Ohio Coastal Management Program

Assessment and Multi-Year Strategy 2021-2025

FINAL Approved by NOAA 07/30/2020

Coastal Zone Enhancement Program
Authorized by Section 309 of the
Coastal Zone Management Act of 1972

Ohio Department of Natural Resources
Office of Coastal Management

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I. Introduction

The Ohio Coastal Management Program (OCMP) was approved for admission into the federal Coastal Zone Management Program on May 16, 1997. With the National Oceanic and Atmospheric Administration's (NOAA) approval and funding, the Ohio Section 309 program began in July 1999.

Section 309 of the Coastal Zone Management Act (CZMA), as amended, establishes a voluntary coastal zone enhancement grant program for State and Territory Coastal Management Programs (CMPs). The purpose of the voluntary grant program is to encourage CMPs to develop and implement program changes in one or more of the nine enhancement areas set by statute. The enhancement program funding is allocated in two ways: (1) weighted formula and (2) Projects of Special Merit (PSM). Unlike other CMP funding, matching funds are not required.

To be eligible for Section 309 funds, a CMP must assess its coastal program and develop a strategy for enhancing high priority areas. The nine priority enhancement areas set by Federal statute are:

1. Wetlands
2. Coastal Hazards
3. Public Access
4. Marine Debris
5. Cumulative and Secondary Impacts
6. Special Area Management Planning
7. Ocean/Great Lakes Resources
8. Energy and Government Facility Siting
9. Aquaculture

States and territories must update their Section 309 Assessments every five years based on a template and set of questions developed by the NOAA Office of Ocean and Coastal Resource Management (OCRM). The Assessment should determine the extent to which problems and opportunities exist with regard to each of the enhancement area objectives and the effectiveness of existing efforts to address those problems. The Assessment should provide the factual basis for OCRM and CMPs to determine high priority needs for program enhancement. For this assessment cycle, the assessment process will consist of two phases (Phase I (high level) and Phase II (in-depth)) to enable CMPs to more easily target high priority enhancement areas for the program.

The Strategy should identify program changes and implementation activities needed to address enhancement area objectives identified as a high priority in the Assessment. The Strategy must be based on the needs identified in the Assessment and should cover the 5-year period from federal FY2021-FY2025. Enhancement area strategies can address more than one enhancement area and must include estimated costs, a schedule, and a general work plan listing necessary steps for achieving the program changes and implementation activities.

Section 309 grant funds may not be used to fund Section 306A-type projects such as acquisition or low-cost construction. Section 309 grant funds may be used to fund activities that lead to program changes and program change implementation. Program changes include any of the following activities that would enhance the state's ability to achieve one or more of the coastal area enhancement objectives: coastal area boundary changes; new or revised authorities; new or revised local coastal programs; new or revised land acquisition, management and restoration programs; new or revised Special Area Management Plans or plans for Areas of Particular Concern; new or revised guidelines, procedures and policy documents formally adopted by the state.

Program change implementation activities must meet the following general requirements: (1) advance the objectives of a high priority 309 enhancement area; (2) relate to at least one 309 program change identified in an approved strategy; and (3) demonstrate cost effectiveness and technical soundness. Section 309 funds may be used to implement a program change for up to two grant years from program change completion.

In addition, CMPs are encouraged to incorporate consideration of threatened and endangered species within their Assessments and Strategies and how they can improve management of any special marine and coastal areas during the Section 309 Assessment and Strategy process.

The State of Ohio's focus for the past five years of the Section 309 program was on the following elements: Wetlands, Coastal Hazards, Cumulative and Secondary Impacts, and Ocean/Great Lakes Resources.

The focus for the five-year period from federal FY 2021 to federal FY 2025 will be on:

1- Coastal Hazards
2- Public Access
3- Ocean/Great Lakes Resources

Two strategies have been developed that will address these three enhancement areas. A 5-year budget summary for the two strategies is included at the end of the Strategy section of this document.

II. Summary of Completed Section 309 Efforts

The Ohio Coastal Management Program (OCMP) has made significant strides toward accomplishing the strategies and advancing enhancement objectives identified under the Section 309 Enhancement Program since the last assessment. The following efforts have been completed since the last assessment and strategy.

Building Resilient Shorelines

The Building Resilient Shorelines (BRS) strategy supports the Coastal Hazards, Ocean/Great Lakes Resources, and Cumulative and Secondary Impacts high-priority enhancement area objectives.

The Ohio Coastal Management Program's goal for this strategy is to broaden capacity in the OCMP regulatory review process to incorporate coastal resiliency, habitat enhancements, and sustainable sand management through the acquisition of pertinent information and the adoption of leasing and/or permitting review process changes. By building on the Priority Management Area identification and the nearshore and coastal habitat evaluation protocols and criteria developed through the 2011-2015 Building Resilient Shorelines Strategy, the regulatory procedure revisions are expected to facilitate more effective technical assistance to stakeholders and reviews of leasing and/or permitting among State, Federal and local authorities.

The Ohio Coastal Management Program's strategy to develop a geospatial database of existing shoreline conditions, research on the relationships between shoreline alterations, nearshore ecosystems and sand resources, and a study of the impacts to the littoral system of monitoring and bypass operations required due to shoreline alterations has been integral to understanding the effects of different erosion

control measures and lake access structures under varying conditions. Regionally based recommendations for specific types of activity such as beneficial use of dredge material, shore protection, habitat restoration projects were based in part on results of database information. Revision to regulatory procedures for reviewing application for Shore Structure Permits and Submerged Lands Leases is underway to promote enhancement of shoreline and nearshore habitat, minimizing the potential impact of groins and detached breakwaters on the littoral system and encouraged the use of soft structures and native vegetation, including aquatic vegetation.

The Ohio Coastal Management Program has made significant progress towards and will continue strategic efforts for building resilient shorelines. Education and outreach are ongoing and include the development of workshops to create a nature-based shoreline certification program, as well as integration of nature-based solutions into technical assistance recommendations and reviews of regulatory applications. Partnering with local universities, municipalities, local non-profits, and other entities, the OCMP has worked to integrate and support outcomes for the regulatory program. Information gathered to date will be used in future projects with partners to continue to obtain information to support regulatory and policy decision regarding impacts to habitat and sand resources from shoreline modifications.

Projects supporting this strategy and partners involved are:

- Cleveland Water Alliance in support of the Biomimicry PhD fellow projects in coastal design and management, and identifying Priority Management Area in Years 1, 2, 3 and 4;
- Building Resilient Shorelines in fish monitoring studies by University of Toledo, conceptual design and implementation of nature-based shoreline design projects in Year 2 and 4 (ODNR and consultants); and
- Old Woman Creek National Estuarine Research Reserve (NERR) in the development of a Natural Shoreline Certification Program in Years 2, 3, and 4.

In 2016, 2017, 2018 and 2019 (Years 1, 2, 3 and 4), the OCMP started and continues its partnership with Cleveland Water Alliance, supporting the sponsorship of two Ph.D. biomimicry fellows. The fellows are using biomimicry principles to identify specific actions related to the attainment of specific nearshore management goals to improve nearshore water quality, maintain a sustainable fishery, enhance coastal biodiversity, manage invasive species, protect coastal sand resources, enhance coastal resiliency and promote public access and will form the basis for the application of eco-mimetic principles to identify and delineate potential Priority Management Areas.

In 2016, 2017 and 2019 (Years 1, 2 and 4), the OCMP partnered with the University of Toledo—and anticipates continued partnership in 2020—to sample nearshore areas of the Western and Central basins in support of delineating Priority Management Areas for inclusion into OCMP regulatory programs. These projects support the delineation of nearshore and coastal habitat structure and biological areas of interest; to improve, enhance and sustain nearshore ecosystems. The work in Year 2 was a continued time series in which some sites have been sampled continuously since 2010. This new data was analyzed as part of BRS-Phase 3 and will be used during a BRS-Phase 4 in Year 4.

In 2016 and 2018 (Years 1 and 3), the OCMP partnered with the Ohio Coastal Training Program, administered by Old Woman Creek NERR, to conduct a series of workshops with stakeholders to share information about nature-based shorelines and to receive recommendations from local stakeholders on how to implement a nature-based shoreline technical assistance program that would include education,

outreach and potential modifications to current regulatory programs (both state and federal). One of the recommendations included the development and implementation of an Ohio Natural Shoreline Certification Program.

In 2019, development of this new certification program began. The program is designed for consultants, engineers, contractors, landscape architects, and regulatory agency staff (local, state and federal), and will provide technical and regulatory information about how nature-based shoreline projects should be designed and implemented along the Ohio Lake Erie coastline. The program will be developed with consideration given to Ohio's current regulatory policies and processes, and potential regulatory changes that would be required for implementation will be identified. The project consultant will also work with Old Woman Creek NERR staff to identify essential criteria and components of a certification program, develop a training module, and then test implementation of an initial pilot certification process.

The objective is to identify potential regulatory changes that will allow efficient regulatory implementation of these new and innovative approaches by the OCMP. Funding will be used to revise and update the Coastal Design Manual and other education, outreach and technical resource materials, along with the hosting of Coastal Training Workshops for consultants, engineers, contractors, landscape architects, and regulatory agency staff (i.e. local, state and federal).

Coastal Erosion Area Mapping

The Coastal Erosion Area Mapping strategy supports the Coastal Hazards high-priority enhancement area objectives.

In Year 1, the OCMP, in partnership with the ODNR Division of Geological Survey and Office of Information Technology, updated the Coastal Erosion Area (CEA) maps to meet the regulatory requirements of the OCMP. CEA maps are required to be reviewed at least every 10 years. To date, the preliminary maps were released, the OCMP hosted eight public hearings (one for each coastal county), received and reviewed objections to preliminary designations, completed revisions and released the final CEA maps. Recommendations for revision of the Ohio Revised Code and/or the Ohio Administrative Code are being drafted.

In Year 3, cost for printing the final maps was provided by the Division of Geological Survey and maps are available in print-form at public viewing locations as well as downloadable PDFs on the Office of Coastal Management website. The information gleaned from this assessment is being used to draft proposed changes to the mapping methodology to increase the predictive capabilities of further mapping efforts.

As a result of the 2018 Coastal Erosion Area Mapping, the percentage of shoreline designated as a Coastal Erosion Area decreased from 11% in 2010 to 5.5%.

Coastal Wetland Prioritization and Assessment

The Coastal Wetland Prioritization and Assessment strategy supports Ocean/Great Lakes Resources, Cumulative and Secondary Impacts, and Wetlands high-priority enhancement area objectives.

The original intent was to incorporate and implement the "Wetlands" strategies into existing coastal management strategies, such as:

- Revise and target coastal grant programs (e.g. Coastal & Estuarine Land Conservation Program (CELCP), Coastal Management Assistance Grants (CMAG) and related OCMP policies to support projects that more accurately identify wetlands)
- Incorporate Landscape Conservation Design (LCD) approaches to reduce non-point source pollution flowing into Lake Erie, and
- Provide opportunities for the beneficial use of dredged sediments

Strategies originally focused on the CELCP plan for habitat acquisition and protection plan as the vehicle to identify opportunities for previously successful acquisitions through CELCP. With the elimination of the CELCP program, however, strategies are slightly altered to network with various partners; i.e. non-profits, local, state and federal agencies, universities and private businesses through CMAG and pass-through projects to concentrate on more of a Landscape Conservation Design and Nature Based Shorelines wetland restoration.

The OCMP developed the Sandusky Bay Initiative as a pilot project to reduce algal blooms in the Western Basin of Sandusky Bay. Partners in this endeavor include:

- City of Sandusky
- The Ohio State University, Sea Grant College Program
- Bowling Green State University
- Kent State University
- Heidelberg University
- University of Toledo
- Biohabitats, Inc.
- Cleveland Water Alliance
- University of Akron
- Tetra Tech
- Erie Soil and Water Conservation District

In 2016 (Year 1), the OCMP launched the Sandusky Bay Initiative. Work on this strategy has continued through Years 2 and 3. The OCMP and its partners used an integrated system approach to evaluate restoration and enhancement opportunities in the Sandusky Bay. The OCMP and local partners are using a landscape-scale approach to promote a series of strategic investments by systemically linking restoration projects, to maximize nutrient and sediment reduction, while enhancing coastal and fisheries habitat in Sandusky Bay.

Several projects were developed to monitor and assess conditions within Sandusky Bay and to identify potential restoration projects that would address nutrient reduction and habitat restoration goals while aligning with community and recreational resource needs. Data collection and monitoring efforts in Sandusky Bay, focusing on water quality and algal productivity, confirmed a need for continued data collection and monitoring work to further evaluate the changing environmental conditions in Sandusky Bay. Efforts in this regard will continue through Year 4.

Strides have been made in research, data collection and wetland restoration/reconnection strategies through work being done by the OCMP and its partners. These partnerships have been involved in multiple restoration projects in Sandusky Bay, which encompasses 64 square miles of open water in the Western Lake Erie basin. These projects address various issues, such as nutrient pollution reduction,

beneficial use of dredge materials and nonpoint source pollution runoff from the nearly one million-acre Sandusky River Watershed, which includes numerous frontal tributaries that drain directly into the Sandusky Bay.

In Year 4, based upon work conducted in the Sandusky Bay during Years 1, 2, and 3, and with work being done through the Old Woman Creek NERR Science Research Collaborative, the OCMP has coordinated with project partners to identify coastal wetland priority assessment tools based on Landscape Conservation Design principles for resource managers, NGOs (nongovernment organizations), and local community partners to design and construct coastal wetlands that are effective, provide quantifiable functional benefits, and have measurable outcomes that address State of Ohio coastal habitat, fish and wildlife and water quality goals.

Coastal Nonpoint Source Pollution

The Coastal Nonpoint Source Pollution strategy supports Ocean/Great Lakes Resources and Cumulative and Secondary Impacts objectives. The strategy goal is to improve Lake Erie water quality through revisions to the Ohio Coastal Nonpoint Pollution Program Plan.

The strategy proposed that the OCMP partner with outside entities to implement projects that will lead to revision to the Ohio Coastal Nonpoint Pollution Control Program Plan, which would formally be adopted by the State of Ohio and submitted for full federal approval. All management measures have been approved by NOAA and US EPA.

Efforts have shifted to obtaining formal approval for the program and continuing implementation of the approved management measure strategies.

III. Assessment

Wetlands

Section 309 Enhancement Objective: Protection, restoration, or enhancement of the existing coastal wetlands base, or creation of new coastal wetlands. §309(a)(1)

> *Note: For the purposes of the Wetlands Assessment, wetlands are "those areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." [33 CFR 328.3(b)]. See also pg. 174 of the CZMA Performance Measurement Guidance[1] for a more in-depth discussion of what should be considered a wetland.*

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. Using provided reports from NOAA's Land Cover Atlas,[2] please indicate the extent, status, and trends of wetlands in the state's coastal counties. You can provide additional or alternative information or use graphs or other visuals to help illustrate or replace the table entirely if better data are available. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period the data represents. Also note that Puerto Rico currently only has data for one time point so will not be able to report trend data. Instead, Puerto Rico should just report current land use cover for all wetlands and each wetlands type.

   Current state of wetlands in 2010 (acres): 228,160.3 (7.8% of the state)

   Coastal Wetlands Status and Trends

   Ohio's coastal wetlands, which are hydrologically connected to Lake Erie, are generally classified as Category 3 wetlands by the Ohio Environmental Protection Agency through the Ohio Rapid Assessment Method (ORAM), first developed in the 1990s and substantially revised since then. Category 3 wetlands are the highest quality wetlands in the ORAM, and are characterized by "...superior habitat, or superior hydrological or recreational functions." In order to obtain a Section 401 Water Quality Certification to fill or alter a Category 3 wetland, including coastal wetlands, the activity must meet many conditions, and must also be necessary for a demonstrated public need. As a result, coastal wetlands in Ohio are given extensive protection, and it is exceptionally difficult to

[1] https://coast.noaa.gov/czm/media/czmapmsguide2018.pdf
[2] https://coast.noaa.gov/digitalcoast/tools/lca.html. Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state's coastal county data. The reports will be available after all of the 2016 data is available.

obtain a Water Quality Certification to fill or otherwise adversely impact one. Because of these protections, coastal wetlands in Ohio are no longer lost to development.

On top of those stringent protections, wetland restoration projects continue to flourish in Ohio. In 2018, for example, Metroparks Toledo opened the Howard Marsh Metropark in Lucas County just south of the Lake Erie shore. The park contains an approximately 600-acre coastal wetland that was created in agricultural fields that were originally part of Ohio's Great Black Swamp. Through further phases, the plan is to ultimately create 1,000 acres of coastal wetland at the site. In another example, the Sandusky Bay Initiative was begun as a partnership led by the OCMP along with other State agencies, local government, and non-profit corporations to restore long-lost coastal wetlands within Ohio's Sandusky Bay. Several projects are underway or completed, including the restoration of hydrologically coastal wetlands at Standing Rush (privately held) and Moxley Marsh Wildlife Area (publicly held). Together, the two sites in Erie County will provide increased habitat and functionality in an additional nearly 1,000 acres of restored wetlands. These are only two examples of a current trend in Ohio to restore and re-create coastal wetlands across the Lake Erie coast. Additional projects are forthcoming in Maumee Bay, Sandusky Bay, East Sandusky Bay, Sheldon Marsh, Mentor Marsh, Ashtabula Harbor, and other locations.

