Ohio Coastal Program Enhancement Plan

DRAFT

Coastal Zone Management Act §309
Assessment and Strategy
2016-2020

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 in 1990 and 1996, 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 FY2016-FY2020. 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, Public Access, Cumulative and Secondary Impacts, Great Lakes Resources, and Energy & Government Facility Siting.

The focus for the five-year period from federal FY 2016 to federal FY 2020 will be on:

1- Wetlands
2- Coastal Hazards
3- Cumulative and Secondary Impacts
4- Great Lakes Resources

Four strategies have been developed that will address these four enhancement areas. A 5-year budget summary for the four 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 has made significant strides toward accomplishing the strategies and advancing the 309 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.

Lake Erie Shore Erosion Management Plan (LESEMP)
The Office of Coastal Management has made significant progress towards and will continue development of a plan for local communities and individual property owners to use in addressing Lake Erie based erosion and flooding concerns while minimizing impacts to the shore and nearshore habitats and resources along Ohio's Lake Erie coast. The regionally based plan addresses topics such as sand resources, beach preservation, structural and non-structural solutions to erosion problems, effects of armoring the shore, impacts of federal harbors, engineering design guidance, habitat enhancement, and public education. The plan utilizes information available from existing erosion studies, master plans and comparable efforts undertaken by federal, state and local agencies and identifies gaps in available information. Additionally, the plan will incorporate information from projects initiated as a result of the gap analysis.

Development of the plan relies heavily on public outreach and collaboration with Ohio Coastal Management Program partners before, during, and after the development of recommendations for each region of the Lake Erie shore. Outreach includes public meetings with stakeholders, the availability of print and on-line resources, individual technical assistance site visits with property owners and the

continued development of the LESEMP-specific web site and on-line GIS Map Viewer. The Ohio Lake Erie coast has been divided into 9 regions. To date, 7 of the 9 regions have been completed and 3 of the completed regions are undergoing re-formatting to increase the overall effectiveness of the LESEMP document.

Coastal Design Manual

The Coastal Design Manual (Manual) serves as a complement to the Lake Erie Shore Erosion Management Plan. The Manual provides technical design and surveying information for Lake Erie coastal projects to property owners, design consultants and contractors. The increased understanding of the methodologies to use when designing a coastal structure should lead to better proposals that are more likely to be approved in a shorter time period.

The first edition of the Manual, completed in 2011, focused on the design process for coastal structures including a summary of required existing site condition information, basic coastal engineering and surveying methods and design examples for revetments, seawalls and access structures. The second edition of the Manual will address design guidelines for breakwaters, groins, piers, beach nourishment and monitoring and by-pass of littoral material. The second edition of the Manual will be available in print and on-line versions and will incorporate updates to the first edition. The second edition is 90% complete.

Sand Resources study

A GIS product has been developed by the ODNR Division of Geological Survey that enables the Office of Coastal Management to assess potential volumes of sand resources entering the littoral system through erosion of bluffs and correlate the volume to the rate of littoral drift and impacts of shore perpendicular structures such as Federal Harbors on available sand resources. The GIS product was developed as an outcome of the Textural GIS for Lake Erie Bluffs project. Findings from the project are being incorporated into LESEMP reach documents as Regions are being re-formatted. In addition, a Lake Erie Nearshore Habitat fact sheet was finalized and posted online as a complement to the Lake Erie Shore Erosion Management Plan documents. While the study of sand resources was initially identified as a Section 309 Enhancement Grant strategy, the Textural GIS project was accomplished with Section 306 funds.

Cumulative and Secondary Impacts

An initiative from the 2006-2010 Assessment and Multi-year Strategy was for the development of a Regulatory GIS Database that would eliminate multiple regulatory tables being used and combine all regulatory data into one application that is geographically referenced. A pilot Regulatory GIS Database was developed with Section 306 funds during the 2006-2010 period and has been accomplished with non-309 funds since the last assessment.

Great Lakes Resources

Ohio was the sixth state to ratify the Great Lakes- St. Lawrence River Basin Water Resources Compact (Compact). With the 2008 ratification, the State of Ohio initiated efforts to begin implementing aspects of the Compact. In 2009, Ohio's 309 Strategy was amended to include an additional project in order to assist with the Compact implementation. Tasks being undertaken through the Compact implementation project include: providing staff support for the Ohio Compact Advisory Board for drafting a report to the General Assembly and Governor; drafting rules and legislation for the Compact implementation; developing processes and procedures in conjunction with the seven other Great Lakes States for collecting and recording water withdrawal and consumptive use data within the Great Lakes Basin;

developing processes and procedures for reviewing applications for the exceptions to the prohibition on diversions; and working with the Ohio Office of Coastal Management to update Policy 39- Water Diversion, 40- Lake Erie Water Levels, and 41- Water Management. Formal updates to these policies are planned to be included in the next routine program change or program amendment to the Ohio Coastal Management Program.

