean through outreach programs.**

- **Activity EO 2.1:** Develop new or adopt existing maritime heritage education programs, outreach materials, and exhibits for use in museums, visitor centers, boat landings, and other outdoor recreation venues.
  - a. Identify areas of collaboration between NOAA, educational and outreach institutions, museums, maritime industry, recreation businesses, and visitor centers in sanctuary communities.
  - b. Identify funding opportunities that will help establish a sanctuary interpretive presence in local partner venues.
  - c. Conduct sanctuary-related presentations at museums, visitor centers, national parks, schools and community colleges, Boys and Girls clubs, neighborhood centers, chambers of commerce, and other relevant locations within sanctuary communities.
  - d. Identify programs and exhibits about ecosystem topics of relevance to the sanctuary and its resources (e.g., SUNY Oswego Meteorology, SUNY College of Environmental Science and Forestry, SUNY Cayuga Community College, Cornell University).
- **Activity EO 2.2:** Develop different types of outreach materials for a variety of users.
  - a. Develop interpretive materials for visitors to H. Lee White Museum, historical societies, Fort Ontario State Historic Site, Safe Haven Museum & Education Center, Lighthouse of Lake Ontario, Seaway Trail, Erie Canalway National Heritage Corridor, Port of Oswego, county and state tourism offices, SUNY Oswego, and other institutions of higher learning.
  - b. Create interpretive materials for recreational users (e.g., divers, snorkelers, kayakers, fishers, boaters) that encourage the sustainable stewardship of sanctuary resources.
  - c. Create virtual 360-degree dives and related remote experiences in the sanctuary. This virtual reality experience is made possible through technology that produces 360-degree images that are "stitched" together from a series of underwater photos.
  - d. Create opportunities for digital immersive experiences at interpretation centers in the region.

**STRATEGY EO-3: Enhance sanctuary communications to create greater awareness.**

- **Activity EO 3.1:** Develop a communications/implementation master plan for the sanctuary communities.
- **Activity EO 3.2:** Explore potential partnerships with university communications and journalism programs, local public broadcast television, and radio stations.
- **Activity EO 3.3:** Identify and leverage local, regional, and national media contacts to increase awareness about the sanctuary and its programs.
- **Activity EO 3.4:** Develop content for the Lake Ontario National Marine Sanctuary website and social media to provide quality, up-to-date information about the sanctuary.
- **Activity EO 3.5:** Sponsor, organize, and participate in outreach opportunities that promote the sanctuary's mission and that allow for dissemination of sanctuary information.
  - a. Participate in local community events, such as festivals and open houses.
  - b. Provide presentations about the sanctuary at local, regional, and national trade shows, workshops, and conferences targeted at specific impact groups, including divers, resource managers, and maritime history and archaeology professionals.
  - c. Hold periodic public roundtables or meetings in each partner county to maintain open communication.

## *Tourism and Economic Development Action Plan*

### **Description**

The purpose of this action plan is to promote sustainable and community-based tourism and economic development initiatives in Lake Ontario communities in collaboration with communities.

### **Background**

National marine sanctuaries attract visitors who seek places to experience these special underwater treasures and the adjacent coastal communities. Sanctuaries also offer an opportunity for local businesses to support the tourism industry and invest in initiatives that directly or indirectly support the sanctuary.

### **Goal**

Create an environment that will promote sustainable and equitable access to community-based tourism opportunities, and support business growth through collaboration with the region's various cultural and historic resources.

### **Objectives**

- To inspire community-based stewardship and sustainable use of sanctuary resources
- Engage with local hospitality, tourism, recreation, and other related businesses on potential sustainable and responsible business opportunities associated with the sanctuary
- Encourage local, county, regional, state, and federal agencies including economic development agencies, tourism and outdoor recreation offices, and chambers of commerce to use the sanctuary as an economic development and sustainable tourism asset to bring people to the region and help sustain local economies
- Ensure, through close and meaningful consultation, that tourism and economic development activities involving the sanctuary are identified and conducted in a way that respects and acknowledges the lands and waters of the Indigenous nations and tribes

### **Strategies**

**STRATEGY TE-1: Identify hospitality, recreation, tourism, and other business sectors within the region and establish communications and partnership building opportunities.**

- **Activity TE 1.1:** Provide training opportunities on how businesses might incorporate the responsible use of the sanctuary into their business plans.
- **Activity TE 1.2:** Provide in-person and remote opportunities for local business owners to learn firsthand about the sanctuary.
- **Activity TE 1.3:** Help identify opportunities and methods for businesses to include their proximity to the sanctuary in their marketing and branding.

- **Activity TE 1.4:** Provide connections and explore opportunities to leverage connections with the ONMS Business Advisory Council.
- **Activity TE 1.5:** Work with the Sanctuary Advisory Council and local businesses to be an active participant in the ONMS Business Recognition Program.