In addition to funding through the Great Lakes Restoration Initiative, significant resources for coastal wetland restoration have been provided through the H2Ohio program. H2Ohio is the water quality initiative that Governor Mike DeWine introduced to invest in targeted, long-term solutions to ensure clean and safe water in Lake Erie and throughout Ohio.

How Wetlands Are Changing*

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of coastal wetlands since the last assessment to augment the national data sets.

   We do not have recent data to report, however the nature of wetlands restoration projects in Ohio today are emphasizing multiple benefits, including nutrient and sediment reduction, waterfowl habitat, fish habitat, and flood control.

Management Characterization:

1. Indicate if there have been any significant changes at the state or territory level (positive or negative) that could impact the future protection, restoration, enhancement, or creation of coastal wetlands since the last assessment.

Significant Changes in Wetland Management

Management Category	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	N
Wetlands programs (e.g., regulatory, mitigation, restoration, acquisition)	Y – the H2Ohio program is providing significant resources for coastal wetland restoration

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

    The Healthy Lake Erie Initiative and H2Ohio are both State-driven programs that have been created since the last Assessment document to address water quality and beneficial use of dredge sediment in Ohio's coastal area. These changes are significant because they provide financial resources that can be used on their own or to match other sources of funding to enhance the number and quality of coastal wetlands in Ohio. These changes were not driven by the OCMP, but the program has been tasked with administering the majority of these funds for various projects in the coastal area. The outcomes of these changes will result in many additional acres of coastal wetlands in Ohio.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

    High __X__
    Medium _____
    Low _____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

    Because of the OCMP's involvement with the administration of the Healthy Lake Erie Initiative and H2Ohio funds and the program's commitment to seeing through initiatives such as the Sandusky Bay Initiative, the priority level for this enhancement area is high almost by default. Additionally, stakeholder feedback through the Integrated Management Team and Policies and Programs Committee also indicated that Wetlands should be a high priority for the program, as they play such an important role in Lake Erie water quality and habitat.

Wetlands II

In-Depth Resource Characterization:
Purpose: To determine key problems and opportunities to improve the CMP's ability to protect, restore, and enhance wetlands.

1. What are the three most significant existing or emerging physical stressors or threats to wetlands within your coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout your coastal zone, or are there specific areas that are most threatened? Stressors can be development/fill; hydrological alteration/channelization; erosion; pollution; invasive species; freshwater input; sea level rise/Great Lakes water level change; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	Stressor/Threat	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Stressor 1	Climate change impacts, Great Lakes Water level change	Throughout
Stressor 2	Invasive species	Throughout
Stressor 3	Pollution	Throughout; salt tailings specific to Mentor Marsh

2. Briefly explain why these are currently the most significant stressors or threats to wetlands within your coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.
    a. Stressors were discussed and noted through stakeholder feedback, primarily from the Integrated Management Team and Policies and Programs Committee.

3. Are there emerging issues of concern but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	**Information Needed**
Use of dredge sediment in wetland creation	Most effective techniques to use sediment regarding construction and plant establishment

In-Depth Management Characterization:
Purpose: To determine the effectiveness of management efforts to address identified problems related to the wetlands enhancement objective.

1. For each additional wetland management category below that was not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred since the last assessment.

Significant Changes in Wetland Management

Management Category	**Employed by State or Territory** (Y or N)	**CMP Provides Assistance to Locals that Employ** (Y or N)	**Significant Changes Since Last Assessment** (Y or N)
Wetland assessment methodologies	Y	Y	N
Wetland mapping and GIS	Y	Y	N
Watershed or special area management plans addressing wetlands	N	Y	N
Wetland technical assistance, education, and outreach	Y	Y	N
Other (please specify)			

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
    a. Describe significant changes since the last assessment;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's or territory's management efforts in protecting, restoring, and enhancing coastal wetlands since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's or territory's management efforts?
    a. The recently implemented H2Ohio initiative focuses on improving water quality throughout Ohio, with an emphasis on Lake Erie coastal wetlands. Part of this program will include monitoring the effectiveness of wetland restoration and creation efforts in Ohio.

Identification of Priorities:

1. Considering changes in wetlands and wetland management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve its ability to more effectively respond to significant wetlands stressors. *(Approximately 1-3 sentences per management priority.)*

Management Priority 1: __Water quality_____

Description: The H2Ohio initiative as well as other efforts by the OCMP will focus on improving Lake Erie water quality, particularly with reductions of Phosphorus inputs into the lake. The creation, restoration, and protection of coastal wetlands is an area of opportunity for the OCMP to guide the

implementation of more resilient coastal wetlands that will more effectively respond to wetland stressors.

Management Priority 2: __Hydrologic Connectivity_____

Description: The Healthy Lake Erie Initiative and H2Ohio include significant efforts to create, restore, and enhance Lake Erie coastal wetlands. Efforts have been made in previous and ongoing projects to restore hydrologic connectivity, and this is an area of opportunity for the OCMP to more effectively respond to wetland stressors.

Management Priority 3: ___Nonpoint Pollution_____

Description: Nonpoint source pollution continues to serve as a water quality challenge for both Lake Erie and the wetlands that filter water entering the lake. The increased use of treatment trains, nature-based shorelines, and other innovative techniques to decrease nonpoint pollution are a priority of the OCMP, and this is an area of opportunity for the OCMP to more effectively respond to wetland stressors.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	**Need?** (Y or N)	**Brief Explanation of Need/Gap**
Research	Y	A need exists for additional research into the most cost-effective techniques to establish and restore coastal wetlands in Ohio's coastal zone.
Mapping/GIS	Y	The acquisition of aerial photography and lidar imagery would assist with management decisions regarding wetland trends and restoration needs.
Data and information management	Y	Data on the effectiveness of wetland restoration efforts would assist with management decisions regarding how and where to direct future efforts regarding wetland restoration and creation.
Training/capacity building	N	
Decision-support tools	N	
Communication and outreach	N	
Other (specify)		

Enhancement Area Strategy Development:

1. Will the CMP develop one or more strategies for this enhancement area?

Yes	_____
No	__X___

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

The OCMP is currently administering significant federal and state funding directed toward wetland restoration and enhancement. Much of this work is based on previous planning and strategies, and the OCMP focus now is on project implementation.

Coastal Hazards

Section 309 Enhancement Objective: Prevent or significantly reduce threats to life and property by eliminating development and redevelopment in high-hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise and Great Lakes level change. §309(a)(2)

Note: For purposes of the Hazards Assessment, coastal hazards include the following traditional hazards and those identified in the CZMA: flooding; coastal storms (including associated storm surge); geological hazards (e.g., tsunamis, earthquakes); shoreline erosion (including bluff and dune erosion); sea level rise; Great Lake level change; land subsidence; and saltwater intrusion.

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*

Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, indicate the general level of risk in the coastal zone for each of the coastal hazards. The following resources may help assess the level of risk for each hazard. Your state may also have other state-specific resources and tools to consult. Additional information and links to these resources can be found in the "Resources" section at the end of the Coastal Hazards Phase I Assessment Template:

    a. The state's multi-hazard mitigation plan.
    b. Coastal County Snapshots: Flood Exposure
    c. Coastal Flood Exposure Mapper
    d. Sea Level Rise Viewer/Great Lakes Lake Level Change Viewer
    e. National Climate Assessment

General Level of Hazard Risk in the Coastal Zone

Type of Hazard	General Level of Risk[3] (H, M, L)
Flooding (riverine, stormwater)	H
Coastal storms (including storm surge)	H
Geological hazards (e.g., tsunamis, earthquakes)	L
Shoreline erosion	H
Sea level rise	N/A
Great Lakes level change	H
Land subsidence	L
Saltwater intrusion	N/A
Other (please specify)	N/A

[3] Risk is defined as "the estimated impact that a hazard would have on people, services, facilities and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage." *Understanding Your Risks: Identifying Hazards and Estimating Losses. FEMA 386-2. August 2001*

2. If available, briefly list and summarize the results of any additional data or reports on the level of risk and vulnerability to coastal hazards within your state since the last assessment. The state's multi-hazard mitigation plan or climate change risk assessment or plan may be a good resource to help respond to this question.

   The 2018 Coastal Erosion Area maps provide an update to the 2010 Coastal Erosion Area Maps utilized for the State of Ohio Enhanced Hazard Mitigation Plan (Rev February 2019). The 2018 mapping revised the designated Coastal Erosion Areas based on erosion measured between 2004 and 2015. The percentage of shoreline miles affected by a Coastal Erosion Area designation decreased from 11% in 2010 to 5.5% in 2018. Factors that contributed to the decrease in designated miles of shore include average to low water levels during the 2018 mapping period and increased erosion protection. It should be of note that since 2015, lake levels have increased to record highs, resulting in increased erosion along the shore of Lake Erie.

   Draft Flood Insurance Rate Maps for Lake Erie coastal areas were developed by the Federal Emergency Management Administration. The maps introduce wave hazard and VE zones to the Great Lakes region and are based on an analysis of storm and high-water events in the Great Lakes Basin.

Management Characterization:

1. In the tables below, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred that could impact the CMP's ability to prevent or significantly reduce coastal hazards risk since the last assessment.

Significant Changes in Hazards Statutes, Regulations, Policies, or Case Law

Topic Addressed	**Employed by State or Territory** (Y or N)	**CMP Provides Assistance to Locals that Employ** (Y or N)	**Significant Changes Since Last Assessment** (Y or N)
Elimination of development/redevelopment in high-hazard areas[4]	N	N	N
Management of development/redevelopment in other hazard areas	Y	Y	N
Climate change impacts, Great Lakes water level change	N	Y	N

[4] Use state's definition of high-hazard areas.

Significant Changes in Hazards Planning Programs or Initiatives

Topic Addressed	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Hazard mitigation	Y	Y	Y
Climate change impacts, Great Lakes water level change	Y	Y	Y

Significant Changes in Hazards Mapping or Modeling Programs or Initiatives

Topic Addressed	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Great Lakes water level change	N	N	N
Other hazards	Y	Y	Y

2. Briefly state how "high-hazard areas" are defined in your coastal zone.

   High hazard areas are based on rates of coastal erosion and are defined as described in Ohio Revised Code Section 1506.06 and Ohio Administrative Code Sections 1501-6-10 through 13. At least once every ten years ODNR must review and may revise the Coastal Erosion Area designations per Ohio Revised Code Section 1506.06 (E). The mapping is useful in determining areas along the coast where high rates of erosion are likely to occur over the next 30 years if no additional approved erosion control measures are installed. The most recent mapping was finalized in January 2019.

3. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
   a. Describe the significance of the changes:
   b. Specify if they were 309 or other CZM-driven changes; and
   c. Characterize the outcomes or likely future outcomes of the changes.

2019 Coastal Erosion Area Mapping

a. The finalization of the 2019 Coastal Erosion Area maps resulted in the lineal miles of shoreline designated as a coastal erosion area to decrease from 29.1 miles in the 2010 mapping to 14.7 miles in the 2019 mapping.
b. The CEA remapping was completed as part of a Section 309 project.
c. The change to the length of shore designated as a coastal erosion area limits the area of the coast that is subject to the OCMP enforceable policy (Policy 1). However, the mapping process and associated public meetings allowed for the OCMP to provide educational material to stakeholders related to causes of erosion and erosion mitigation techniques. The CEA maps are required to be reviewed and updated as necessary once every ten years. This allows for the designation to reflect the recent status of the threat.

2020 Lake Erie Protection and Restoration Plan

a. The Plan describes Ohio's priorities and strategic direction for Lake Erie and its watershed over the next several years. Specifically, the Plan includes a resiliency and adaptation related goal for the promotion of measures for adapting to varying lake level conditions.
b. The change was not a 309-driven change.
c. The expected outcome is adaptive measures for varying lake level conditions that increase resiliency of public beaches and infrastructure for docks.

State of Ohio Hazard Mitigation Plan 2019

a. The Plan describes climate change as one of numerous factors that will affect lakeshore erosion in the state due to changes in precipitation rate and variability and the need to account for this factor to the degree possible given current and emerging data.
b. The change was not a 309-driven change.
c. The outcome expected is progress towards the development of greater built environment resilience and increased water quality and resource protection

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High	__X__
Medium	_____
Low	_____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

   Coastal Hazards, specifically coastal erosion, have a significant impact on coastal property values. The way in which property owners respond to or mitigate coastal erosion can have a significant impact on coastal habitat (terrestrial and nearshore) and water quality. As a result of the composition and height of coastal bluffs, especially along the eastern portion of Ohio's Lake Erie coast, coastal erosion will continue to be a hazard and a high priority for the Ohio Coastal Management Program.

Coastal Hazards II

In-Depth Resource Characterization:
Purpose: To determine key problems and opportunities to improve the CMP's ability to prevent or significantly reduce coastal hazard risks by eliminating development and redevelopment in high-hazard areas and managing the effects of potential sea level rise and Great Lakes level change.

1. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards[5] within your coastal zone? Also indicate the geographic scope of the hazard, i.e., is it prevalent throughout the coastal zone, or are there specific areas most at risk?

	Type of Hazard	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Hazard 1	Shoreline erosion	Throughout coastal zone
Hazard 2	Coastal storms	Throughout coastal zone
Hazard 3	Great Lakes water level change	Throughout coastal zone

2. Briefly explain why these are currently the most significant coastal hazards within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

Since 2015, Lake Erie water levels have increased to record highs. High water levels combined with increased storm intensity has resulted in increased erosion and Lake Erie-based flooding along the shore. Water level records are maintained by the USACE Detroit District and based on USACE's website https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/, it is anticipated the Lake Levels will remain high for the near future. In May of 2018 ODNR implemented a Temporary Shore Structure Permitting Program to provide temporary permits for the construction of emergency erosion control measures in response to the high water levels and increased erosion. From its inception through May 2020, over 200 Temporary Shore Structure Permits have been issued. Based on historic records, typically only 30 standard Shore Structure Permits would have been issued during this time period.

3. Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	**Information Needed**
Impacts of erosion control measures on habitat	Changes to diversity and abundance of species associated with altered shoreline types
Impacts of erosion control measures on sand resources	Identification of sediment sources and sinks and analysis of sediment transport rates.

In-Depth Management Characterization:
Purpose: To determine the effectiveness of management efforts to address identified problems related to the coastal hazards enhancement objective.

[5] See list of coastal hazards on pg. 14 of this assessment.

1. For each coastal hazard management category below, indicate if the approach is employed by the state or territory and if there has been a significant change since the last assessment.

Significant Changes in Coastal Hazards Statutes, Regulations, and Policies

Management Category	**Employed by State/Territory** (Y or N)	**CMP Provides Assistance to Locals that Employ** (Y or N)	**Significant Change Since the Last Assessment** (Y or N)
Shorefront setbacks/no build areas	N	N	N
Rolling easements	N	N	N
Repair/rebuilding restrictions	N	N	N
Hard shoreline protection structure restrictions	Y	N	N
Promotion of alternative shoreline stabilization methodologies (i.e., living shorelines/green infrastructure)	N	N	N
Repair/replacement of shore protection structure restrictions	Y	N	N
Inlet management	N	N	N
Protection of important natural resources for hazard mitigation benefits (e.g., dunes, wetlands, barrier islands, coral reefs) (other than setbacks/no build areas)	N	N	N
Repetitive flood loss policies (e.g., relocation, buyouts)	N	N	N
Freeboard requirements	N	N	N
Real estate sales disclosure requirements	Y	N	N
Restrictions on publicly funded infrastructure	N	N	N
Infrastructure protection (e.g., considering hazards in siting and design)	Y	N	N
Other (please specify)			

Significant Changes to Coastal Hazard Management Planning Programs or Initiatives

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Change Since the Last Assessment (Y or N)
Hazard mitigation plans	Y	N	N
Great Lakes water level change or climate change adaptation plans	Y	N	Y
Statewide requirement for local post-disaster recovery planning	N	N	N
Sediment management plans	Y	N	N
Beach nourishment plans	N	N	N
Special Area Management Plans (that address hazards issues)	Y	N	N
Managed retreat plans	N	N	N
Other (please specify)			

Significant Changes to Coastal Hazard Research, Mapping, and Education Programs or Initiatives

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Change Since the Last Assessment (Y or N)
General hazards mapping or modeling	Y	N	N
Sea level rise mapping or modeling	N	N	N
Hazards monitoring (e.g., erosion rate, shoreline change, high-water marks)	Y	N	Y
Hazards education and outreach	Y	N	N
Other (please specify)			

2. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's management efforts in addressing coastal hazards since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's management efforts?