Stream Flow

The Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) requires each Great Lakes state to implement withdrawals or consumptive uses in a manner that ensures they will result in no significant individual or cumulative adverse impacts to the quality or quantity of the water or water dependent natural resources and the applicable source watershed (Section 4.10 & 4.11). Furthermore, Am. Ohio H.B. 473, the implementing legislation for the Compact in Ohio imposes permit requirements for withdrawals and consumptive uses from rivers and streams in the Lake Erie basin. A proposed method of meeting the requirements of the Compact and HB 473 is to evaluate and define minimum flows necessary to maintain existing biodiversity and ecological functions within Ohio Lake Erie streams and rivers. HB 473 allows for the establishment of rules in the Ohio Administrative Code to implement the permit process. The goal of this project was to develop ecologically-based minimum flow recommendations. Utilizing these recommendations the Department of Natural Resources would propose rules and policies for permitting water withdrawal from these streams thereby ensuring no significant impact to the quantity or quality of water or the water dependent natural resources of the Lake Erie Basin.

A team evaluated 13 different models and agreed on seven criteria that the selected model must meet. Based on a review of the available models and data for Ohio, the team determined that the Midwest Biodiversity Institute's (MBI) "Ohio Thresholds for Ecological Flow Protection" model most closely met the previously established model criteria requirements.

Flow recommendations will be based on stream type (warm water, exceptional warm water etc.) and on existing flow as determined by the StreamStats program. Also accomplished was the development of an automated water withdrawal registration form. Automating the registration process will help the Ohio Department of Natural Resources quickly identify water withdrawal facilities that may need withdrawal permits and therefore may need to utilize the streamflow modeling process. Furthermore, an automated process for registered facilities to submit their required annual withdrawal data was established. Automating the submission process will ensure that all existing withdrawals, and therefore their impact on streamflow, are accounted for when evaluating a new withdrawal site (facility). Final recommendations for flow reduction and permissible withdrawal in a given stream will be based on a policy decision for allowable loss of fish species numbers. The changes in fish species population numbers related to flow and withdrawal will be determined by the application of the flow model developed in this project.

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. 17 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] or high-resolution C-CAP data[3] (Pacific and Caribbean Islands only), 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.

Coastal Wetlands Status and Trends		
Current state of wetlands in 2010 (acres)	228,160.3 (7.8% of the state)	
Percent net change in total wetlands (% gained or lost)*	from 1996-2011	from 2006-2011
	-5,626.1 acres	-725.9 acres
Percent net change in freshwater (palustrine wetlands) (% gained or lost)*	from 1996-2011	from 2006-2011
	-5,664.8 acres	-733.2 acres
Percent net change in saltwater (estuarine) wetlands (% gained or lost)*	from 1996-2011	from 2006-2011
	N/A	N/A

[1] http://coastalmanagement.noaa.gov/backmatter/media/czmapmsguide11.pdf
[2] http://www.csc.noaa.gov/ccapatlas/. Summary reports compiling each state's coastal county data are provided on the ftp site.
[3] http://www.csc.noaa.gov/digitalcoast/data/ccaphighres

Net change in Unconsolidated Shore wetlands (% gained or lost)*	from 1996-2011	from 2006-2011
	38.7	16.2

How Wetlands Are Changing*		
Land Cover Type	**Area of Wetlands Transformed to Another Type of Land Cover between 1996-2011 (Sq. Miles)**	**Area of Wetlands Transformed to Another Type of Land Cover between 2006-2011 (Sq. Miles)**
Development	-4,832.2	-1,074.4
Agriculture	-262.2	246.0
Barren Land	-154.1	-104.5
Water	168.6	207.0

** 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 wetlands for the time period for which high-resolution C-CAP data are available. Puerto Rico and CNMI do not report.*

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.

   NOAA provides the following summary of Ohio wetlands changes during the time period: "If you add up the total for wetland area loss 1996 to 2011 in the second table above, it equals -5080 acres. The difference between that and the first table highlights changes that have occurred in wetland condition or type compared to those land covers most likely to be associated with actual losses. Some of those changes may include changes of wetland to natural upland categories, or visa-versa. Many of these additional changes are associated with timber, or silviculture, activities which (depending on the management practices in your area) may result in additional losses (not noted in table 2 above). It should also be noted that some of the above changes may not reflect permanent wetland losses and that changes to water may reflect a loss of vegetative wetlands, but could also be associated with gains in unvegetated wetland types (such as unconsolidated bottom), which C-CAP does not map."