**STRATEGY TE-2: Establish working relationships with economic development agencies and collaborate on strategies to use the sanctuary as a development asset.**

- **Activity TE 2.1:** Identify and contact local, county, regional, and state economic development agencies to provide training on what the sanctuary is and the role it can and will play in the region.
- **Activity TE 2.2:** Encourage agencies to incorporate the responsible use of the sanctuary into economic development strategies as a tool for development.
- **Activity TE 2.3:** Work with economic development agencies to identify potential tools available to assist businesses interested in growing their operations using the sanctuary as an asset, or assisting new business startups resulting from the sanctuary.
- **Activity TE 2.4:** Provide communication materials of socioeconomic research of the sanctuary that economic development agencies may use to improve awareness of the sanctuary with local developers, financial institutions, venture capitalists, and others who may assist with business development and startup.

**STRATEGY TE-3: Establish working relationships with local, regional, state, and national outdoor recreation and tourism sectors (i.e., agencies, industry, universities, and chambers of commerce) to develop strategies and assets to enhance sustainable tourism opportunities surrounding the sanctuary.**

- **Activity TE 3.1:** Contact tourism agencies and chambers of commerce to provide training that enhances awareness about the sanctuary and how it will enhance regional marine resources.
- **Activity TE 3.2:** Work with the tourism industry and chambers of commerce to see how local tourism businesses might use the sanctuary as a tool to attract more visitors to the region.
- **Activity TE 3.3:** Partner with local, regional, state, and national tourism and outdoor recreation sectors (i.e., agencies, industry, universities, and chambers of commerce) to increase awareness and appreciation about the sanctuary and promote regional sustainable tourism and economic development strategies.
- **Activity TE 3.4:** Partner with New York state to enhance welcome/visitor centers through the addition of interpretive materials and exhibits to raise awareness and understanding about the sanctuary.
- **Activity TE 3.5:** Encourage sustainable and community-based tourism by focusing on places that are authentic, specialized, unique, and homegrown, with unspoiled scenery, locally owned businesses, historic small towns, and walkable downtowns.

- **Activity TE 3.6:** Encourage local communities and partners to offer voluntourism opportunities to foster understanding and participation in the protection and stewardship of sanctuary resources.



## Resource Protection Action Plan

### Description

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

### Background

The sanctuary encourages public access to its resources and strives to balance increased visitation with resource management and preservation. Ever changing natural and human processes can threaten the long-term sustainability of New York's maritime heritage resources, including Indigenous cultural heritage resources, shipwrecks, and other underwater cultural and historical resources. While the effects of natural and human-caused processes, such as climate change, ice formation, or invasive mussel damage on shipwrecks, will be studied using strategies found in the Research and Monitoring 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, entanglement of fishing gear on wrecks, and artifact removal. The two plans will also address longer term impacts, such as understanding, mitigating, and adapting to the effects of climate change on sanctuary resources.

### Goal

Strengthen resource protection in the proposed sanctuary through resource-specific initiatives and compliance with sanctuary regulations, while increasing sustainable and equitable access.

### Objectives

- Improve understanding of visitor use patterns and the effects of these uses on the resources
- Develop a robust shipwreck mooring program and other methods to mitigate anchor impacts and allow for exploration
- Increase responsible and equitable 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: Establish a shipwreck mooring program/system within the sanctuary.**

- **Activity RP 1.1:** Develop a five-year mooring plan that addresses mooring design and prioritizes mooring deployment based on an assessment of risks and benefits with

operational plans for installation, redeployment, and maintenance of mooring buoys. These moorings would include buoys and other types of access infrastructure for sites where buoy placement is not advisable.

- **Activity RP 1.2:** Develop best practices for anchoring at sites where moorings are not yet installed or are not feasible, and develop a companion public awareness plan.
- **Activity RP 1.3:** Gather input from the Sanctuary Advisory Council and recreational/scientific diver and boating working groups on plans outlined above.
- **Activity RP 1.4:** Work with local dive charter operators, dive clubs, and recreational fishermen to monitor moorings throughout the dive season.

**STRATEGY RP-2: Ensure compliance with sanctuary regulations and other applicable state and federal laws.**

- **Activity RP 2.1:** Ensure sufficient enforcement presence in the sanctuary through partnerships and applicable interagency coordination.
  - a. Working through NOAA's Office for Law Enforcement, develop agreements with the U.S. Coast Guard, state agencies, and county and local agencies.
  - b. Develop an interagency communication and emergency response plan.
  - c. Host community workshops on law enforcement as related to maritime heritage resources.
  - d. Explore feasibility of using various technologies to monitor the sanctuary.
- **Activity RP 2.2:** Use interpretive enforcement as a tool to inform users about sanctuary regulations.
  - a. Provide information to law enforcement personnel on interpretive enforcement and guidelines; develop outreach materials for enforcement officers to distribute while patrolling the sanctuary.
  - b. Integrate interpretive enforcement into shoreside signs throughout the sanctuary.
  - c. Include informational inserts about the sanctuary in New York boat registration and renewal packets.
  - d. Provide U.S. Coast Guard Auxiliary members, marina employees, and other appropriate individuals and organizations with information about sanctuary regulations.