   2019 Coastal Erosion Area maps provide an update to 2010 Coastal Erosion Area Maps utilized for the State of Ohio Enhanced Hazard Mitigation Plan (Rev February 2019). The 2019 mapping revised the designated Coastal Erosion Areas based on erosion measured between 2004 and 2015. The percentage of shoreline miles affected by a Coastal Erosion Area designation decreased from 11% in 2010 to 5.5% in 2019. Factors that contributed to the decrease in designated miles of shore include average to low water levels during the 2019 mapping period and increased erosion protection. It should be of note that since 2015, lake levels have increased to record highs, resulting in increased

erosion along the shore of Lake Erie.

Identification of Priorities:

1. Considering changes in coastal hazard risk and coastal hazard management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve its ability to more effectively address the most significant hazard risks. *(Approximately 1-3 sentences per management priority.)*

   Management Priority 1: __Coastal Erosion Mitigation Using Nature-based Techniques____

   Description: An opportunity exists to encourage the use of soft structures and more native vegetation, including dunes and aquatic vegetation, in the mitigation of coastal erosion.

   Management Priority 2: ___Impacts of Mitigation of Coastal Erosion_____

   Description: An opportunity exists for this priority to identify and measure the number and extent of erosion control measures along the Lake Erie coast. Such an effort could include developing insights into the cumulative impacts of the structures as well as areas that may be appropriate for habitat restoration or enhancement.

   Management Priority 3: __Sand Resource Management_____

   Description: An opportunity exists to further study the impacts of structures and hardening of the shore on Lake Erie's sand resources. This effort could provide valuable information for making regulatory and restoration decisions.

2. Identify and briefly explain priority needs and information gaps the CMP has for addressing the management priorities identified above. The needs and gaps identified here should not be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	**Need?** (Y or N)	**Brief Explanation of Need/Gap**
Research	Y	Information related to sand location and migration in Lake Erie as well as information related to the functionality and success rates of differing types of nature-based shoreline installations.
Mapping/GIS/modeling	Y	An inventory of shoreline structures and shore type would be useful in assessing regional conditions and identifying locations for future studies or enhancement projects.
Data and information management	Y	A tool that connects regulatory records and resource management data geospatially to assist with characterization of the shore on site specific and regional levels to be used in making regulatory decisions and planning for studies and enhancement projects.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Training/Capacity building	Y	Living shoreline educational opportunities for staff.
Decision-support tools	Y	See Data and Information Management need above
Communication and outreach	Y	A strategy for disseminating information to Lake Erie Stakeholders.
Other (specify)		

Enhancement Area Strategy Development:

1. Will the CMP develop one or more strategies for this enhancement area?
   Yes __X___
   No _____

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

Like many other state coastal management programs, developing strategies to address coastal hazards is one of the core functions of the Ohio Coastal Management Program. Continued shoreline development, fluctuating water levels, a lack of shoreline vegetation, and varying degrees of winter ice cover on Lake Erie are all issues that need to be considered and continuously addressed in order to provide the expertise, recommendations, and management of coastal hazards that is expected of the program.

Public Access

Section 309 Enhancement Objective: Attain increased opportunities for public access, taking into account current and future public access needs, to coastal areas of recreational, historical, aesthetic, ecological, or cultural value. §309(a)(3)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. Use the table below to provide data on public access availability within the coastal zone.

Public Access Status and Trends

Type of Access	Current number[6]	Changes or Trends Since Last Assessment[7] (↑, ↓, –, unkwn)	Cite data source
Beach access sites	**87** (total) **42** (48%) allow swimming	↑ Total number of sites that provide beach access increased by four (4); total number of beaches that allow swimming increased by two (2)	ODNR Office of Coastal Management (OCM) staff: GIS, site fieldwork, public access inventory and *Ohio's Lake Erie Public Access Guidebook Coast Edition* (2014) and *Ohio Coastal Atlas 3rd Edition* (2018)
Shoreline (other than beach) access sites	**108 (total, other than beach)**	↑ Total number of public shoreline access sites increased by four (4), including seven (7) newly created/newly accessible sites. Three (3) sites were categorically consolidated into one (1), and one (1) site was removed from inventory (determined not coastal).	ODNR OCM staff: GIS, site fieldwork, public access inventory and *Ohio's Lake Erie Public Access Guidebook Coast Edition* (2014) and *Ohio Coastal Atlas 3rd Edition* (2018)

[6] Be as specific as possible. For example, if you have data on many access sites but know it is not an exhaustive list, note "more than" before the number. If information is unknown, note that and use the narrative section below to provide a brief qualitative description based on the best information available.

[7] If you know specific numbers, please provide. However, if specific numbers are unknown but you know that the general trend was increasing or decreasing or relatively stable or unchanged since the last assessment, note that with a ↑ (increased), ↓ (decreased), – (unchanged). If the trend is completely unknown, simply put "unkwn."

Type of Access	Current number[6]	Changes or Trends Since Last Assessment[7] (↑, ↓, –, unkwn)	Cite data source
Recreational boat (power or nonmotorized) access sites	**341** (total); **312** recreational power boating facilities; **29** paddling-only water trail access sites; **21** of the 341 sites (6%) provide power boating facilities and paddling access to water trails	↑ Total number of recreational boating access sites increased by 31 ↑ Total number of recreational power boating facilities increased by 13 ↑ Total number of recreational non-motorized paddling access sites increased by 39 (includes sites along the newly-designated Lake Erie Islands Water Trail(s), Maumee River Water Trail and Cuyahoga River Water Trail)	ODNR Division of Parks and Watercraft, Ohio Boating Facilities (2017); additional information from Erie MetroParks, Lorain County Metro Parks, Metroparks Toledo, Michigan Water Trails, *Ohio Coastal Atlas 3rd Edition* (2018) and Ohio Sea Grant
Number of designated scenic vistas or overlook points	**0** (total designated scenic vistas/overlook points); **49** (total number of scenic vistas/overlook points based on subjective designation)	- Total number of "designated" scenic overlook vistas or overlooks is unchanged from 2014 (no official designation method in place) ↓ Based on subjective designation, total number of scenic access sites decreased eight (8) (decrease due to revised method of classifying scenic vista sites)	ODNR OCM staff: GIS, site fieldwork, public access inventory and *Ohio's Lake Erie Public Access Guidebook Coast Edition* (2014) and *Ohio Coastal Atlas 3rd Edition* (2018)
Number of fishing access points (i.e. piers, jetties)	**142** (total); **51** sites (36%) provide fishing structures, such as piers or jetties)	↑ Total number of fishing access sites increased by three (3) ↑ Total number of fishing structures increased by three (3). Added facilities include: the newly-acquired Lucien M. Clemons Park, Massie Cliffside Preserve and Turkey Creek Metropark and newly-constructed piers at Euclid Creek Reservation and Painesville Township Park	ODNR OCM staff: GIS, site fieldwork, public access inventory and *Ohio's Lake Erie Public Access Guidebook Coast Edition* (2014) and *Ohio Coastal Atlas 3rd Edition* (2018)
Coastal trails/ boardwalks *(Please indicate number of trails/ boardwalks and mileage)*	Exact count indefinite **341.4 miles** (includes statewide trails, regional trails, local trails, fitness trails,	**unkwn** – Total number of trails indefinite ↑ Total mileage of trails/boardwalks within the coastal zone increased by 110.1 miles*. Updated mileage includes 94.51 miles of newly-designated water trails (Lake Erie Islands Water Trail(s), Maumee River	ODNR OCM staff: GIS, site fieldwork, public access inventory and *Ohio's Lake Erie Public Access Guidebook Coast Edition* (2014) and *Ohio Coastal Atlas 3rd Edition* (2018). Additional information from

Type of Access	Current number[6]	Changes or Trends Since Last Assessment[7] (↑, ↓, –, unkwn)	Cite data source
	boardwalks, water trails, and park trails)	Water Trail and Cuyahoga River Water Trail). Mileage increase also attributed to the refinement and addition of previously-existing trails to the dataset. Notable trails developed since the last assessment include the Austin-Hawley Bike Path, Cleveland Foundation Centennial Lake Link Trail, Fairport Harbor Bikeway, Lonz Trail, and new trails at Kelleys Island State Park, Lake Erie Bluffs, Lake Front Park and Lions Park. * Total trail mileage not comprehensive due to incomplete data and known data gaps, i.e. total number of trails indefinite	Cleveland Metroparks, Lake Metroparks, Metroparks Toledo, ODNR Trails GIS and Ohio Sea Grant, among others
Number of acres parkland/open space	<u>Lake Erie access sites:</u> **22,722 acres** (total acreage of Lake Erie's public access sites **22,068 acres** (97%, of Lake Erie public access parkland/open space within the coastal zone) <u>Lake Erie *and* river sites:</u> **24,141 acres** (total acreage of Lake Erie and river access sites combined within the coastal zone) <u>All sites, including non-coastal & non-river lands</u>: **26,259 acres** (total acreage of accessible	<u>Lake Erie access sites:</u> ↑ Total acreage of Lake Erie's public access parkland/open space increased by 1,482 acres. Acreage change within the coastal zone since the last assessment is unknown (not previously calculated). Notable new parklands/open space areas since the last assessment include the 639-acre (85% in coastal zone) Turkey Creek Metropark, the 54-acre Bay Point Sandbar Preserve, the 15-acre Massie Cliffside Preserve and various Pickerel Creek Wildlife Area annexations <u>Lake Erie and river sites:</u> The change in total Lake Erie public access acreage, including river access acreage, within the coastal zone since the last assessment is unknown; No baseline from last assessment <u>All sites, including non-coastal & non-river lands</u>: ↑ No baseline from last assessment, however total acreage increased. Notable changes include the new 999-acre Howard Marsh Metropark and	ODNR OCM staff: GIS, site fieldwork, public access inventory and *Ohio's Lake Erie Public Access Guidebook Coast Edition* (2014) and *Ohio Coastal Atlas 3rd Edition* (2018). Additional information from Ashtabula County Metroparks, Metroparks Toledo, ODNR Lands GIS, Put-in-Bay Township Park District and Western Reserve Land Conservancy

Type of Access	Current number[6]	Changes or Trends Since Last Assessment[7] (↑, ↓, –, unkwn)	Cite data source
	parkland/open space in coastal zone)	the 118-acre expansion of Lakeside Daisy State Nature Preserve	
Access sites that are Americans with Disabilities Act (ADA) compliant[8]	**94** (total); includes ADA compliant trails, fishing piers, beach accesses, boat launches, other handicapped-accessible site amenities	**unkwn** – No baseline from last assessment; Comprehensive ADA compliancy of access sites unknown and requires thorough investigation	ODNR OCM staff: GIS, site fieldwork, public access inventory and *Ohio's Lake Erie Public Access Guidebook Coast Edition* (2014)
Other (please specify)			

2. Briefly characterize the demand for coastal public access and the process for periodically assessing demand. Include a statement on the projected population increase for your coastal counties. There are several additional sources of statewide information that may help inform this response, such as the Statewide Comprehensive Outdoor Recreation Plan,[9] the National Survey on Fishing, Hunting, and Wildlife Associated Recreation,[10] and your state's tourism office.

The Ohio portion of the Lake Erie shore is 312 miles and approximately 20 percent is publicly accessible (↑ from 19 percent as reported in the last assessment). Eight of Ohio's 88 counties are adjacent to Lake Erie. From west to east, they include Lucas, Ottawa, Sandusky, Erie, Lorain, Cuyahoga, Lake and Ashtabula. According to Ohio county profile information prepared by the Ohio Development Services Agency in 2019, between 2014 and 2018 the estimated population of Ohio's coastal counties decreased by one percent. Furthermore, coastal county population is projected to decrease by three percent between 2020 and 2030, which remains consistent with the projected population decrease between 2010 and 2020. Only Lorain County is projected to experience an increase in population over the next decade (3.3 percent).

[8] For more information on ADA see *www.ada.gov*.
[9] Most states routinely develop "Statewide Comprehensive Outdoor Recreation Plans", or SCORPs, that include an assessment of demand for public recreational opportunities. Although not focused on coastal public access, SCORPs could be useful to get some sense of public outdoor recreation preferences and demand. Download state SCROPs at *www.recpro.org/scorp-library*.
[10] The National Survey on Fishing, Hunting, and Wildlife Associated Recreation produces state-specific reports on fishing, hunting, and wildlife associated recreational use for each state. While not focused on coastal areas, the reports do include information on saltwater and Great Lakes fishing, and some coastal wildlife viewing that may be informative and compares 2016 data to 2011, 2006 and 2001 information to understand how usage has changed. See *www.wsfrprograms.fws.gov/subpages/nationalsurvey/national_survey.htm*

Despite measurable decreases in Ohio's coastal county population, the Lake Erie region continues to be a favorite tourist and recreation destination and boon to local economies. Lake Erie tourism and recreation attracts millions of visitors annually for boating, fishing, swimming, birding, nature-based recreation and leisure. According to a Tourism Economics study investigating the economic impact of tourism in Ohio, visitors to the eight Lake Erie coastal counties spent $15.1 billion in 2017 (directly and indirectly), up 17 percent from 2013. Tourism-related spending in 2017 helped support nearly 128,000 jobs and generated $1.9 billion in total taxes. The impact of tourism in the eight coastal counties represents nearly a third of Ohio's annual tourism-related economy.

In 2018, the Ohio Department of Natural Resources (ODNR) developed its five-year update to the Ohio Statewide Comprehensive Outdoor Recreation Plan (SCORP). The SCORP is prepared to solicit public insight concerning outdoor recreational participation, resources, facilities and activities. SCORP results are used to guide outdoor land acquisitions; aid facility development, improvement and management; and increase recreational programming in Ohio. Responses were generated through a public online survey and via small focus groups. Based on public feedback and information collected, Ohio identified the following five outdoor recreation priorities for the next five-year planning period: (1) advance the trail network; (2) improve, enhance and adapt existing recreational facilities; (3) emphasize recreational opportunities and access to Ohio's waterways; (4) improve awareness and access to outdoor opportunities; and (5) protect and sustain the natural environment.

The SCORP survey aimed to collect participation and interest totals for 87 outdoor recreational activities. Of the 87 activities, "canoeing/kayaking on Lake Erie" was the only one that specifically called out "Lake Erie." Statewide, 3,000 survey respondents had either participated or expressed an interest in paddling on Lake Erie. Over 1,000 people from Ashtabula, Cuyahoga, Erie, Lake, Lorain, Lucas, Ottawa and Sandusky counties completed the survey. The majority of Ohio coastal county respondents listed "hiking/walking on trails" as a top-five activity. "Wildlife viewing" and "scenic driving" were also top-five outdoor recreational activities in Ohio's coastal counties. Trail development, especially natural-surfaced trails, was a top response amongst coastal county participants when asked what types of amenities people wanted more of at public lands. Moreover, respondents in Cuyahoga County and Ashtabula County expressed wanting to see the development of mountain bike trails. The activity most respondents in the coastal counties wanted to see more of was "canoeing/kayaking access, facilities, water trails".

In 2016, the U.S. Fish and Wildlife Service developed its five-year update to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. The survey aims to produce state-specific reports on fishing, hunting and wildlife-associated recreational uses. It is important to note that augmented results in the 2016 survey are attributed to a different data collection method (mail survey), which reduces comparability to previous reports. In 2016, the total number of residents and nonresidents who fished, hunted or viewed wildlife in Ohio was over 6.6 million (4.3 million in 2011), and spent over $12.6 billion on wildlife recreation in Ohio. Of the more than 1.5 million people who fished in Ohio, 45 percent fished in Lake Erie. The number of residents and nonresidents who participated in away-from-home wildlife viewing in Ohio was over 2.8 million.

3. If available, briefly list and summarize the results of any additional data or reports on the status or trends for coastal public access since the last assessment.

According to the ODNR Division of Parks and Watercraft, the combined total of boating registrations in Ohio's eight coastal counties from 2015 to 2018 was nearly 364,000 (↑ by 12 percent from the previous assessment's four-year total (2010-2013)).

According to the ODNR Division of Wildlife, fishing registrations purchased in Ohio's eight coastal counties decreased 12 percent from 2015 to 2018. However, statewide internet fishing license sales from 2015 to 2018 increased by 37 percent, which likely accounted for the decreasing number of license purchases at physical locations.

The ODNR Division of Parks and Watercraft tracks overnight stay statistics for reservable facilities at Ohio's state parks, including campgrounds, cabins and yurts, and not including lodge reservations. There are seven state parks with reservable facilities located on Lake Erie: Maumee Bay State Park in Lucas County; East Harbor, Middle Bass Island, North Bass Island, South Bass Island state parks in Ottawa County; Kelleys Island State Park in Erie County; and, Geneva State Park in Ashtabula County. Between 2015 and 2108, over 1.2 million people stayed overnight at a lakefront state park. East Harbor State Park ranked second statewide for the most overnight stays in 2015, 2016 and 2017 (behind Hocking Hills State Park in Hocking County) and ranked number one in 2018 with 153,986 overnight stays. The Parks and Watercraft division also keeps track of day-use shelter reservations. Between 2015 and 2018, there were 51,612 people that utilized a reservable shelter at a lakefront state park.