   Additional sources of data reveal less specific data regarding coastal wetland changes in Ohio but generally corroborate the data contained in the tables above. For example, in October 2013 the U.S. Fish and Wildlife Service and NOAA co-published a document titled "Status and Trends of Wetlands in the Coastal Watersheds of the Coterminous United States." This document provides information on a regional basis regarding wetlands changes across the United States. Based on the summary data provided, it appears that freshwater wetland changes in the Great Lakes region were similar to the changes in other U.S. regions, at least on a percentage basis. One stark difference, however, can be seen in freshwater non-vegetated ponds, where the Great Lakes region saw a 0.5% reduction from 2004 to 2009 while the Atlantic Coast region experienced a 7.7% gain, the Gulf of Mexico coast saw an 8.2% increase, and the Pacific Coast had a gain of 1.1% over the same time period.

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.

   From a legal or policy standpoint, there have not been significant changes at the state or local level that could significantly impact future protection, etc. of coastal wetlands. However, the Ohio Coastal Management Program aggressively sought and ultimately received significant levels of funding for the permanent protection of coastal wetlands in Ohio during the last assessment period. A number of acquisition partnership projects were implemented in various areas of the Ohio coastal zone with significant acquisitions occurring in Lake County through Coastal and Estuarine Land Conservation Program (CELCP) and Great Lakes Areas of Concern Grant funds. The Great Lakes Restoration Initiative provided the federal funding share through the above-referenced programs.

Management Category	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	No
Wetlands programs (e.g., regulatory, mitigation, restoration, acquisition)	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.

   In 2013, federal funding for wetlands acquisition was made available through the U.S. Fish & Wildlife Service's National Coastal Wetlands Conservation Grants Program. The Ohio Coastal Management Program applied for and was awarded $1,000,000 through the program. The funding was passed through to Lake Metroparks (Lake County) to acquire and protect 217 acres of undeveloped property along the Lake Erie shore as part of Phase IV of the Lake Erie Bluffs Preserve project. The first three phases of the project, which include wetlands as well as 9,000 feet of Lake Erie beach shoreline area, were funded through Coastal and Estuarine Land Conservation Program (CELCP) funds and are described in more detail in the Public Access section. These changes were driven by the Ohio Coastal Management Program and will result in the permanent protection of over 600 acres of wetlands, meadow, and undeveloped lakefront habitat used by a wide variety of common and rare plant and animal species.

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.

   Stakeholder engagement was sought through the Integrated Management Team (IMT) and Policies and Programs Committee (PPC). Through this engagement, Ohio Sea Grant highlighted wetlands as an area of priority. Their feedback stated, "Wetlands are some of the most efficient natural landforms that aid in the filtration and absorption of nutrients and also provide essential fish habitat for our native species. As a number of Ohio's wetlands along Lake Erie have been developed, altered, or filled – it is essential to preserve and restore these valuable lands." This feedback echoes many other calls for the protection and expansion of coastal wetlands based on their importance from both a habitat and water quality standpoint. Because of their importance to coastal resources, a high priority was assigned to this category.

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 the coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone or specific areas that are most threatened? Stressors can be development/fill; hydrological alteration/channelization; erosion; pollution; invasive species; freshwater input; sea level rise/Great Lake 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	Hydrologic Alteration	Throughout the coastal zone
Stressor 2	Invasive Species	Throughout the coastal zone
Stressor 3	Development/Fill	Throughout the coastal zone

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

   Wetlands within the Ohio coastal zone are subject to a significant number and variety of stressors, so it is difficult to state with certainty that these are the top three stressors. However, these stressors are known to have significant impacts on coastal zone wetlands. This conclusion can be drawn based on several factors, including program staff knowledge and review of regulatory and grant projects involving wetlands. Additional information was obtained from feedback provided by staff from OCMP networked agencies as well as other stakeholders. Data on wetlands changes was obtained from the U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration. The NOAA Land Cover Atlas report states that watersheds of the Great Lakes experienced net gains in wetlands[4], although data specific to Ohio contained in the report points to a sizable decrease in Ohio wetlands in recent years.