**STRATEGY RP-3: Assess and reduce human impacts on sanctuary resources and communities.**

- **Activity RP 3.1:** Assess the amount and type of marine debris, including fishing gear, plastics, and other items, that may entangle and impact sanctuary resources. Include marine debris as part of the sanctuary's long-term monitoring plan.
- **Activity RP 3.2:** Partner with others in the community to remove marine debris from the sanctuary.

- **Activity RP 3.3:** Conduct a climate vulnerability assessment to identify how and why biological and cultural resources, as well as ecosystem services, may be affected by future climate and Lake Ontario conditions.
- **Activity RP 3.4:** Develop a climate adaptation plan, detailing management actions that target specific climate impacts and vulnerabilities identified in Activity RP 3.1 to increase the resilience and adaptability of sanctuary resources to climate change.

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

- **Activity RP 4.1:** Build capacity for equitable access and responsible use of sanctuary resources by fostering greater awareness and adopting best practices among user groups.
- **Activity RP 4.2:** Provide practical information for users, such as shipwreck identification maps and information, access points, regulations, and contact information.
  - a. In coordination with other education, outreach, and visitor activities, develop outreach materials and web-based information to encourage responsible and sustainable uses of sanctuary resources.
  - b. Explore the use of technology as a means of providing users interpretive materials at shipwreck sites.
  - c. Investigate implementing “recognition programs” for local outfitters, businesses, and local activities that actively promote responsible recreational and stewardship of sanctuary resources (i.e., ONMS’ Business Recognition Program).
  - d. Explore opportunities to provide online, written, or other appropriate information to the public about the shipwrecks, sanctuary regulations, best practices, and enforcement/emergency contact information at marinas, boat ramps, dive shops, fishing and diving charter operators, dive clubs, recreation activity shows (i.e., Beneath the Sea, Syracuse boat show), parks, other access points, and venues like visitor centers.
  - e. Explore and improve equitable access to sanctuary resources for boaters, kayakers, snorkelers, and fishers.
  - f. Evaluate the effectiveness of approaches taken.

**STRATEGY RP-5: Evaluate approaches to protect the wreck of the HMS *Ontario* under the National Marine Sanctuaries Act.**

- **Activity RP 5.1:** Develop a plan and feasibility study that outlines a process to consider including the site of the HMS *Ontario* as part of Lake Ontario National Marine Sanctuary at a future time.
  - a. Explore developing specific zoning and regulations that might be considered to effectively manage and protect the site of the HMS *Ontario*.
- **Activity RP 5.2:** Pursue locating the site of the HMS *Ontario*
  - a. Coordinate with community stakeholders and independent researchers to collate and manage data associated with the HMS *Ontario*.
  - b. Develop a research design and proposed survey methodology to locate and characterize the HMS *Ontario*.

**STRATEGY RP-6: Evaluate opportunities to consider future sanctuary expansion to include the Thousand Islands region of the St. Lawrence River as there was considerable support for this area being included in the boundary.**

- **Activity RP 6.1:** Work with the Sanctuary Advisory Council and local communities to consider a process to evaluate and consider including portions of the Thousand Islands region of the St. Lawrence River as part of Lake Ontario National Marine Sanctuary at a future time.

## Costs

The National Marine Sanctuaries Act requires NOAA to include “*an estimate of the annual cost to the Federal Government of the proposed designation, including costs of personnel, equipment and facilities, enforcement, research, and public education.*” 16 U.S.C. § 1434(a)(2)(C)(v). NOAA estimates these annual costs to be between \$400,000 and \$1,500,000 depending on the availability of funding.

Management of the proposed sanctuary is envisioned to be funded by a mix of federal appropriations and external funding from collaborations with other agencies and organizations, and in-kind/volunteers and supplies. The federal budget for the proposed sanctuary will be contingent on several factors, including the annual Congressional appropriations levels and spending priorities determined by NOAA leadership. Collaboration with partners, including other NOAA programs, other federal agencies, state of New York, universities, private for-profit companies, and non-profit organizations, is also anticipated to help implement key programs and activities. The activities NOAA will focus on after designation include:

- hiring a sanctuary superintendent;
- establishing an administrative office;
- supporting the operation of a Sanctuary Advisory Council;
- staff support for sanctuary administration and operation;
- staff support for resource protection needs including establishing a shipwreck mooring program;
- assessing and reducing human impacts, and reviewing planned projects in the sanctuary;
- creating a NOAA presence with exhibits, signage, and other education and outreach activities as described in the Education and Outreach Action Plan;
- mapping, characterization, archaeological documentation, and other activities described in the Research and Monitoring Action Plan;
- evaluating requirements for a dedicated sanctuary research vessel, including the design, build, and initial operation;
- implementing volunteer citizen science programs; and
- implementing and promoting sustainable recreation and tourism activities.



NATIONAL MARINE  
**SANCTUARIES**

AMERICA'S UNDERWATER TREASURES