The Lake Erie Shores & Islands regional welcome center(s), covering Erie and Ottawa counties, conducts a survey of its consumer e-newsletter subscribers to obtain activities and areas of visitor interest. Between 2009 and 2019, over 96,000 subscribers were surveyed. The top three responses for activities of interest are specific to Lake Erie, including visiting the Lake Erie Islands (40 percent of respondents), beaches (33 percent of respondents) and lighthouses (29 percent of respondents). Other Lake Erie-related activities that survey respondents expressed interest in were boating, nature areas, fishing and birding. Also, in a consumer perception study conducted by the Ashtabula County Convention & Visitors Bureau, visitors listed Lake Erie as a top-three Ashtabula County attraction (along with wineries and covered bridges).

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) that could impact the future provision of public access to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.

Significant Changes in Public Access Management

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	Y	Y
Operation/maintenance of existing facilities	Y	Y	N
Acquisition/enhancement programs	Y	Y	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

Statutes, regulations, policies, or case law interpretations

In May 2016, a class action settlement in the case of *State ex rel. Robert Merrill, Trustee, et al. v. State of Ohio Department of Natural Resources, et al.* was reached in Lake County Court of Common Pleas. Per the settlement outcome, the boundary between private lakefront property and Lake Erie public trust was reaffirmed to be "the natural shoreline, which is the line at which the water usually stands when free from disturbing causes." This determination does not affect the public's ability or rights to access Lake Erie from a publicly owned or managed lakefront park, preserve, wildlife area, beach or boat ramp; however, it does provide accessibility clarification for areas adjacent to and lakeward of private property.

Acquisition/enhancement programs

From 2013 – 2018 networked partners in the OCMP, through the implementation of the following state and federal grant programs, issued $14,160,807 to 12 local organizations and communities for acquisition and development of trails, public access and improvements, and habitat preservation:

- Coastal Management Assistance Grant Program – Federal funds through the OCMP
- Coastal and Estuarine Land Conservation Program (CELCP) – Federal Great Lakes Restoration Initiative (GLRI) funds coordinated by the OCMP
- Areas of Concern (AOC) Land Acquisition Grants - Federal Great Lakes Restoration Initiative (GLRI) funds coordinated by the OCMP
- National Coastal Wetland Conservation Fund (NCWC) – Federal funds through the U.S. Fish and Wildlife Service
- NatureWorks Grant Program – State funds through the ODNR Office of Real Estate
- Land and Water Conservation Fund (LWFC) – Federal funds through the ODNR Office of Real Estate
- Clean Ohio Trails Fund - State funds administered by ODNR Office of Real Estate

3. Indicate if your state or territory has a publicly available public access guide. How current is the publication and how frequently it is updated?[6]

Publicly Available Access Guide

Public Access Guide	Printed	Online	Mobile App
State or territory has? (Y or N)	**Y** – The OCMP has published public access guidebooks for both Lake Erie and the major river systems flowing into Lake Erie: *Ohio's Lake Erie Public Access Guidebook, Coast Edition*, 2014 (241 pages) and *Ohio's Lake Erie Public Access Guidebook, Rivers Edition*, 2013 (285 pages). Both books have been reprinted once and the *Rivers Edition* will be reprinted again in 2019.	**Y** – The OCMP has developed an accompanying website for both the *Lake Erie Public Access Guidebook, Coast Edition* and *Lake Erie Public Access Guidebook, Rivers Edition*. Additionally, PDF versions of both guidebooks are available online to download, by chapter. The OCM webpage also features a Lake Erie Public Access interactive map viewer. A Lake Erie Public Access interactive kiosk was installed at the Old Woman Creek visitor center in 2011	**N** – However the OCM website was developed utilizing responsive web design techniques, optimizing the viewing environment for a wide range of devices, including tablets and mobile phones. Additionally, the West Creek Land Conservancy developed a watershed stewardship mobile app, which incorporates OCMP public access data
Web address	Lake Erie Coastal Access: http://coastal.ohiodnr.gov/gocoast River Access: http://coastal.ohiodnr.gov/gorivers	Lake Erie Coastal Access: http://coastal.ohiodnr.gov/gocoast River Access: http://coastal.ohiodnr.gov/gorivers	**N**
Date of last update	Coast Edition: 2014 (2nd Edition) Rivers Edition: 2013 (1st Edition)	Online component is typically updated as new information announced or identified	n/a

[11] Note some states may have regional or local guides in addition to state public access guides. Unless you want to list all local guides as well, there is no need to list additional guides beyond the state access guide. You may choose to note that the local guides do exist and may provide additional information that expands upon the state guides.

Public Access Guide	Printed	Online	Mobile App
Frequency of update	- GIS updated as needed - Coast Edition updated once since first published in 2010. The updated version (2014) has been reprinted once (2017). The Rivers Edition (2013) was reprinted in 2015 and 2019. A complete update of both books has not been scheduled.	As needed	n/a

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

   High __X__
   Medium _____
   Low _____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

   The demand for public access to Lake Erie remains extremely high and is essentially unchanged since the previous assessment. Statistics from local visitor bureaus and the state's tourism agency, along with economic impact reports conclude that the number of tourists and residents seeking Lake Erie and Lake Erie-related recreational activities continues to rise. The emphasis to provide increased recreational and scenic access to Lake Erie is being demonstrated at both the state and community level. The continued effort to create and enhance access to Lake Erie is evident with lakefront parcel acquisitions, construction of new fishing piers and waterfront trails, development of new Lake Erie-based and connecting water trails, and the creation of new scenic overlook areas.

   Prioritizing public access as "High" is easily justifiable after reviewing the comprehensive master plans of coastal communities and counties. Leveraging Lake Erie and waterfront areas as recreational assets are highlighted and emphasized in many plans. Common goals include creating, improving and maintaining waterfront access, developing outdoor and water-related recreational opportunities and upgrading existing facilities. Below are a few examples:

   - The Ashtabula County Coastal Management Plan was prepared by the Ashtabula County Community Services and Planning Commission in 2013. Input from many key stakeholders was solicited and incorporated into developing recommendations and planning goals. Many goals focus on enhancing and maintaining existing Lake Erie public access locations, improving connectivity of trail networks at parks and within the county, developing a water trail, preserving natural assets and maintaining the county's strong fishery.
   - Per the city of Bay Village's 2016 Master Plan, prepared by the Cuyahoga County Planning Commission, residents indicated proximity to Lake Erie as the most important factor to live in Bay Village. Lake Erie is also identified as Bay Village's biggest recreational asset. As part of a vision aimed to continue the city's dedication to quality parks, recreation, and Lake Erie, one goal is to improve and expand accessibility to the lake to enhance recreational

opportunities, including develop new park space on undeveloped space at the mouth of the Cahoon Creek and explore land acquisition possibilities to create new lake accesses. Another goal calls for increased signage, marketing, local tourist programs, and events, designed to highlight Lake Erie and build greater community awareness for it.

- The city of Conneaut's 2017 Comprehensive Plan lists Lake Erie as a top strength and a natural resource to maximize full potential. Developing Conneaut Harbor into a premier recreational and year-round destination by enhancing fishing, boating, and birding opportunities is included as a guiding objective. Strategies include expanding the marina, i.e. build new floating docks, accommodate larger boats, add more amenities for boaters (showers, restrooms) and possibly build another marina. Increasing and improving Lake Erie public access is also outlined. Plans include building a public pier or boardwalk on an existing breakwater to expand fishing access, further develop of the "Sandbar," create a bike path to link lakefront access sites and consider offering recreational equipment rentals (bicycles, canoes, kayaks, etc.).
- In the city of Euclid's 2018 Master Plan, prepared by the Cuyahoga County Planning Commission, the city's four-mile lakefront was listed as a strength and a major driver for community development. The creation of new lakefront parks and trails were identified as opportunities to enhance connectivity along the lake. One of the goals outlined in the master plan included the implementation of Euclid's Waterfront Improvement Plan, which details strategies aimed to increase public access to Lake Erie and to establish the lakefront as a recreational hub. The city has already started construction of a lakefront path extending east from Sims Park. Water trail development along the Lake Erie shore is also identified as a goal in the master plan.
- In the city of Rocky River's 2018 Master Plan, prepared by the Cuyahoga County Planning Commission, per a community-wide survey, residents indicated proximity to Lake Erie as an important factor to live in Rocky River. Expanding access to beaches at lakefront parks is included in the plan as a goal. Both Bradstreet's Landing and Rocky River Park are listed as priority parks for improvements per the survey.
- The city of Sandusky's 2016 Bicentennial Vision/Strategic Vision 2016-2020 sites Lake Erie (Sandusky Bay) and waterfront recreation opportunities as destination attractions. The plan lists enhancing waterfront parks (including Battery Park, Jackson Street Pier, Lions Park and Paper District Marina) and trails and investing in recreational activities, such as biking, kayaking and birding to serve residents and attract visitors. Improving and prioritizing access to the waterfront is highlighted.

Recreational development and facility investments that have occurred since the last assessment also provide justification for prioritizing public access as "High." Many communities and park districts have made significant improvements to public access locations and recreational amenities.

The demand and interest in Lake Erie public access and public access information can also be gleaned from the popularity of the OCMP's two current public access publications: *Ohio's Lake Erie Public Access Guidebook—Coast Edition* (2014) and *Ohio's Lake Erie Public Access Guidebook–Rivers Edition* (2013). To keep up with high public demand, the OCMP reprinted the *Rivers Edition* in 2015 and 2019 and the *Coast Edition* in 2017. In total, the OCMP has printed over 210,800 public access books (combined) since 2013.

Public Access II

In-Depth Resource Characterization:
Purpose: To determine key problems and opportunities to improve the CMP's ability to increase and enhance public access opportunities to coastal areas.

1. What are the three most significant existing or emerging threats or stressors to creating or maintaining public access within your coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone or are specific areas most threatened? Stressors can be private development (including conversion of public facilities to private); non-water-dependent commercial or industrial uses of the waterfront; increased demand; erosion; sea level rise or Great Lakes water level change; natural disasters; national security; encroachment on public land; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	Stressor/Threat	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Stressor 1	Harmful Algal Blooms (HABs)	Primarily in the Western Basin of Lake Erie between Toledo and Huron. In severe cases, HABs can affect the entire Ohio coastline.
Stressor 2	Fluctuating and Extreme Great Lakes Water Levels	Along Ohio's entire Lake Erie coast and within all navigable waters of the coastal zone
Stressor 3	Erosion	Site-specific along entire Lake Erie coast, with greater susceptibility in Ohio's easternmost coastal areas (where bluffs are composed of glacial till with sandy clay deposits)

2. Briefly explain why these are currently the most significant stressors or threats to public access within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

   Stressor 1 – Harmful Algal Blooms (HABs): A harmful algal bloom is a large increased density of algae that can produce toxins (Ohio Sea Grant, 2019). The emergence and spread of HABs in Lake Erie is a major public and ecologic health issue and causes a significant threat to water quality, beach safety, water-based activities and general site aesthetics. Agricultural fertilizers and manure runoff contribute 65% of the phosphorous that enters Lake Erie. Sewage treatment facilities, water treatment facilities, combined sewage overflows, faulty septic systems and residential lawn fertilizers are also phosphorous sources (Ohio Sea Grant, 2019). HABs prominently occur in the shallower, warmer Western Basin of Lake Erie, but have also developed along the shore in the Central Basin. Peak conditions typically occur during summer months. Many federal, state and local agencies and academia have been involved with monitoring, researching and forecasting HABs, educating the public on the dangers of HABs and developing mitigation strategies. Climate change studies and trends project increased rainfall, flooding and storm events. Such events may overwhelm stormwater and sewer infrastructure, which will push run-off and nutrients into the lake (Spross, 2014). Climate change trends will also contribute to rising water temperatures. The growing

consequences of climate change in the Great Lakes region suggest amplified HAB frequency and duration (Great Lakes Integrated Sciences and Assessments (GLISA), 2014).

There are many ongoing and collaborative initiatives led by state agencies, federal agencies, academia and non-profit organizations focusing on HABs, including, but not limited to, reports and studies pertaining to agricultural best management practices, nutrient detection methods, HAB forecasting, water quality, health impacts, recreation impacts, mitigation and preventative strategies. Below are example initiatives, reports and studies:

- Heidelberg University's National Center for Water Quality Research has been measuring pollution found in Lake Erie's tributaries since 1974
- The Harmful Algal Bloom Research Initiative (HABRI) was created in 2014 following the Toledo water crisis. It is a statewide response to the threat of HABs and aims to provide near-term and long-term solutions. The HABRI is guided by the technical needs of state agencies. Many participating universities in Ohio provide the knowledge base for researching and creating new technologies and approaches to develop solutions.
- The Ohio Environmental Protection Agency (EPA), Division of Drinking and Ground Waters developed the guidance document, "Developing a Harmful Algal Bloom (HAB) General Plan: Guidance for Public Water Systems" in 2019 to assist public water systems submit necessary a HAB general plan for Ohio EPA review and approval
- Ohio Sea Grant fact sheets, including: "Harmful Algal Blooms in Ohio Waters" (OHSU-FS-911, 2011; modified 2018), provide valuable information and guidance relating to HABs
- NOAA Tides & Currents posts periodic bulletins every few days and seasonal assessments, "Experimental Lake Erie Harmful Algal Bloom Bulletin" (2017-current)

Stressor 2 – Fluctuating and Extreme Great Lakes Water Levels: Water level fluctuations on Lake Erie are common and range from several inches to several feet. Seasonal changes recurrently affect water levels. Lake levels are generally lower in the winter and higher in the summer. Long-term water level fluctuations are caused by changes to seasonal/annual precipitation rates and temperatures. Consecutive years of relatively warm weather and less-than-average precipitation will cause lake levels to drop. Warmer conditions result in greater evaporation rates and the lack of precipitation inhibits the lake to adequately replenish itself. Conversely, consecutive years of cooler weather and greater-than-average precipitation will cause Lake Erie's water level to rise. This is due to more water entering the lake and less water evaporating into the atmosphere. Moreover, weather and atmospheric conditions that affect the Upper Great Lakes subsequently affect Lake Erie's water levels.

In May 2019, Lake Erie water levels reached a record high of 574.3 feet above sea level, about 30 inches above the long-term average. Many public access locations along Ohio's coast were affected. High water caused widespread shoreline flooding, minimized public beach widths, inundated fishing piers, impacted boating access, blocked-off accessible areas, suspended ferry service and increased the threat of erosion. High water conditions pose greater risks and amplifies dangerous conditions for swimmers and paddlers (e.g. changes in currents, notably rip currents). For boaters, dangers include increased susceptibility to hitting submerged hazards (such as structures and rocks that are normally visible above the water surface) and reduced bridge clearances. Great Lakes water levels are expected to be high again in 2020.

All Lake Erie coastal communities can be impacted by high water levels and related hazards. Facility damages pose unsafe conditions for visitors and costly cleanup/repair efforts for managing entities. In Port Clinton, flooding and considerable erosion occurred at the city beach. Lake Erie waters also frequently breached the seawall near the Jefferson Street Pier, causing local roads to flood and limiting fishing access to the pier. The city filed a pre-application for the Ohio Emergency Management Agency's Hazard Mitigation Grant Program and is asking between $4.5 million and $5.5 million to raise the seawall approximately one foot beyond the 100-year flood mark.

Conversely, in 2012, Lake Erie water levels were well below average. As stated in the previous assessment, lower water levels coupled with sediment buildup within shallow draft recreational harbors have a significant impact on recreational boating and the charter fishing industry. Dredging of materials at Lake Erie's recreational harbors and within designated boating channels is essential for boater safety and economic stability.

The NOAA Center for Operational Oceanographic Products and Services manages four continuously operating Lake Erie stations in Ohio as part of its National Water Level Observation Network. These stations are located at Toledo, Marblehead, Cleveland and Fairport Harbor. Each station collects real-time lake level measurements, wind speed, air temperature, barometric pressure, relative humidity and water temperature. The NOAA Great Lakes Environmental Research Laboratory (GLERL) also continuously monitors Great Lakes water levels. The research conducted at GLERL assists agencies and industries to plan for water management and operations. Water level observations can also help understand the Great Lakes water cycle and predict changes in climate and weather. GLERL's models and analyses are integral parts of the official 6-month Great Lakes forecast, which is generated by the U.S. Army Corps of Engineers and coordinated monthly with Environment and Climate Change Canada.