   In addition to fill/development, the quality of wetlands created in an effort to mitigate the loss of natural wetlands is generally lower in terms of biodiversity and ecosystem services. The same can be said of wetlands that have been hydrologically altered for management for duck habitat or to otherwise control water levels that would normally be influenced by Lake Erie. Largely in an effort to protect wildlife habitat from further impacts, both private and governmental organizations have assumed control of many of the remaining western Lake Erie coastal wetlands that have (or naturally had) direct hydrologic connection to the lake. These marshes have been diked in many cases to protect against waves and wind damage, account for short- and long-term fluctuations in

[4] T.E. Dahl and S.M. Stedman. 2013. Status and trends of wetlands in the coastal watersheds of the Conterminous United States 2004 to 2009. U.S. Department of the Interior, Fish and Wildlife Service and National Oceanic and Atmospheric Administration, National Marine Fisheries Service. (46 p.). Retrieved from: http://www.habitat.noaa.gov/pdf/Coastal_Watershed.pdf

Lake Erie water levels, and allow for greater control of marsh water levels for enhancement of species-specific habitat. About 90% of Ohio's remaining marshes are managed or controlled. While protecting Lake Erie's coastal marshes from complete loss, diking also dramatically changes the morphology and function of these marshes[5].

Invasive species continue to pose a considerable threat to Ohio's wetlands. Of Ohio's 2,300 known plant species, over 500 (or 23%) are not native to the state. In some Ohio wetlands, large plots of a single invasive plant species, such as Common Reed Grass (*Phragmites australis*), form huge colonies and dominate entire wetland areas. Nuisance species such as these can negatively impact wetlands by lowering biodiversity and altering hydrology.[6]

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
N/A	N/A

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.

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	N	N
Wetland mapping and GIS	Y	Y	N
Watershed or special area management plans addressing wetlands	Y	Y	N
Wetland technical assistance, education, and outreach	Y	Y	N
Other (please specify)	N/A	N/A	N/A

[5] D.L. Johnson and E.C. Braig. 2007. The fish assemblage of Metzger Marsh: Continued assessment of the effects of restoration. The Ohio State University, School of Natural Resources. (4 p.). Retrieved from: http://ohioseagrant.osu.edu/research/wetlands/?ID=R/ER-065-PD

[6] Unattributed. 2014. Fighting invasive plants in Ohio. Ohio Department of Natural Resources, Division of Natural Areas and Preserves and The Nature Conservancy. (12 p.). Retrieved from: http://ohiodnr.gov/portals/0/pdfs/invasives/fighting-invasive-plants-in-ohio.pdf

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?

   OCMP staff is not aware of any studies that have been undertaken to illustrate the effectiveness of Ohio's efforts in protecting, restoring, and enhancing wetlands. Currently there is a lack of assessment and decision-support tools to guide wetland protection, enhancement, and restoration activities. However, recent completion of the GLRI-funded Great Lakes Coastal Wetland Monitoring Program and the Great Lakes Western Lake Erie Basin Restorable Wetlands Assessment in 2013 provides the data and initial analysis to initiate development of a decision-support tool to guide wetland management and restoration activities. Subsequently, the Upper Midwest and Great Lakes Landscape Conservation Cooperative (LCC) has funded the development of a landscape wetland decision-support tool based on the data and information generated by the Coastal Wetland Monitoring Program, the Restorable Wetlands Assessment project, and the TNC Western Lake Erie Coastal Conservation Vision Project. The decision-support tool will consider how wetlands interact on a landscape scale using a Landscape Conservation Design (LCD) process currently being developed by the LCC. OCMP Staff will work with the Principal Investigators from Central Michigan University to develop and apply the new decision-support tool to guide future land acquisition investments and identify potential wetland restoration opportunities that provide nutrient processing, water retention, and habitat benefits with the coastal zone of Ohio Lake Erie Western Basin.

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: __Wetland preservation and protection_____

   Description: The OCMP can continue to search for funding and partnership opportunities to provide funding for the acquisition and permanent protection of wetlands. This management priority focuses on addressing the historic loss of coastal wetlands in Ohio.

   Management Priority 2: ___Wetlands management_____

   Description: The OCMP can continue in its leadership role with respect to coordination among government agencies and non-profit corporations involved with wetland management to deliver

tools, expertise, and consensus building in an effort to maximize the effectiveness of wetlands management. If local interest exists and the conditions are supportive, the OCMP could pursue the development of a Special Area Management Plan to address wetlands functionality.

Management Priority 3: __Invasive species control_____

Description: The OCMP can make available funding for wetlands managers to research or conduct invasive species management projects. Such projects have been funded in the past, and successful partnerships could help address invasive species issues that continue to impact Ohio's coastal wetlands.