Global climate variability and changes in the regional hydrological cycle are leading researchers to believe that rapid transitions between extreme high and low water levels in the Great Lakes is becoming a normal phenomenon (Gronewold and Rood, 2019). Water level fluctuations are influenced by precipitation, evaporation over the lakes and drainage from tributaries. Increased precipitation during winter and spring months can be correlated to observations that the atmosphere is warming. Warmer atmospheric conditions hold and transport more water vapor and can lead to increased precipitation during extreme weather events. Climate modeling and trends, i.e. seasonal cycles of snowmelt and runoff, indicate that the transition to spring is happening earlier in the year, which warms lake temperatures and increases evaporation. Lake levels are lower during dry periods. Wet and dry weather patterns—influenced by storm tracks—are linked to global-scale events, such as El Niño, jet stream shifts, polar vortexes and the Arctic Oscillation. Large-scale processes typically have indirect effects on weather patterns in the Great Lakes region (Gronewold and Rood, 2019). Climate change will likely continue to cause drastic fluctuations in water levels in the Great Lakes, impacting Ohio's Lake Erie public access and infrastructure.

Sources: https://www.glerl.noaa.gov/pubs/brochures/lakelevels/lakelevels.pdf
https://tidesandcurrents.noaa.gov/nwlon.html
https://oceanservice.noaa.gov/facts/nwlon.html
https://www.scientificamerican.com/article/climate-change-sends-great-lakes-water-levels-seesawing/?print=true

Stressor 3 – Erosion: Erosion is an ongoing issue for many areas along Ohio's Lake Erie shore. Regionally, erosion rates vary considerably and are dependent on physical factors, such as soil composition, conditions and slope; beach composition, width and slope; lakebed shoaling; erodibility of consolidated and unconsolidated materials; shoreline orientation and groundwater. Weather and lake conditions, such as precipitation, storms, wave energy, wave duration, ice cover and lake levels also contribute to coastal erosion.

Bluffs are composed of bedrock, glacial till or a combination of both, and usually contain complex soil sequences. In Ohio, bluffs generally increase in height from west to east and can be extremely erodible—particularly in eastern areas where bluffs are composed of glacial till with sandy clay deposits.

Record-high water levels and frequent severe storms have exacerbated erosion issues in areas along Ohio's coast, which has impacted several public access locations. In recent years, significant erosion has occurred at Osborne Park in Willoughby, Overlook Beach Park in Mentor-on-the-Lake and Bill Stanton Community Park in Madison Township.

The city of Mentor has lost approximately six acres along the shoreline in the last twelve years or so. To combat beach erosion, the city spent $600,000 in 2015 to extend a revetment along the Mentor Lagoons. They are planning to extend it again in 2019 by 600 feet to the east. In 2018, city council approved an emergency project to build a 3,000-cubic yard armor stone wall along 275 feet of shore at Mentor Beach Park. The project was estimated at $427,000.

ODNR is required to revise Coastal Erosion Area (CEA) maps at least every ten years. The 2019 CEA maps replace and provide an update to the 2010 maps. Revised CEA designations are based on erosion measured between 2004 and 2015. A total of 19 public access sites are either completely or partially located within a CEA.

3. Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Climate change and subsequent effects, notably extreme Great Lakes water level fluctuations	Long-term impacts on Lake Erie public access due to climate change remains uncertain. Significant water level fluctuations over the past decade have resulted in periods of considerably low water and record-setting high water. Both low and high water levels pose threats and can impact public access and boating navigability differently.

In-Depth Management Characterization:
Purpose: To determine the effectiveness of management efforts to address identified problems related to the public access enhancement objective.

1. For each additional public access management category below that was not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if

significant changes (positive or negative) have occurred at the state or territory level since the last assessment.

Significant Changes to Public Access Management

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Comprehensive access management planning	N	Y	N
GIS mapping/database of access sites	Y	Y	Y
Public access technical assistance, education, and outreach (including access point and interpretive signage, etc.)	N	Y	N
Other (please specify)			

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.

    a. Describe significant changes since the last assessment;

    Comprehensive Access Management Planning

    No significant comprehensive access management planning has occurred since the last assessment.

    GIS Mapping/Database of Access Sites:

    The OCMP continually updates its Lake Erie public access inventory and GIS database, which includes publicly accessible sites along major Lake Erie tributaries. The OCMP has developed a comprehensive database highlighting all Lake Erie coastal access sites, amenities and documented changes. Since the last assessment, The OCMP has identified, recognized and/or verified seven new Lake Erie public access sites and approximately seven new sites along Lake Erie's major tributaries.

    b. Specify if they were 309 or other CZM-driven changes; and

    c. Characterize the outcomes or likely future outcomes of the changes.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's management efforts in providing public access since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's management efforts?

    Unaware of any specific studies conducted regarding the effectiveness of the state's efforts in providing public access.

Identification of Priorities:

1. Considering changes in public access and public access management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve the effectiveness of its management effort to better respond to the most significant public access stressors. *(Approximately 1-3 sentences per management priority.)*

   Management Priority 1: **Improve public access signage and develop criteria for "scenic overlook" designation**

   Description: Develop uniform signage to denote Lake Erie coastal public access, beach access, paddling access and scenic access (similar in concept to the Lake Erie Birding Trail signs and coastal/beach access signage posted by other coastal states). Moreover, develop a set of criteria to formally define scenic vistas and overlook points. Official scenic vista designation, and corresponding signage, will assist with tracking such sites in future Section 309 assessments. Additionally, develop signage and/or a website to relay comprehensive beach statuses, including details on rip current alerts, weather conditions, water levels, water quality, etc.

   Management Priority 2: **Strategic Planning and Technical Assistance**

   Description: Work with lakefront communities and land-managing authorities to develop strategic public access plans and provide technical assistance to assist with facility planning and local comprehensive planning. Strategic planning and technical assistance will help communities with long-term green space and natural area acquisition, facility development and maintenance, enhancement of regional trail connectivity and hazard/threat mitigation.

   Management Priority 3: **Identify Level of Use, Barriers to Access and Future Needs**

   Description: Develop a comprehensive method to assess the state of public access in the coastal zone to identify demands, changing needs and accessibility issues, and to gain a better understanding of how to use funding opportunities most effectively. Possibly develop a user survey and/or work with the ODNR Division of Parks and Watercraft to expand the SCORP to include more Lake Erie-specific and coastal-related recreational activities.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	- Develop metrics for designating scenic vistas and overlook areas (1) - Conduct comprehensive fieldwork to identify accessible sites (ADA-compliant) (1)
Mapping/GIS	Y	Updates to public access GIS inventory, as needed (1)
Data and information management	Y	- Coordinate with ODNR Parks & Watercraft to expand SCORP - Identify information gaps (3)
Training/Capacity building	Y	Training and capacity-building for managing authorities and communities to provide appropriate access (ADA-compliant) and site development options (1-3)
Decision-support tools	Y	- Provide resources and/or assistance to communities to assist them with strategic planning and technical assistance (2, 3) - Develop signage design (1) - Develop coastal access/recreation user survey (2, 3)
Communication and outreach	Y	- Providing information on availability of resources (1-3) - Coordinate with managing authorities and communities to develop standardized signage and educational materials (1-3) - Educate managing authorities and communities regarding funding opportunities (2, 3)
Other (specify)		

Enhancement Area Strategy Development:

1. Will the CMP develop one or more strategies for this enhancement area?
   Yes **__X___**
   No _____

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

The Ohio Coastal Management Program has made great strides over the past decade promoting Lake Erie public access and developing a robust public access GIS database. The OCMP's *Lake Erie Public Access Guidebook* publications and online products have proven to be valuable and popular education materials. This assessment identified the need for standardized public access signage and developing criteria for scenic vista designation. Standardized signage and detailed access designations will help create seamless site-to-site connections.

Marine Debris

Section 309 Enhancement Objective: Reducing marine debris entering the nation's coastal and ocean environment by managing uses and activities that contribute to the entry of such debris. §309(a)(4)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, characterize the existing status and trends of marine debris in the state's coastal zone based on the best-available data.

Existing Status and Trends of Marine Debris in Coastal Zone

Source of Marine Debris	**Significance of Source** (H, M, L, unkwn)	**Type of Impact**[12] (aesthetic, resource damage, user conflicts, other)	**Change Since Last Assessment** (↑, ↓, –, unkwn)
Beach/shore litter	M-H, by site	Aesthetic, resource damage (habitat, wildlife, substrate), public health, water quality impairment, public safety	-
Land-based dumping	M-H, by site	Aesthetic, resource damage, public health, user conflicts (e.g. contractor violations)	-
Storm drains and runoff	M-H, by site and frequency/severity of storm events	Aesthetic, resource damage, public health, economic, public safety, and discharge from tributaries	-
Land-based fishing (e.g., fishing line, gear)	M-H	Aesthetic, resource damage (habitat, wildlife), water quality impairment, public safety, damage to boats and engines	↑
Ocean/Great Lakes-based fishing (e.g., derelict fishing gear)	L-M	Aesthetic, resource damage (habitat, wildlife), water quality impairment, public safety, damage to boats and engines	↑
Derelict vessels	M	Aesthetic, resource damage (habitat, wildlife), water quality impairment, public safety, damage to boats and engines	↑

[12] You can select more than one, if applicable.

Vessel-based (e.g., cruise ship, cargo ship, general vessel)	M	Aesthetic, resource damage, public health, economic, public safety	-
Hurricane/Storm	M-H	Aesthetic, resource damage, public health, economic, public safety	↑
Tsunami			-
Other (please specify) Microplastics	M-H	Resource damage (wildlife), public health	↑

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends or potential impacts from marine debris in the coastal zone since the last assessment.

Communities along Ohio's Lake Erie coast were impacted by record high water levels coupled with damaging winds, resulting in high wave energy impacts along the coast (namely 2018-2019). These impacts caused shoreline infrastructure, marina/boating resources, and land-based debris to dislodge into Lake Erie waters/onto beaches. Public safety and health are notable areas of concerns in consequence to this damage. An Ohio Sea Grant study completed in 2018 concluded that plastic cigar tips are the number one plastic debris item found along northeastern Ohio's coast (Hardy & Bartolotta 2018); social science surveys have been conducted in an attempt to quantify potential behavior change dictators for target audiences.

Abandoned fishing gear has also begun to gain further relevance in the Lake Erie region, identified as a top threat to Great Lakes wildlife – the majority of waterfowl intake at Lake Erie Nature and Science Center's Wildlife Rehabilitation are victims of discarded fishing items, especially monofilament fishing line, hooks, and lures – recent studies have revealed that over 55% of freshwater species observed to have expired due to debris were found to have evidence of having ingested fishing debris. Given Lake Erie's dependence on fishing as a major industry, these items are beginning to garner attention in the natural environment. Due to this relevance, a 2019 study examined the impacts marine debris on the economies of tourism-dependent coastal communities, including those of coastal Ohio. Monofilament fishing line can take up to 600 years to visibly disintegrate in the natural environment.

Derelict vessels have also made their way back into the limelight in the Great Lakes region; in 2016, the NOAA Marine Debris Program began to address questions regarding the disposal options of derelict vessels, particularly fiberglass boats. Engine builders, boatyards, and marinas have been presented with a problem that has not been effectively addressed to date.

Microplastics loads vary among beaches throughout the globe, but a 2016 study revealed the Great Lakes is one of the top two regions with the highest loading of microplastics, with Lake Erie fostering the second highest concentration out of the five Great Lakes (Chow et al. 2016; Hoffman & Hittinger 2016). This includes microbeads, microplastic fragments, and microfibers, all of which present a water quality concern and proven impact in regard to bioaccumulation.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) for how marine debris is managed in the coastal zone.

Significant Changes in Marine Debris Management

Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Marine debris statutes, regulations, policies, or case law interpreting these	Y	N	Y
Marine debris removal programs	Y	Y	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes and likely future outcomes of the changes.

    a. Microplastics: echoing the 2014 resolution by the Great Lakes Fisheries Commission that called for the prohibition of sales of plastic microbeads by 2015, this extended to federal law via the Microbead-Free Waters Act (Congress amendment to the Federal Food, Drug & Cosmetic Act), to include the prohibition of manufacture by July 2018, introduction/delivery into interstate commerce by July 2019, and all second-party sales by 2020 (i.e. made entirely unavailable for purchase). This is in regard to the bioaccumulation of microbeads up the food web, with potential impact to human health and public safety (source: https://www.fda.gov/cosmetics/cosmetics-laws-regulations/microbead-free-waters-act-faqs).

    Marine debris removal programs were also enhanced and reported in the completed NOAA Great Lakes Land-Based Marine Debris Action Plan (https://marinedebris.noaa.gov/great-lakes-land-based-marine-debris-action-plan). The Ohio Clean Marinas Program incorporated removal efforts into a tiered structure of their certification program for boaters and marinas; and ODNR Old Woman Creek National Estuarine Research Reserve also offered trainings and technical assistance for plastics reduction strategies, including dissemination of cigarette butt and monofilament fishing line recycling receptacles, reduction strategies workshops, and inlet protection devices for storm drains and active construction sites.

b. These were not 309 or other CZM-driven changes.

c. Ideally, these changes will lead to the elimination of microplastics in the Great Lakes environment, given that the culprit products are now prohibited from sales. Removal efforts will target those items most prevalent/threatening to Ohio's coastal environments (e.g. plastic cigar tips, cigarette butts, monofilament fishing line, and other single-use plastic items).

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High	_____
Medium	__X__
Low	_____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

   There are multiple stakeholders engaged in confronting marine debris impacts to coastal Ohio – the NOAA Great Lakes Marine Debris Program conducted a review of the May 2014-May 2019 Great Lakes Land-Based Marine Debris Action Plan in August 2019, soliciting feedback, updates, and planned initiatives on 51 different action strategies from the plan's multitude of partners, including Alliance for the Great Lakes, Great Lakes Sea Grant Network, Keep America Beautiful, municipal sustainability programs, National Estuarine Research Reserves, and the American Chemistry Council. On a finer scale, the Northern Ohio Plastics Reduction Working Group, coordinated by the City of Cleveland Mayor's Office of Sustainability, have solicited efforts from more regional partners, including Soil & Water Conservation Districts and the Northern Ohio Surfrider Foundation in Ohio's Lake Erie watershed. Efforts made and planned by these partners do not require immediate assistance via 309 funding.

   As the issues of discarded fishing gear, derelict vessels, microplastics, and marine debris resultant of increased storm intensity/water levels increased in priority since the last assessment, one particular area that could address at least 3 of the 4 increased priority issues, is the implementation of municipal trash trap systems. These systems are meant to prevent land-based debris from escaping in mass quantities to the marine environment, but require funding of expensive equipment, installation, and most importantly, long-term maintenance plans. Under well-planned circumstances, these systems have been proven to serve as both an effective marine debris removal method and educational piece for communities experiencing combined sewer overflows and noticeable aquatic trash (e.g.: http://stormwatersystems.com/stormx-netting-trash-trap/).

Cumulative and Secondary Impacts

Section 309 Enhancement Objective: Development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources. §309(a)(5)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. Using National Ocean Economics Program Data on population and housing,[13] please indicate the change in population and housing units in the state's coastal counties between 2012 and 2017. You may wish to add additional trend comparisons to look at longer time horizons as well (data available back to 1970), but at a minimum, please show change over the most recent five-year period data is available (2012-2017) to approximate current assessment period.

Trends in Coastal Population and Housing Units

	2012	2017	Percent Change (2012-2017)
Number of people	2,640,851	2,620,221	-0.78%
Number of housing units	1,244,128	1,248,500	0.35%

2. Using provided reports from NOAA's Land Cover Atlas,[14] please indicate the status and trends for various land uses in the state's coastal counties between 1996 and 2016. You may use other information and include graphs and figures, as appropriate, to help illustrate the information. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period that the data represent. Also note that Puerto Rico currently only has data for one time point so will not be able to report trend data. Instead, Puerto Rico should just report current land use cover for developed areas and impervious surfaces.

Data in the following table is for the 8 coastal counties, including the open water areas of Lake Erie in Ohio. The data was obtained from the National Land Cover Database (NLCD) 2011 and 2016 raster images. It should be noted that the NLCD categories of Pasture/Hay and Cultivated Crops were

[13] *www.oceaneconomics.org/Demographics/PHresults.aspx*. Enter "Population and Housing" section and select "Data Search" (near the top of the left sidebar). From the drop-down boxes, select your state, and "all counties." Select the year (2012) and the year to compare it to (2017). Then select "coastal zone counties."
[14] *www.coast.noaa.gov/digitalcoast/tools/lca.html*. Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state's coastal county data. The reports will be available after all of the 2016 data is available.

combined and reported in the table under Agriculture and similarly, the Deciduous Forest, Evergreen Forest, and Mixed Forest categories were combined and reported under Forested.

Distribution of Land Cover Types in Coastal Counties

Land Cover Type	Land Area Coverage in 2016 (Acres)	Gain/Loss Since 2011 (Acres)
Developed, High Intensity	40,025.83	729.42
Developed, Low Intensity	251,478.65	1,385.25
Developed, Open Space	214,102.37	-2,150.69
Grassland	20,384.38	-1,109.75
Scrub/Shrub	5,822.09	1,155.99
Barren Land	11,236.70	22.48
Open Water	2,324,117.42	-4,455.57
Agriculture	784,731.40	-652.08
Forested	447,643.41	-1,431.48
Woody Wetland	81,910.96	46.03
Emergent Wetland	42,548.93	4,207.73

3. Using provided reports from NOAA's Land Cover Atlas,[15] please indicate the status and trends for developed areas in the state's coastal counties between 1996 and 2016 in the two tables below. You may use other information and include graphs and figures, as appropriate, to help illustrate the information. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period the data represents. Also note that Puerto Rico currently only has data for one time point so will not be able to report trend data. Unless Puerto Rico has similar trend data to report on changes in land use type, it should just report current land use cover for developed areas and impervious surfaces.

The following data is the most recent data available from NOAA's Land Cover Atlas and was also reported in the Ohio Coastal Program Enhancement Plan Coastal Zone Management Act Section 309 Assessment and Strategy 2016 – 2020.

Development Status and Trends for Coastal Counties

	2006	2011	Percent Net Change
Percent land area developed	600,453.7 (20.6%)	617,162.0 (21.2%)	16,708.3 (2.8%)
Percent impervious surface area	195,976.0 (6.7%)	203,704.6 (7.0%)	7,728.6 (3.9%)

** Note: Islands likely have data for another time period and may only have one time interval to report. If so, only report the change in development and impervious surface area for the time period for which data are available. Puerto Rico does not need to report trend data.*

[15] www.coast.noaa.gov/digitalcoast/tools/lca.html. Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state's coastal county data. The reports will be available after all of the 2016 data is available.

How Land Use Is Changing in Coastal Counties

Land Cover Type	**Areas Lost to Development Between 2006-2011** (Acres)
Barren Land	803.5
Wetland	1,099.5
Open Water	412.8
Agriculture	11,326.8
Scrub/Shrub	323.4
Grassland	1,323.5
Forested	2,503.7

** Note: Islands likely have data for another time period and may only have one time interval to report. If so, only report the change in land use for the time period for which high-resolution C-CAP data are available. Puerto Rico and the Northern Mariana Islands do not report.*

4. Briefly characterize how the coastal shoreline has changed in the past five years due to development, including potential changes to shoreline structures such as groins, bulkheads and other shoreline stabilization structures, and docks and piers. If available, include quantitative data that may be available from permitting databases or other resources about changes in shoreline structures.

Construction of new and rehabilitation of existing shore protection and lake access structures has continued along Ohio's Lake Erie coast. From 2015 through 2019 Shore Structure permits have been authorized for the construction of 116 projects including revetments, seawalls, detached breakwaters, groins, piers, docks, and beach nourishment. Additionally, as a result of record high water levels, 163 temporary Shore Structure permits have been issued since May of 2018 approving the temporary construction of erosion control measures.

5. Briefly summarize the results of any additional state- or territory-specific data or reports on the cumulative and secondary impacts of coastal growth and development, such as water quality, shoreline hardening, and habitat fragmentation, since the last assessment.

Coastal Regulatory Database Updates: The OCMP utilized the coastal regulatory database to track the acres of beach and nearshore areas lost along Ohio's Lake Erie shore based on permitted projects. The database also tracks cubic yards of littoral material added to the system through beach nourishment activities.

Year	**Nearshore Area Lost (Acres)**	**Beach Area Lost (Acres)**	**Beach Nourishment (cubic yards)**	**Mitigation Sand (cubic yards)**
2015	104.34	0.08	948	446
2016	29.87	.05	0	7,320.60
2017	130.01	0.71	0	3,398
2018	9.83	0.28	24,540	9,098
2019	1.67	0.01	0	1,747
5-year Total	275.72	1.13	25,488	22,009.60

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state-level changes (positive or negative) in the development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources, since the last assessment.

Significant Changes in Management of Cumulative and Secondary Impacts of Development

Management Category	**Employed by State or Territory** (Y or N)	**CMP Provides Assistance to Locals that Employ** (Y or N)	**Significant Changes Since Last Assessment** (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	N	N
Guidance documents	Y	N	N
Management plans (including SAMPs)	Y	N	Y

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

Management plans (including SAMPs)
Please see the Ocean/Great Lakes Resources Management Characterization Q2: *Lake Erie Lakewide Action and Management Plan (LAMP) 2019-2023 Draft* and *U.S. Action Plan for Lake Erie 2018.*

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High _____
Medium __X__
Low _____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

When stakeholder input was solicited from networked state agencies on their enhancement area priorities, Cumulative and Secondary Impacts was among the top three. It is not surprising given that excessive nutrient runoff from agricultural uses and failing septic systems continue to exacerbate harmful algal blooms in Lake Erie. However, the Cumulative and Secondary Impacts enhancement area is a medium priority for the Ohio Coastal Management Program. Harmful algal blooms and nonpoint impacts are priority issues for Ohio and the OCMP and as such are the focus of an unprecedented

coordinated effort at the state level to identify and fund actions to address the sources of excess nutrients as well as to implement projects to help remove nutrients before they reach Lake Erie. Wetlands are a key component in this effort to address the nutrient issues with several initiatives underway to increase and enhance wetlands in both the coastal zone and in the watershed. The Ocean and Great Lakes Resources enhancement area encompasses many related resource and management issues and will serve to address the main Cumulative and Secondary Impacts enhancement objective.

Special Area Management Planning

Section 309 Enhancement Objective: Preparing and implementing special area management plans for important coastal areas. §309(a)(6)

The Coastal Zone Management Act defines a special area management plan (SAMP) as "a comprehensive plan providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies; standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographic areas within the coastal zone. In addition, SAMPs provide for increased specificity in protecting natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas, including those areas likely to be affected by land subsidence, sea level rise, or fluctuating water levels of the Great Lakes, and improved predictability in governmental decision making."

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, identify geographic areas in the coastal zone subject to use conflicts that may be able to be addressed through a SAMP. This can include areas that are already covered by a SAMP but where new issues or conflicts have emerged that are not addressed through the current SAMP.

Geographic Area	**Opportunities for New or Updated Special Area Management Plans** Major conflicts/issues
N/A	N/A

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of SAMPs since the last assessment.

   There is no applicable data for SAMPs in Ohio.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any significant state- or territory-level management changes (positive or negative) that could help prepare and implement SAMPs in the coastal zone.

Significant Changes in Special Area Management Planning

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
SAMP policies, or case law interpreting these	N	N	N
SAMP plans	Y	N	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

    High _____
    Medium _____
    Low __X__

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

    The OCMP funded one SAMP for the Mentor Marsh area more than a decade ago, but there has not been any interest in a SAMP at the local or state level since that time. The SAMP concept has been mentioned briefly in internal discussions over the past five years, but the creation of a new SAMP was not viewed as warranted for any areas in Ohio. It remains a low priority for this planning cycle.

Ocean and Great Lakes Resources

Section 309 Enhancement Objective: Planning for the use of ocean [and Great Lakes] resources. §309(a)(7)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. Understanding the ocean and Great Lakes economy can help improve management of the resources it depends on. Using Economics: National Ocean Watch (ENOW),[16] indicate the status of the ocean and Great Lakes economy as of 2015 (the most recent data) in the tables below. Include graphs and figures, as appropriate, to help illustrate the information. Note ENOW data are not available for the territories. The territories can provide alternative data, if available, or a general narrative, to capture the value of their ocean economy.

Status of Ocean and Great Lakes Economy for Coastal Counties (2015)

	All Ocean Sectors	Living Resources	Marine Construction	Ship & Boat Building	Marine Transportation	Offshore Mineral Extraction	Tourism & Recreation
Employment (# of Jobs)	*48,947*	*192*	*461*	*129*	*8,552*	*229*	*39,381*
Establishments (# of Establishments)	*2,624*	*43*	*43*	*10*	*238*	*55*	*2,235*
Wages (Millions of Dollars)	*1,200*	*6.1*	*27.6*	*5.5*	*467.0*	*11.8*	*665*
GDP (Millions of Dollars)	*2,500*	*31.5*	*53.5*	*16.5*	*776.4*	*117.9*	*1,500*

[16] www.coast.noaa.gov/digitalcoast/tools/enow.html. If you select any coastal county for your state, you are directed to various data displays for that county, In the upper left of the screen, click the "State" box, to the left of the county box so that the state name will be highlighted. Now the data will reflect statewide data for all of the state's coastal counties. Make sure "2015" is selected for the year (top right corner). You can then click through the sector types by selecting the icons along the top and the type of economic data (employment, wages, GDP, etc), by clicking through the icons on the left.

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2015)[17]

	All Ocean Sectors	Living Resources	Marine Construction	Ship & Boat Building	Marine Trans-portation	Offshore Mineral Extraction	Tourism & Recreation
Employment (# of Jobs)	*+5,522*	*-66*	*+20*	*-687*	*+1,195*	*-22*	*+5,082*
Establishments (# of Establishments)	*+496*	*+2*	*-2*	*-3*	*+30*	*+18*	*+451*
Wages (Millions of Dollars)	*+356.778*	*+0.065*	*+5.147*	*-23.089*	*+165.512*	*+0.215*	*+208.929*
GDP (Millions of Dollars)	*+674.591*	*+13.308*	*+9.294*	*-78.83*	*+165.913*	*+75.263*	*+489.642*

2. Understanding existing uses within ocean and Great Lakes waters can help reduce use conflicts and minimize threats when planning for ocean and Great Lakes resources. Using Ocean Reports[18], indicate the number of uses within ocean or Great Lakes waters off of your state. For energy uses (including pipelines and cables, see the "Energy and Government Facility Siting" template following). Add additional lines, as needed, to include additional uses that are important to highlight for your state. Note: The Ocean Reports tool does not include data for the Great Lakes states. Great Lakes states should fill in the table as best they can using other data sources.

Uses within Ocean or Great Lakes Waters

Type of Use	Number of Sites
Federal sand and gravel leases *(Completed)*	N/A
Federal sand and gravel leases *(Active)*	N/A
Federal sand and gravel leases *(Expired)*	N/A
Federal sand and gravel leases *(Proposed)*	N/A
Beach Nourishment Projects	
Great Lakes/Ocean Disposal Sites	7
Principle Ports *(Number and Total Tonnage)*	8 principle ports, 37,125 short tons from 9 harbors
Coastal Maintained Channels	8
Designated Anchorage Areas	1 Anchorage Basin in Rocky River
Danger Zones and Restricted Areas	Burke Lakefront Airport, Davis-Besse Nuclear Power Station, Perry Nuclear Power Plant, Camp Perry
Other (please specify)	

3. In the table below, characterize how the threats to and use conflicts over ocean and Great Lakes resources in the state's or territory's coastal zone have changed since the last assessment.

[17] The trend data is available at the bottom of the page for each sector and type of economic data. Mouse over the data points for 2005 and 2015 to obtain the actual values and determine the change by subtracting 2005 data from 2015.

[18] www.coast.noaa.gov/digitalcoast/tools/ort.html. Go to "Quick Reports" and select the "state waters" option for your state or territory. Some larger states may have the "Quick Reports" for their state waters broken into several different reports. Use the icons on the left hand side to select different categories: general information, energy and minerals, natural resources and conservation, oceanographic and biophysical, transportation and infrastructure, and economics and commerce. Then scroll through each category to find the data to complete the table.

Significant Changes to Ocean and Great Lakes Resources and Uses

Resource/Use	Change in the Threat to the Resource or Use Conflict Since Last Assessment (↑, ↓, –, unkwn)
Benthic habitat (including coral reefs)	-
Living marine resources (fish, shellfish, marine mammals, birds, etc.)	-
Sand/gravel	-
Cultural/historic	-
Other (please specify)	N/A
Transportation/navigation	-
Offshore development[19]	-
Energy production	-
Fishing (commercial and recreational)	-
Recreation/tourism	-
Sand/gravel extraction	-
Dredge disposal	-
Aquaculture	-
Other (please specify)	N/A

4. For the ocean and Great Lakes resources and uses in the table above that had an increase in threat to the resource or increased use conflict in the state's or territory's coastal zone since the last assessment, characterize the major contributors to that increase. Place an "X" in the column if the use or phenomenon is a major contributor to the increase.

Major Contributors to an Increase in Threat or Use Conflict to Ocean and Great Lakes Resources

	Land-based	Offshore developm	Polluted	Invasive species	Fishing (Comm	Aquacultur e	Recreation	Marine Transporta	Dredging	Sand/Mine ral	Ocean Acidificatio	Other (Specify)
Example: Living marine resources		*X*	*X*	*X*	*X*	*X*		*X*	*X*			
[Resource or Use from Table 2]												

5. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends of ocean and Great Lakes resources or threats to those resources since the last assessment to augment the national data sets.

An Assessment of the Impacts of Climate Change on the Great Lakes- Environmental Law and Policy Center

[19] Offshore development includes underwater cables and pipelines, although any infrastructure specifically associated with the energy industry should be captured under the "energy production" category.

According to the report, climate change has already had an impact on the Great Lakes region and the impacts will continue and expand as the rate of climate change increases. It is recommended that for economic, aesthetic, recreational, and ecological reasons, efforts should be continued to restore the Great Lakes to a healthy, unpolluted, and productive state in order to reduce the effects of climate change.

Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio 2018

The final environmental assessment for Project Icebreaker, an offshore wind advanced technology demonstration project in Lake Erie, concludes that the demonstration project would not result in major impacts to any resources and that there would not be population-level impacts to any biological resource.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if any significant state- or territory-level changes (positive or negative) in the management of ocean and Great Lakes resources have occurred since the last assessment?

Significant Changes to Management of Ocean and Great Lakes Resources

Management Category	**Employed by State or Territory** (Y or N)	**CMP Provides Assistance to Locals that Employ** (Y or N)	**Significant Changes Since Last Assessment** (Y or N)
Statutes, regulations, policies, or case law interpreting these	Yes	Yes	Yes
Regional comprehensive ocean/Great Lakes management plans	Yes	No	Yes
State comprehensive ocean/Great Lakes management plans	Yes	Yes	Yes
Single-sector management plans	Yes	Yes	Yes

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

<u>Statutes, regulations, policies, or case law interpreting these</u>

2015 Open-lake dumping ban

a. Prohibits dredged materials from Lake Erie harbors or any other navigation maintenance activities to be deposited into the lake after June 30, 2020.
b. The change will be implemented at the state level.
c. The expected outcome is to improve Lake Erie water quality by addressing potential impacts from dredged material. An additional outcome objective is the increased use of dredged material to create an economic value and eliminate the need to dispose of the material.

Healthy Lake Erie Initiative/Fund

a. An initial funding amount of $10 million was allocated in 2014 and an additional $10 million in 2018 to identify and develop alternate uses and identify additional disposal locations for dredge material previously disposed of through open-lake placement into Lake Erie.
b. The change will be implemented at the state level.
c. The expected outcome is the same as for the 2015 open-lake dumping ban listed above.

<u>Regional comprehensive ocean/Great Lakes management plans</u>

Lake Erie Lakewide Action and Management Plan (LAMP) 2019-2023 Draft

a. Draft Lake Erie LAMP updated binational strategy focused on restoring and protecting the water quality of Lake Erie as part of the Great Lakes Water Quality Agreement.
b. The change will be implemented at the regional level.
c. The expected outcome is that strategies and actions will be identified to address harmful/nuisance algal blooms and to protect and conserve the native biodiversity of Lake Erie.

2019 Great Lakes Restoration Initiative (GLRI) Action Plan III Draft

a. Draft updated plan to guide the next phase of the GLRI launched in 2010. The purpose of the GLRI is to foster federal agency coordination and provide focused resources to target threats to the Great Lakes ecosystem in support of the Great Lakes Water Quality Agreement.
b. The change will be implemented at the bi-national and regional level.
c. Expected outcomes are the continued implementation of protection and restoration projects to improve water quality, protect and restore native habitat and species, prevent and control invasive species, address other Great Lakes environmental problems.

U.S. Action Plan for Lake Erie 2018

a. The Plan identifies federal and state commitments and a strategy to achieve binational phosphorus reduction targets adopted under the Great Lakes Water Quality Agreement.
b. The change will be implemented at the regional level.
c. The expected outcome is that federal and state partners and stakeholders will be able to measure and track progress in meeting the phosphorus reduction targets in Lake Erie.

<u>State comprehensive ocean/Great Lakes management plans</u>

2020 Lake Erie Protection and Restoration Plan

a. The Plan describes Ohio's priorities and strategic direction for Lake Erie and its watershed over the next several years to protect, preserve and restore Lake Erie.
b. The change will be implemented at the state level.
c. The expected outcome is for the various state agencies, coordinated through the Ohio Lake Erie Commission, to work towards established environmental, recreational and economic goals.

Single-sector management plans

2019 Lake Erie Grass Carp Adaptive Response Strategy 2019-2023

a. The Strategy will guide interagency efforts of senior fisheries managers from Michigan, New York, Ohio, the province of Ontario and Pennsylvania.
b. The change will be implemented at the regional level.
c. The expected outcome is to attain the goal of preventing Grass Carp from achieving densities capable of adversely affecting vegetated habitats, ecosystem functions, and associated fish communities in Lake Erie.