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	N	Wetlands research has historically occurred in Ohio without significant assistance through the OCMP
Mapping/GIS	Y	Updated, accurate mapping of existing wetlands as well as wetlands changes continue to be a need for Ohio.
Data and information management	Y	Data on wetlands filling and augmentation activities continues to be a need for Ohio.
Training/capacity building	N	Ohio has an adequate amount of expertise available for wetlands management
Decision-support tools	Y	Ohio could benefit from additional information for wetlands decision making processes.
Communication and outreach	Y	Continuous outreach regarding the importance of wetlands is key to maintaining an informed population of decision makers and resource managers.
Other (Specify)	N/A	

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.

   As evidenced by the responses to questions in this document, there is a need for a continued high priority placed on wetlands conservation and management in Ohio. There are several networked agencies within the OCMP that maintain extensive knowledge and expertise regarding wetlands issues and management, and there are networked agencies that provide direct wetlands management within the coastal zone. These agencies maintain goals and strategies for managing wetlands, and the OCMP intends to participate with coordination and funding of projects to maximize the ecological and economic value of Ohio's coastal wetlands. The importance of

wetlands as a coastal resource combined with a variety of needs to address wetlands in Ohio has led to the decision to develop a strategy for this enhancement area.

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. **Flooding:** Using data from *NOAA's State of the Coast* "Population in the Floodplain" viewer[7] and summarized by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[8] indicate how many people were located within the state's coastal floodplain as of 2010 and how that has changed since 2000. You may to use other information or graphs or other visuals to help illustrate.

Population in the Coastal Floodplain			
	2000	**2010**	**Percent Change from 2000-2010**
No. of people in coastal floodplain[9]	118,540	122,788	+3.6%
No. of people in coastal counties[10]	2,646,263	2,534,282	-4.2%
Percentage of people in coastal counties in coastal floodplain	4.5%	4.8%	----------

2. **Shoreline Erosion** (for all states other than Great Lakes and islands; for Great Lakes and islands, see Question 5): Using data from *NOAA's State of the Coast* "Coastal Vulnerability Index,"[11] indicate the

[7] http://stateofthecoast.noaa.gov/pop100yr/welcome.html. Note FEMA is in the process of updating the floodplain data. This viewer reflects floodplains as of 2010. If you know the floodplain for your state has been revised since 2010, you can either use data for your new boundary, if available, or include a short narrative acknowledging the floodplain has changed and generally characterizing how it has changed.
[8] www.csc.noaa.gov/digitalcoast/tools/snapshots
[9] To obtain exact population numbers for the coastal floodplain, download the Excel data file on the State of the Coast "Population in the Floodplain" viewer: http://stateofthecoast.noaa.gov/pop100yr/welcome.html. Summary population data for each coastal state is available on the ftp site.
[10] To obtain population numbers for coastal counties, see spreadsheet of coastal population and critical facilities data provided or download directly from http://www.csc.noaa.gov/digitalcoast/data/stics. Summary population data for each coastal state is available on the ftp site.
[11] http://stateofthecoast.noaa.gov/vulnerability/welcome.html (see specifically "Erosion Rate" drop-down on map). The State of the Coast visually displays the data from USGS's Coastal Vulnerability Index.

vulnerability of the state's shoreline to erosion. You may use other information or graphs or other visuals to help illustrate or replace the table entirely if better data is available. *Note: For New York and Pennsylvania that have both Atlantic and Great Lakes shorelines, fill out the table below for the Atlantic shoreline only.*

Vulnerability to Shoreline Erosion		
Vulnerability Ranking	**Miles of Shoreline Vulnerable**[11]	**Percent of Coastline**[12]
Very low (>2.0m/yr) accretion		
Low (1.0-2.0 m/yr) accretion)		
Moderate (-1.0 to 1.0 m/yr) stable		
High (-1.1 to -2.0 m/yr) erosion		
Very high (<-2.0 m/yr) erosion		

3. **Sea Level Rise** (for all states other than Great Lakes and islands; for Great Lakes and islands, see Question 5): Using data from *NOAA's State of the Coast* "Coastal Vulnerability Index",[13] indicate the vulnerability of the state's shoreline to sea level rise. You may provide other information or use graphs or other visuals to help illustrate or replace table entirely if better data is available. *Note: For New York and Pennsylvania that have both Atlantic and Great Lakes shorelines, fill out the table below for your Atlantic shoreline only.*

Coastal Vulnerability to Historic Sea Level Rise		
Vulnerability Ranking	**Miles of Shoreline Vulnerable**[11]	**Percent of Coastline**
Very low		
Low		
Moderate		
High		
Very high		

4. **Other Coastal Hazards:** In the table below, indicate the general level of risk in the coastal zone for each of the coastal hazards. The state's multi-hazard mitigation plan is a good additional resource to support these responses.