Ohio Domestic Action Plan 2020 Draft

a. The Plan outlines strategies and implementation actions that will advance state efforts toward the proposed nutrient reduction targets put forth in the Great Lakes Water Quality Agreement under Annex 4 (Nutrients).
b. The change will be implemented at the state level.
c. The expected outcome is progress toward improved Lake Erie water quality that will be achieved by employing an adaptive management approach to reduce phosphorus and other nutrients.

3. Indicate if your state or territory has a comprehensive ocean or Great Lakes management plan.

Comprehensive Ocean/Great Lakes Management Plan	**State Plan**	**Regional Plan**
Completed plan (Y/N) (If yes, specify year completed)	Yes (2020)	Yes
Under development (Y/N)	No	Yes
Web address (if available)	https://lakeerie.ohio.gov/LakeEriePlanning/LakeErieProtectionandRestorationStrategy.aspx	glri.us
Area covered by plan	Ohio portion of Lake Erie Watershed	Great Lakes Basin (US)

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High __X__
Medium _____
Low _____

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

The Ocean/Great Lakes Resources enhancement area has been given a high priority due to the need for coordinated planning to address the use, protection and preservation of Great Lakes Resources.

Stakeholder input received from networked state agencies identified Great Lakes Resources as one of the top 4 enhancement area priorities citing an emerging global sand shortage and the need for better characterization of where sand resources are in and near Lake Erie and to begin a dialogue on balancing sand resource use and protection.

Ocean and Great Lakes Resources II

In-Depth Resource Characterization:
Purpose: To determine key problems and opportunities to enhance the ability of state CMP to better address ocean and Great Lakes resources.

1. What are the three most significant existing or emerging stressors or threats to ocean and Great Lakes resources within your coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone, or are specific areas most threatened? Stressors can be land-based development; offshore development (including pipelines, cables); offshore energy production; polluted runoff; invasive species; fishing (commercial and/or recreational); aquaculture; recreation; marine transportation; dredging; sand or mineral extraction; ocean acidification; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	Stressor/Threat	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Stressor 1	**Habitat Degradation/Impaired Water Quality** (Nutrients, marine debris, storm run-off, sewage wastewater, dredge management issues)	throughout coastal zone
Stressor 2	**Climate Change** (Impacts from the lack of comprehensive planning to identify and protect resources while adapting to changing weather patterns and fostering resilient infrastructure.)	throughout coastal zone
Stressor 3	**Invasive Species** (includes Asian Carp threat as well as zebra and quagga mussels, round goby, sea lamprey, phragmites, pathogens, etc.)	throughout coastal zone

2. Briefly explain why these are currently the most significant stressors or threats to ocean and Great Lakes resources within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

   a. **Stressor 1 – Habitat Degradation/Impaired Water Quality:** Habitat degradation/impaired water quality continues to be a major stressor to Lake Erie coastal resources. The degradation is exacerbated by nutrient impairment, resulting largely from excessive dissolved reactive phosphorus, leading to harmful algal blooms throughout the coastal zone and particularly in the western basin of Lake Erie. The magnitude of this threat is such that phosphorus is the primary focus of the 2018 U.S. Action Plan for Lake Erie. While sturgeon are experiencing a revival in Lake Erie thanks to the efforts of the Maumee River Sturgeon Recovery Group, habitat degradation persists in wetlands due to development, fragmentation, and other factors such as invasive species.

   b. **Stressor 2 – Climate Change:** The impacts of changing climate can potentially result in impacts to native flora and fauna by making conditions better suited to invasive species and harmful algal

blooms and by physically impacting Lake Erie through more intense water level fluctuations, changes in the amount of winter ice cover, and variable storm frequency, intensity, timing and duration. These physical changes can stress aging infrastructure, increase volumes of nonpoint source pollution, and increase the number of combined sewer overflow events.

c. **Stressor 3 – Invasive Species:** Aquatic invasive species such as the Asian Carp pose a threat to the Lake Erie ecosystem. Bighead and silver carp are a dire threat to Lake Erie's $12.9 billion annual tourism industry because they out compete native fish for food. Lake Erie has the largest fish population of all the Great Lakes despite being the smallest by volume. The Lake Erie sport fishery is a more than $1 billion industry in Ohio. The industries most acutely impacted by invasive species include sport and commercial fishing, water treatment, power generation, industrial facilities using surface water, and tourism. The tourism and recreation industries in Ohio alone employ more than 40,000 workers. Invasive species already present in the Great Lakes, such as zebra and quagga mussels, round goby, sea lamprey, etc., also continue to impact food webs, the ecosystem and the economy. Terrestrial invasive species such as phragmites and Flowering Rush also continue to be a stressor for coastal wetlands.

3. Are there emerging issues of concern, but which lack sufficient information to evaluate the level of the potential threat? If so, please list. Include additional lines if needed.

Emerging Issue	Information Needed
Per- and polyfluoroalkyl substances (PFAS) in drinking water	PFAS testing of Ohio public water systems

In-Depth Management Characterization:
Purpose: To determine the effectiveness of management efforts to address identified problems related to the ocean and Great Lakes resources enhancement objective.

1. For each of the additional ocean and Great Lakes resources management categories below that were not already discussed as part of the Phase I assessment, indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) have occurred since the last assessment.

Significant Changes in Management of Ocean and Great Lakes Resources

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Ocean and Great Lakes research, assessment, monitoring	Y	Y	N
Ocean and Great Lakes GIS mapping/database	Y	Y	N

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Ocean and Great Lakes technical assistance, education, and outreach	Y	Y	N
Other (please specify)	N	N	N

2. For management categories with significant changes since the last assessment, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information.
    a. Describe significant changes since the last assessment;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's or territory's management efforts in planning for the use of ocean and Great Lakes resources since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state's or territory's management efforts?

    A 2019 Journal of Great Lakes Research commentary by Dave Baker et al suggests early-term adjustments are needed for Lake Erie phosphorus target loads in order to more effectively address the western basin cyanobacterial blooms.

Identification of Priorities:

1. Considering changes in threats to ocean and Great Lakes resources and management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve its ability to effectively plan for the use of ocean and Great Lakes resources. *(Approximately 1-3 sentences per management priority.)*

    *Management Priority 1: _Compilation of Existing Resource Information for Decision-making_*

    Description: An opportunity exists to compile data from the geospatial database of shore conditions developed previously with data from other inventories and assessments of coastal resources and infrastructure into a planning tool to better inform regulatory and policy decision making processes.

    Management Priority 2: _ Sand Resource Identification_____

    Description: An opportunity exists to characterize existing coastal sand resources- location, grain size, volume, etc. and to evaluate existing management policies. Assessing current sand resources and management policies will improve the CMP's ability to effectively plan for the protection and use of sand in along Lake Erie in light of the global sand shortage.

2. Identify and briefly explain priority needs and information gaps the CMP has to help it address the management priorities identified above. The needs and gaps identified here do not need to be limited to those items that will be addressed through a Section 309 strategy but should include any items that will be part of a strategy.

Priority Needs	**Need?** (Y or N)	**Brief Explanation of Need/Gap**
Research	Y	A current and accurate assessment of sand resources along Lake Erie and evaluation of sand management policies is needed.
Mapping/GIS	Y	Develop interactive GIS mapping application to support coastal resiliency planning.
Data and information management	N	
Training/Capacity building	Y	OCMP regulatory review process
Decision-support tools	N	
Communication and outreach	N	
Other (specify)		

Enhancement Area Strategy Development:

1. Will the CMP develop one or more strategies for this enhancement area?
   Yes __X___
   No _____

2. Briefly explain why a strategy will or will not be developed for this enhancement area.

A strategy will be developed for the Ocean and Great Lakes Resources enhancement area that will enable the CMP to more readily access and relay available information on coastal resources subject to climate change impacts, impaired water quality, habitat degradation, and invasive species. This will further the CMP's ability to plan for the use and protection of sand resources, assess the effectiveness of wetland restoration efforts, refine the regulatory decision-making process and plan for additional studies and enhancement projects to increase coastal resiliency.

Energy & Government Facility Siting

Section 309 Enhancement Objective: Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and Government facilities and energy-related activities and Government activities which may be of greater than local significance. §309(a)(8)[20]

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, characterize the status and trends of different types of energy facilities and activities in the state's or territory's coastal zone based on best-available data. If available, identify the approximate number of facilities by type. For ocean-facing states and territories (not Great Lakes states), Ocean Reports[21] includes existing data for many of these energy facilities and activities.

Status and Trends in Energy Facilities and Activities in the Coastal Zone

Type of Energy Facility/Activity	Exists in Coastal Zone (# or Y/N)	Change in Existing Facilities/Activities Since Last Assessment (↑, ↓, –, unkwn)	Proposed in Coastal Zone (# or Y/N)	Change in Proposed Facilities/Activities Since Last Assessment (↑, ↓, –, unkwn)
Pipelines	Y	unkwn	N	unkwn
Electrical grid (transmission cables)	Y	unkwn	Y	-
Ports	8	-	N	-
Liquid natural gas (LNG)	N	-	N	-
Other (please specify)				
Oil and gas	N	-	N	↓
Coal	Y	-	N	↓
Nuclear	2	-	N	-

[20] CZMA § 309(a)(8) is derived from program approval requirements in CZMA § 306(d)(8), which states:
"The management program provides for adequate consideration of the national interest involved in planning for, and managing the coastal zone, including the siting of facilities such as energy facilities which are of greater than local significance. In the case of energy facilities, the Secretary shall find that the State has given consideration to any applicable national or interstate energy plan or program."
NOAA regulations at 15 C.F.R. § 923.52 further describe what states need to do regarding national interest and consideration of interests that are greater than local interests.

[21] *www.coast.noaa.gov/digitalcoast/tools/ort.html*. Select "Quick Reports" and then enter your state. Select the Quick Reports for "coastal waters" off of your state. Depending on the size of the state, there may be more than one "coastal waters". If so, you will need to add the data from all reports to complete the table. Click on the wind turbine icon on the left ("Energy and Minerals") for information on energy facilities. While outside your coastal zone, you may also want to consider facilities/activities in "Federal Waters" that may have effects on your coastal zone.

Wind	N	-	Y	-
Wave	N	-	N	-
Tidal	N	-	N	-
Current (ocean, lake, river)	N	-	N	-
Hydropower	N	-	N	-
Ocean thermal energy conversion	N	-	N	-
Solar	N	-	N	-
Biomass	N	-	N	-
Other (please specify)				

2. If available, briefly list and summarize the results of any additional state- or territory-specific information, data, or reports on the status and trends for energy facilities and activities of greater than local significance in the coastal zone since the last assessment.

   As stated in the previous 309 Assessment, $3 million in federal funding awarded in 2014 through the US Department of Energy Wind and Water Power Program for U.S. Offshore Wind Advanced Technology Demonstration Projects has been made available for a pilot project approximately seven (7) miles offshore of Cleveland. The continued momentum of the pilot project since the last 309 Assessment keeps the need to have specific rules for submerged lands authorizations and associated resource monitoring work a moderate priority.

   In 2008, Ohio passed Senate Bill 221 that resulted in Ohio's Advanced Energy Portfolio. This Ohio law (Revised Code Section 4928.64) required electric distribution utilities and electric services companies to secure a portion of their electricity supplies from alternative energy resources. By the year 2025, 25 percent of the electricity sold by each utility or electric services company within Ohio was to be generated from alternative energy sources. At least 12.5 percent was to be generated from renewable energy resources, including wind, hydro, biomass and at least 0.5 percent solar. The remainder could be generated from advanced energy resources, including nuclear, clean coal and certain types of fuel cells. In addition, at least one half of the renewable energy used was to be generated at facilities located in Ohio. All companies were to meet annual renewable and solar energy benchmarks that increase as a percentage of electric supply each year.

   In 2014, Ohio enacted legislation that froze, for two years, the energy efficiency and renewable energy standards in the state's 2008 energy law. The legislation also created an Energy Mandates Study Committee to review the energy efficiency and renewable energy provisions of the 2008 energy law and to make recommendation for improvements.

   In July 2019, Ohio passed House Bill 6 that will lower the renewable portfolio standard (RPS) to 8.5% by 2026 and then eliminate it thereafter. The mandates to achieve energy efficiency have also been eliminated. In addition, the bill includes a new surcharge for ratepayers that will provide subsidies for existing solar energy projects, two northern Ohio nuclear plants (located within the coastal zone), and two coal-fired power plants.

3. Briefly characterize the existing status and trends for federal government facilities and activities of greater than local significance[22] in the state's coastal zone since the last assessment.

There have not been any significant changes in the types or number of government facilities sited in the coastal zone since the previous assessment.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if significant state- or territory-level changes (positive or negative) that could facilitate or impede energy and government facility siting and activities have occurred since the last assessment.

Significant Changes in Energy and Government Facility Management

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	N	Y
State comprehensive siting plans or procedures	Y	N	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

Please see reference under Resource Characterization: section 2 above.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

High _____
Medium __X__
Low _____

Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

The Energy and Government Facility Siting enhancement area level of priority is medium due to the

[22] The CMP should make its own assessment of what Government facilities may be considered "greater than local significance" in its coastal zone, but these facilities could include military installations or a significant federal government complex. An individual federal building may not rise to a level worthy of discussion here beyond a very cursory (if any at all) mention).

continued momentum of the proposed pilot offshore wind project. While this enhancement area was not one of the top five priorities identified from the stakeholder input, facilitation of outreach efforts related to wind energy production and community engagement was highlighted as an opportunity for the OCMP to encourage the sustainable use of this resource through guidance and permitting.

Aquaculture

Section 309 Enhancement Objective: Adoption of procedures and policies to evaluate and facilitate the siting of public and private aquaculture facilities in the coastal zone, which will enable states to formulate, administer, and implement strategic plans for marine aquaculture. §309(a)(9)

PHASE I (HIGH-LEVEL) ASSESSMENT: *(Must be completed by all states and territories.)*
Purpose: To quickly determine whether the enhancement area is a high-priority enhancement objective for the CMP that warrants a more in-depth assessment. The more in-depth assessments of Phase II will help the CMP understand key problems and opportunities that exist for program enhancement and determine the effectiveness of existing management efforts to address those problems.

Resource Characterization:

1. In the table below, characterize the existing status and trends of aquaculture facilities in the state's coastal zone based on the best-available data. Your state Sea Grant Program may have information to help with this assessment.[23]

Status and Trends of Aquaculture Facilities and Activities

Type of Facility/Activity	Number of Facilities[24]	Approximate Economic Value	Change Since Last Assessment (↑, ↓, –, unkwn)
State Fish Hatchery	**2** facilities in Lake Erie Watershed; **0** in the Coastal Zone	Unkwn	– No change
Aquaculture farms, total in the eight coastal counties, 2017 (*see individual fish farms below*)	**8** facilities	Approx. value in report withheld to avoid disclosing data for individual farms	↓ 3 since 2012
Catfish farms	**1** facility in Erie County (2017)	Approx. value in report withheld to avoid disclosing data for individual farms	– No overall change since 2012 ↑ 1 in Erie County since 2012 ↓ 1 in Ashtabula County since 2012
Trout farms	**3** facilities in Erie County (2017)	Approx. value in report withheld to avoid disclosing	↑ 1 in Erie County since 2012

[23] While focused on statewide aquaculture data rather than just within the coastal zone, the *Census of Aquaculture* (*www.agcensus.usda.gov/Publications/Census_of_Aquaculture/)* may help in developing your aquaculture assessment. The census is conducted every 10 years and the last report was released in 2013. The report provides a variety of state-specific aquaculture data to understand current status and recent trends.
[24] Be as specific as possible. For example, if you have specific information of the number of each type of facility or activity, note that. If you only have approximate figures, note "more than" or "approximately" before the number. If information is unknown, note that and use the narrative section below to provide a brief qualitative description based on the best information available.

		data for individual farms	
Baitfish farms	**1** facility in Ottawa County (2017)	Approx. value in report withheld to avoid disclosing data for individual farms	↓ 2 since 2012 (both in Ashtabula County)
Sport or game fish farms	**2** facilities (1 in Erie County, 1 in Lucas County) (2017)	Approx. value in report withheld to avoid disclosing data for individual farms	– No overall change since 2012 ↑ 1 in Erie County since 2012 ↑ 1 in Lucas County since 2012 ↓ 1 in Ashtabula County since 2012 ↓ 1 in Lorain County since 2012
"Other" food fish farms	**1** facility in Ashtabula County (2017)	Approx. value in report withheld to avoid disclosing data for individual farms	↑ 1 since 2012
Crustacean farms	**0** facilities in the coastal counties (2017)	n/a	↓ 1 since 2012 (Lucas County)
Ornamental fish farms	**0** facilities in the coastal counties (2017)	n/a	↓ 1 since 2012 (Lake County)

2. If available, briefly list and summarize the results of any additional state- or territory-specific data or reports on the status and trends or potential impacts from aquaculture activities in the coastal zone since the last assessment.

According to the 2017 Census of Agriculture, conducted by the U.S. Department of Agriculture, National Agricultural Statistics Service, 181 aquaculture farms in Ohio sold nearly $9.3 million of catfish, trout, baitfish, crustaceans, mollusks, sport/game fish, ornamental fish or other products in 2017. Within Ohio's eight coastal counties, three farms raised trout, two raised sport/game fish, one raised catfish, one raised baitfish and one raised "other" food fish (2017). It is not known if these farms are in the coastal zone. The approximate economic value of aquaculture in the coastal counties is not determinable because commercial information was withheld in the report to avoid disclosing individual farm data. Since the last agriculture census (2012), the total economic value of products sold at Ohio's 149 aquaculture farms increased about 149 percent.

According to the Ohio Department of Natural Resources (ODNR) Division of Wildlife, there are 47 licensed fish propagators in Ohio, none of which are in the coastal counties.

The ODNR Division of Wildlife operates six state fish hatcheries, including the Castalia and St. Marys hatcheries in the Lake Erie Watershed. Castalia State Fish Hatchery is in Erie County, one of Ohio's eight coastal counties. St. Marys State Fish Hatchery is in Auglaize County near the Lake Erie-Ohio River watershed divide. Other state fish hatcheries throughout Ohio include Hebron (Licking County), Senecaville (Guernsey County), London (Madison County) and Kincaid (Pike County). Castalia State Fish Hatchery raises all of Ohio's steelhead production. Rainbow trout are also raised to catchable size and

stocked in Ohio's inland lakes and in the Cold Creek in western Erie County. The St. Marys State Fish Hatchery raises saugeye, walleye, yellow perch, channel catfish and blue catfish.

Management Characterization:

1. Indicate if the approach is employed by the state or territory and if there have been any state- or territory-level changes (positive or negative) that could facilitate or impede the siting of public or private aquaculture facilities in the coastal zone.

Significant Changes in Aquaculture Management

Management Category	**Employed by State or Territory** (Y or N)	**CMP Provides Assistance to Locals that Employ** (Y or N)	**Significant Changes Since Last Assessment** (Y or N)
Aquaculture comprehensive siting plans or procedures	Y	N	N
Other aquaculture statutes, regulations, policies, or case law interpreting these	Y	N	N

2. For any management categories with significant changes, briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
    a. Describe the significance of the changes;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?

    High _____
    Medium _____
    Low __X__

2. Briefly explain the reason for this level of priority. Include input from stakeholder engagement, including the types of stakeholders engaged.

    While Ohio does have an active aquaculture industry, the scope of this industry within the coastal area is limited and aquaculture is not undertaken in coastal waters.

IV. Strategy

Coastal Resources and Resiliency

I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas *(check all that apply)*:

- ☐ Aquaculture
- ☐ Energy and Government Facility Siting
- ☒ Coastal Hazards
- ☒ Ocean/Great Lakes Resources
- ☐ Special Area Management Planning
- ☒ Cumulative and Secondary Impacts
- ☐ Wetlands
- ☐ Marine Debris
- ☐ Public Access

II. Strategy Description

A. The proposed strategy will lead to, or implement, the following types of program changes *(check all that apply):*

☐ A change to coastal zone boundaries;

☒ New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;

☐ New or revised local coastal programs and implementing ordinances;

☐ New or revised coastal land acquisition, management, and restoration programs;

☐ New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,

☒ New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

B. ***Strategy Goal:*** Continue development of information that facilitates more effective technical assistance to stakeholders and reviews of leasing and/or permitting among State, Federal, and local authorities.

C. The strategy will include the continued collection and development of a geospatial database of existing shoreline conditions, research on the relationships between shoreline alterations, nearshore ecosystems, dredging activities and sand resources, and mapping of coastal erosion.

The database, research findings and erosion mapping will be combined to develop the following:

- Insights into the effectiveness of different types of erosion control measures under varying site conditions;
- Regionally based recommendations for specific types of activity such as beneficial use of dredge material, shore protection, habitat restoration, or offshore infrastructure projects;

- Revisions to regulatory procedures for reviewing applications for Shore Structure Permits and Submerged Lands Authorizations with regard to promoting enhancement of shoreline and nearshore habitat, minimizing the potential impact of groins and detached breakwaters on the littoral system and encouraging the use of soft structures and native vegetation, including dunes and aquatic vegetation; and
- Educational materials promoting nearshore habitat enhancements and sand management practices.

III. Needs and Gaps Addressed

This strategy focuses on the need for existing shoreline conditions information and relationships between shoreline conditions (natural or modified) and both habitat and sand resources. An inventory of shoreline structures and shore type combined with the development of correlative relationships is needed to assess regional conditions and identify locations for future studies or enhancement projects.

Additionally, the planned shoreline condition inventory will be a tool that provides coastal managers with the ability to connect regulatory records and resource management data geospatially to assist with characterization of the shore on site specific and regional levels to be used in making regulatory and planning decisions.

Coastal erosion mapping during 2024-2025 along with imagery anticipated to be acquired in 2020 (high water levels) will provide an important comparison of erosion rates under varying water levels. Erosion mapping will be compared to previous mapping using 2004, 2015 base aerial imagery (average water levels).

IV. Benefits to Coastal Management

Through completion of the strategy the Office of Coastal Management will obtain needed information to support regulatory and policy decisions regarding the impacts to habitat and sand resources from shoreline modifications as well as with consideration to varying water levels.

V. Likelihood of Success

This strategy will build on work previously completed by the Ohio Coastal Management Program which has demonstrated the Program's commitment to the importance of sand resources, coastal habitat, and impacts of coastal erosion. Changes to regulatory and policy decision making processes based on information collected and centralized as part of this strategy are likely.

VI. Strategy Work Plan

Strategy Goal: Evaluate shoreline conditions and assess the interrelationship between shoreline alterations, nearshore ecosystems and sand resources in order to revise regulatory procedures to promote shoreline and nearshore habitat, sustainable sand management and facilitate resilient communities and Lake Erie resources. The goal of this programmatic enhancement is to collect and analyze nearshore assessment data to identify shoreline characteristics that support and maintain natural coastal habitats and processes. The current regulatory process does not include provisions to evaluate habitat enhancements as part of the Shore Structure Permit or Submerged Lands Lease application review processes. The OCMP will

use a scenario-based approach to identify critical regulatory processes, authorities, and review requirements necessary to implement coastal and nearshore habitat enhancement/ restoration strategies within Ohio's designated Coastal Area. Data on shoreline characteristics will then be systematically incorporated into the new regulatory framework resulting in specific recommendations for new administrative rules and policies to be implemented by the Ohio Coastal Management Program.

Total Years: 5
Total Budget: $484,000

Year(s): 1-3 (FY21 – FY23)
Description of activities: Data collection and development of geospatial database of shore conditions including shore type, shore structures (type, effectiveness, age), sand resources, vegetation, etc.
Major Milestone(s): Shore line type, structures, and presence of vegetation inventoried; Additional data related to structures added; Information incorporated into regulatory review process.
Budget: $120,000

Year(s): 1-3 (FY21 – FY23)
Description of activities: Study relationships between shoreline alteration, sand migration, habitat, and erosion.
Major Milestone(s): Completion of study; Completion of education materials; Updated review procedures to incorporate findings.
Budget: $130,000

Year(s): 4-5 (FY24 – FY25)
Description of activities: Collect and process aerial imagery and continue study of erosion rates, shoreline use and characteristics along the shore of Lake Erie.
Major Milestone(s): Completion of study; Completion of education materials; Updated review procedures to incorporate findings.
Budget: $234,000

VII. Fiscal and Technical Needs

A. Fiscal Needs: 309 funds will be used for internal staff and for contracting with outside entities as needed for the three year-long efforts. Both State and 306 funds will be used to support related efforts.

B. Technical Needs: The proposed strategy will be completed in partnership with the staff from partner agencies. Outside resources may be needed for specialized tasks.

VIII. Projects of Special Merit (Optional)

N/A

Public Access Enhancement

I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas *(check all that apply)*:

- ☐ Aquaculture
- ☐ Energy and Government Facility Siting
- ☐ Coastal Hazards
- ☐ Ocean/Great Lakes Resources
- ☐ Special Area Management Planning
- ☐ Cumulative and Secondary Impacts
- ☐ Wetlands
- ☐ Marine Debris
- ☒ Public Access

II. Strategy Description

A. The proposed strategy will lead to, or implement, the following types of program changes *(check all that apply):*

☐ A change to coastal zone boundaries;

☐ New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;

☐ New or revised local coastal programs and implementing ordinances;

☐ New or revised coastal land acquisition, management, and restoration programs;

☐ New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,

☒ New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management. Semantics

B. ***Strategy Goal:*** Work with coastal communities to develop a set of criteria to officially designate scenic Lake Erie vista points and develop standardized Lake Erie public access wayfinding signage.

C. The proposed strategy is twofold but collectively aims to connect residents and visitors to Lake Erie's publicly accessible recreation and scenic overlook sites. Through partnerships with coastal communities and land managers, the strategy will require a comprehensive assessment of all existing public access sites (and identification of additional sites, if any). Development of designated scenic vista criteria will help promote, protect and enhance Lake Erie viewsheds and the aesthetic character of visual resources. The development and installation of standardized signage as uniformly recognizable symbols to indicate public access will help promote and enhance recreational and scenic accesses to Lake Erie and increase public awareness of where lakefront sites exist. Furthermore, recognizable and standardized signage will by and large connect public access locations, scenic vistas and waypoints across Ohio's 312-mile coast.

III. Needs and Gaps Addressed

The inability to objectively verify the number of designated scenic vistas/overlook points in the coastal zone currently presents a gap. The total number of scenic vista sites listed in this assessment—and in previous assessments—is a subjective value based on aesthetic and geographic

characteristics, not official, measurable criteria. Developing a standardized method to classify scenic vistas/overlook sites will address this gap. Contracting work to a third-party consultant is a priority need in order to complete this strategy.

IV. Benefits to Coastal Management

Completion of this strategy will establish a baseline for the Ohio Coastal Management Program to identify the total number of designated scenic vistas/overlook points in the coastal zone and effectively document changes or trends in future assessments. The classification of scenic overlook vistas, along with the development and installation of standardized public access signage, will strengthen local and regional connections to Lake Erie and enhance public access awareness, which is a shared objective outlined in the goals of many coastal community comprehensive plans.

V. Likelihood of Success

Development of a measurable set of criteria to formally designate scenic vistas during the five-year assessment cycle is very likely. The Ohio Coastal Management Program maintains a robust public access inventory and GIS, which will assuredly aid in the designation process. Regarding access site and wayfinding signage, there are unknown variables that could potentially impede the full implementation of this goal, including lack of community buy-in, development costs, and stringent signage ordinances. Community support and active involvement is a key component to the success of this strategy.

VI. Strategy Work Plan

Strategy Goal: Work with coastal communities to develop a set of criteria to officially designate scenic Lake Erie vista points and develop standardized Lake Erie public access wayfinding signage.

Total Years: 3
Total Budget: $101,000

Year(s): 1 (FY21)
Description of activities: Work with interested/relevant agencies and organizations to develop measurable criteria for designating scenic vista overlook points and identify qualifying sites.
Major Milestone(s): Official scenic vista designation defined; qualifying sites identified and inventoried.
Budget: $27,000

Year(s): 2-3 (FY22 – FY23)
Description of activities: Work with coastal communities, land managers and consulting group to study feasibility of creating standardized Lake Erie public access and wayfinding signage; work with consulting group to research other state coastal access signage programs to learn about their approach, implementation process, funding, standards, etc.; research and initiate signage design; and identify criteria/regulations for signage placement; work with coastal communities, land managers and consulting group to identify marketing partnerships for outreach once signage is established; work with coastal communities, land managers and consulting group to finalize public access signage design; work with coastal communities, land managers and consulting group to implement standardized Lake Erie public access and wayfinding signage.

Major Milestone(s): Completion of feasibility study; finalize signage design/artwork; criteria/regulations for signage placement; implement standardized signage.
Budget: $74,000

VII. Fiscal and Technical Needs

A. Fiscal Needs: 309 funds will be used for internal staff and for contracting with outside entities as needed for the three-year-long effort.

B. Technical Needs: The proposed strategy will be completed in partnership with staff from partnering communities and agencies. Outside resources may be used for specialized tasks.

VIII. Projects of Special Merit (Optional)

N/A

5-Year Budget Summary by Strategy

Strategy Title	Anticipated Funding Source (309 or Other)	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total Funding
Coastal Resources and Resiliency	309	$90,000	$80,000	$80,000	$117,000	$117,000	$484,000
Public Access Enhancement	309	$27,000	$37,000	$37,000			$101,000
Total Funding		**$117,000**	**$117,000**	**$117,000**	**$117,000**	**$117,000**	**$585,000**

V. Summary of Stakeholder and Public Comment

The Ohio Coastal Management Program requested input at the beginning of the assessment and strategy development process from the divisions and agencies represented on the Integrated Management Team (IMT) and the Policy Planning Committee (PPC), as networked partners in the OCMP, to gather feedback on what they felt are the priority enhancement areas for Ohio's coastal zone, the critical problems related to those priority areas, and the greatest opportunities for the OCMP to strengthen and enhance its program to more effectively address those problems.

The group members provided stakeholder input regarding 309 priorities. Based on a discussion at the October 3, 2019 IMT/PPC meeting and individual stakeholder survey responses received, the top three priorities identified were 1) Wetlands, 2) Coastal Hazards, and 3) Cumulative and Secondary Impacts. Other enhancement areas acknowledged were Ocean/Great Lakes Resources, Public Access, Marine Debris, Special Area Management Planning, and Energy and Governmental Facility Siting.

1) Wetlands

Greatest Problems:

Site criteria and availability for restoration, enhancement, creation; High Great Lakes water levels; Wetland loss due to development; Lack of guidance on enhancement, mitigation banking; Public relations and education on benefits of wetlands; Lack of research on nutrient reduction efficiencies for coastal wetlands; Existing wetlands (public and private) managed for vegetative diversity and habitat - not water retention or nutrient reduction and therefore may not be effective at addressing State water quality goals; High cost of in-water and flow-through wetland restoration/creation projects due to the application of inappropriate engineering design criteria; Lack of long-term funding to manage, maintain, and monitor newly restored or created wetlands.

Greatest Opportunities:

Grants to incentivize conservation easements and projects; Develop public-private partnerships to fund wetland restoration and long-term wetland management/maintenance; OCMP working with other ODNR divisions to provide technical and management guidance to wetland property owners; Maximize and leverage H2Ohio funding opportunities for wetlands restoration, enhancement, and creation; Wetlands designed for water quality improvements (phosphorus removal) will have other complementary natural resource functional benefits that need to be considered; Implement wetland pilot projects to test innovative designs to lower wetland construction costs; Implement pilot projects to beneficially use dredge material to construct wetlands; Seek partnership opportunities to leverage financial and technical resources to maximize on-the-ground coastal wetland projects.

2) Coastal Hazards

Greatest Problems:

High Great Lakes levels; Extreme changes in water levels projected - expect more extreme hazards; Uncertainties with respect to climate change impacts on Great Lakes water levels; Need to address how coastal property owners and municipalities anticipate and design for increased water Great Lakes level variability.

Greatest Opportunities:
Perform an in-depth evaluation and assessment of the existing Coastal Erosion Area program and evaluate potential impacts of changing Great Lakes water levels and storm frequency; Evaluate the performance of different types of shore protection and develop adaptation guidance for coastal property owners in response to extreme hazard situations; Increase coordination with the Ohio Emergency Management Agency to reduce damages due to coastal erosion and flooding and also take advantage of Emergency Management funding, programs, response perspectives.

3) Cumulative and Secondary Impacts

Greatest Problems:
Impacts of extensive development and associated shoreline alterations long the Ohio Lake Erie shoreline

Greatest Opportunities:
Strategic planning for growth while minimizing impacts on the natural coastal resources of Lake Erie

Ohio's draft 309 Assessment and Strategies document was then made available for public review via the Office of Coastal Management website from February 7, 2020 through March 16, 2020, exceeding the 30- day minimum requirement. A news release was also issued on February 12, 2020 to publicize the comment period. The PPC (inter-agency network) and the ODNR IMT were also sent an email request for review and comment with a link to the draft 309 Assessment and Strategies document.

Comments received from the public, IMT, and the PPC during the public comment period address numerous enhancement area objectives: Public Access, Coastal Hazards, Wetlands, Great Lakes Resources, Cumulative and Secondary Impacts, and Energy and Governmental Facility Siting. Comments consist of general observations such as a call for education on cumulative and secondary impacts, acknowledgement of a good alignment between the 309 priorities of coastal resiliency/public access enhancement and the Lake Erie Protection and Restoration Plan, and the identification of an opportunity for greater collaboration on assessing public access needs. A couple of specific suggestions were also made. One suggestion calls for more robust impact assessment related to large projects involving submerged lands leases and the opportunity for objective and scientific input from the Office of Coastal Management. Another suggestion describes a need for more Office of Coastal Management input and guidance on boating infrastructure projects funded through the state grant programs and with capital funds to foster coastal resilient design to maximize the economic investments being made. Other comments have been addressed within the Assessment.