Type of Hazard	General Level of Risk[14] (H, M, L)
Flooding (riverine, stormwater)	H
Coastal storms (including storm surge)[15]	M

[12] To obtain exact shoreline miles and percent of coastline, mouse over the colored bar for each level of risk or download the Excel data file.
[13] http://stateofthecoast.noaa.gov/vulnerability/welcome.html (see "Vulnerability Index Rating" drop-down on map). The State of the Coast visually displays the data from USGS's Coastal Vulnerability Index.
[14] 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*
[15] In addition to any state- or territory-specific information that may help respond to this question, the U.S. Global Change Research Program has an interactive website that provides key findings from the 2014 National Climate Assessment for each region of the country, including

Type of Hazard	General Level of Risk[14] (H, M, L)
Geological hazards (e.g., tsunamis, earthquakes)	L
Shoreline erosion[16]	H
Sea level rise[13,14,15]	N/A
Great Lake level change[14]	H
Land subsidence	L
Saltwater intrusion	N/A
Other (please specify)	

5. 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.

   2010 Coastal Erosion Area maps provide an update to 1998 Coastal Erosion Area Maps utilized for the State of Ohio Enhanced Hazard Mitigation Plan (Rev January 2011). The 2010 mapping revised the designated Coastal Erosion Areas based on erosion measured between 1990 and 2004. The percentage of shoreline miles affected by a Coastal Erosion Area designation decreased from 1998 to 2010 from 36% to 12%, respectively. Factors that contributed to the decrease in designated miles of shore include average to low water levels during the 2010 mapping period, increased erosion protection and mapping methodology.

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) have occurred that could impact the CMP's ability to prevent or significantly reduce coastal hazards risk since the last assessment.

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 that address:			
elimination of development/redevelopment in high-hazard areas[17]	N	N	N
management of development/redevelopment in other hazard areas	Y	Y	N
climate change impacts, including sea level rise or Great Lake level change	N	Y	N
Hazards planning programs or initiatives that address:			

regions for the coasts and oceans, and various sectors. The report includes findings related to coastal storms and sea level rise that may be helpful in determining the general level of risk. See http://nca2014.globalchange.gov/.

[16] See NOAA State of the Coastal Vulnerability to Sea Level Rise Tool (select "Erosion Rate" from drop-down box) http://stateofthecoast.noaa.gov/vulnerability/welcome.html. The State of the Coast visually displays the data from USGS's Coastal Vulnerability Index.

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

hazard mitigation	Y	Y	N
climate change impacts, including sea level rise or Great Lake level change	N	Y	N
Hazards mapping or modeling programs or initiatives for:			
sea level rise or Great Lake level change	N	Y	N
other hazards	Y	N	Y

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 higher erosion rates are likely over the next 30 years if no additional erosion control measures are installed. The most recent mapping was finalized in December 2010.

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:
      The finalization of the 2010 Coastal Erosion Area maps resulted in the lineal feet of shoreline designated as a coastal erosion area to decrease from 95 miles in the 1998 mapping to 30 miles in the 2010 mapping.
   b. Specify if they were 309 or other CZM-driven changes; and
      The CEA remapping was completed as part of a Section 309 project.
   c. Characterize the outcomes or likely future outcomes of the changes.
      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.

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 owner's 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.

1a. **Flooding In-depth** (for all states besides territories): Using data from *NOAA's State of the Coast* "Population in the Floodplain" viewer[18] and summarized by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[19] indicate how many people at potentially elevated risk were located within the state's coastal floodplain as of 2010. These data only reflect two types of vulnerable populations. 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: National data are not available for territories. Territories can omit this question unless they have similar alternative data or include a brief qualitative narrative description as a substitute.*

2010 Populations in Coastal Counties at Potentially Elevated Risk to Coastal Flooding[20]				
	Under 5 and Over 65 years old		In Poverty	
	# of people	% Under 5/Over 65	# of people	% in Poverty
Inside Floodplain	28,898	21	28,440	20
Outside Floodplain	1,696,793	71	369,096	15

1b. **Flooding In-depth** (for all states besides territories): Using summary data provided for critical facilities, derived from FEMA's HAZUS[21] and displayed by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[22] indicate how many different establishments (businesses or employers) and critical facilities are located in the FEMA floodplain. You can provide more information or use graphs or other visuals to help illustrate or replace the table entirely if better information is available.

Critical Facilities in the FEMA Floodplain[44]						
	Schools	Police Stations	Fire Stations	Emergency Centers	Medical Facilities	Communication Towers
Inside Floodplain	112	16	16	0	0	40
Coastal Counties						
Ashtabula	0	0	0	0	0	0
Cuyahoga	1	0	0	0	0	0

[18] http://stateofthecoast.noaa.gov/pop100yr/welcome.html
[19] http://www.csc.noaa.gov/digitalcoast/tools/snapshots
[20] To obtain exact population numbers for the coastal floodplain, download the excel data file from the State of the Coast's "Population in Floodplain" viewer.
[21] http://www.fema.gov/hazus; can also download data from NOAA STICS http://www.csc.noaa.gov/digitalcoast/data/stics. Summary data on critical facilities for each coastal state is available on the ftp site.
[22] http://www.csc.noaa.gov/digitalcoast/tools/snapshots

Erie	0	0	1	0	0	0
Lake	1	0	0	0	0	0
Lorain	0	0	0	0	0	0
Lucas	12	2	1	0	0	4
Ottawa	0	0	0	0	0	1
Sandusky	0	0	0	0	0	0

2. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards[23] within the coastal zone? Also indicate the geographic scope of the hazard, i.e., is it prevalent throughout the coastal zone or are specific areas most at risk?

	Type of Hazard	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Hazard 1	Erosion – Wave-based	Throughout coastal zone
Hazard 2	Erosion – Surface and Groundwater-based	Throughout coastal zone
Hazard 3	Flooding	Throughout coastal zone

3. 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.

   Erosion and flooding have been identified as the most significant coastal hazards within the Ohio coastal zone based on a variety of factors and information, including institutional knowledge gained from reviewing applications for Shore Structure Permits and Coastal Erosion Area Permits, answering technical assistance questions regarding erosion and flooding on a daily basis, conducting site visits to properties across the coast on a regular basis, reviewing historic aerial photography, assisting with the identification of Coastal Erosion Areas, educational backgrounds of staff, professional development/training, in-house development of the Coastal Design Manual and Lake Erie Shore Erosion Management Plan, and other tasks associated with the monitoring and documentation of erosion and flooding issues along the Lake Erie shore.

4. 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 coastal and nearshore 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.

[23] See list of coastal hazards at the beginning of this assessment template.

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

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.

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)
Statutes, Regulations, and Policies:			
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)			
Management Planning Programs or Initiatives:			
Hazard mitigation plans	Y	N	N
Sea level rise/Great Lake level change or climate change adaptation plans	N	N	N
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)			
Research, Mapping, and Education Programs or Initiatives:			
General hazards mapping or modeling	Y	N	N
Sea level rise mapping or modeling	N	N	N
Hazards monitoring (e.g., erosion rate, shoreline	Y	N	N

change, high-water marks)			
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?

   No studies have been completed since the last assessment.

   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 _____

   Description: An opportunity exists for updating the Coastal Erosion Area maps in an effort to provide the latest, most accurate information to coastal property owners and stakeholders. Additionally, an assessment of the predictive capability of the Coastal Erosion Area maps can be completed through a comparison of the 1998, 2004 and 2014 planned mapping.

   Management Priority 2: __Coastal Erosion Mitigation Impacts _____

   Description: An opportunity exists for this priority to identify and measure the number, types and effectiveness of erosion control measures along the Lake Erie coast. Such an effort could include developing insights into the effectiveness of different types of erosion control measures under varying site conditions.

   Management Priority 3: __Sand Resources _____

   Description: An opportunity exists to encourage the use of fewer hard structures and more native vegetation, including dunes and aquatic vegetation, in the management of sand resources. Additionally, a study of monitoring and bypass operations has the potential to provide information that could reduce or eliminate impacts of groins and detached breakwaters on the littoral system.

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 species abundance and diversity associated

		with shoreline type and vegetative cover. Mitigation impact assessment.
Mapping/GIS/modeling	Y	• An update to the Coastal Erosion Area mapping is needed. The current designation is based on erosion between 1990 and 2004. • 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.
Training/Capacity building	Y	Living shoreline and sand resource management educational opportunities
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**[24]	**Changes or Trends Since Last Assessment**[25] (↑, ↓, –, unkwn)	**Cite data source**
Shoreline (other than beach) access sites	**108** (total, other than beach)	↑ Total number of public shoreline access sites increased by 29 (includes 5 newly created sites and multiple newly verified sites)	ODNR OCM staff: GIS datasets & analysis, site fieldwork, public access inventory and Ohio's Lake Erie Public Access Guidebook Coast Edition (2014)
Beach access sites	**83** (total) **40** (48%) allow swimming	↑ Total number of sites that provide beach access increased by 16; total number of beaches that allow swimming increased by 2.	ODNR OCM staff: GIS datasets & analysis, site fieldwork, public access inventory and Ohio's Lake Erie Public Access Guidebook Coast Edition (2014)
Recreational boat (power or non-motorized) access sites	**310** (total); **299** recreational power boating facilities; **11** non-motorized water trail access sites	↓ Total number of recreational power boating facilities decreased by 12 ↑ Total number of recreational non-motorized paddling access sites increased by 7 (includes new access points along the Vermilion-Lorain Water Trail)	ODNR Division of Watercraft, Ohio Boating Facilities, 2014; add'l information from Erie MetroParks and Lorain County Metro Parks

[24] 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.
[25] 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."

Public Access Status and Trends			
Type of Access	**Current number**[24]	**Changes or Trends Since Last Assessment**[25] (↑, ↓, –, unkwn)	**Cite data source**
Number of designated scenic vistas or overlook points	**0** (total designated scenic vistas/overlook points); **57** (total number of scenic vistas/overlooks based on subjective designation)	– The number of "designated" scenic overlook vistas or overlooks is unchanged (0 in 2010 to 0 in 2014). ↑ Based on subjective designation, total number of scenic access sites increased by 18 (includes multiple newly verified public road right-of-way sites)	ODNR OCM staff: GIS datasets & analysis, site fieldwork, public access inventory and Ohio's Lake Erie Public Access Guidebook Coast Edition (2014)
Number of fishing access points (i.e. piers, jetties)	**139** (total); **48** (35%) sites provide fishing structures, such as piers or jetties.	↑ Total number of fishing access sites increased by 25. Various site improvements include 6 new and/or enhanced handicapped-accessible fishing pier structures—Sandusky Bay Bridge Access, Paper District Marina, Lighthouse Pier, Lakeside Landing, Sims Park and Madison Township Park	ODNR OCM staff: GIS datasets & analysis, site fieldwork, public access inventory and Ohio's Lake Erie Public Access Guidebook Coast Edition (2014)
Coastal trails/ boardwalks	Exact count indefinite **231.3 miles** (includes statewide trails, regional trails, local trails, fitness trails, bike lanes, boardwalks, water trails and trail networks at Lake Erie public access sites.)	**unkwn** – Current data is comprised of trails located within the coastal zone, as requested. The previous assessment examined all trails within Ohio's nine coastal zone counties. Current mileage documented is significantly less due to the amendment of the coverage area. Current data also includes refined and more comprehensive GIS data that features detailed Lake Erie public access site trail networks. New trails identified include the Pinkley Memorial Trail, Crane Creek Estuary Trail, Scranton/Flats Towpath Trail, Vermilion-Lorain Water Trail and trail networks at Meadowbrook Marsh, Cleveland Lakefront Nature Preserve and Lake Erie Bluffs.	ODNR OCM staff: GIS datasets & analysis, site fieldwork, public access inventory and Ohio's Lake Erie Public Access Guidebook Coast Edition (2014); add'l information from ohiobikeways.net, Metroparks of the Toledo Area, Cleveland Metroparks, Lake Metroparks, Erie MetroParks, Lorain County Metro Parks, State of Ohio, Toledo Metropolitan Area Council of Governments and Northeast Ohio Areawide Coordinating Agency
Number of acres parkland/open space	**21,240 acres** **0.6** sites per mile of shoreline	↑ Total number of public shoreline access sites increased by 29 (includes 5 newly created sites and multiple newly verified sites) ↑ Total number of public space/parkland acres increased by approximately 6,240 acres (includes sites previously not inventoried, newly created sites and multiple newly verified sites) ↑ Sites per miles of shoreline increased by 0.09	ODNR OCM staff: GIS datasets & analysis, 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.[26] There are several additional sources of statewide information that may help inform this response,

[26] See NOAA's Coastal Population Report: 1970-2020 (Table 5, pg. 9): http://stateofthecoast.noaa.gov/coastal-population-report.pdf

such as the Statewide Comprehensive Outdoor Recreation Plan,[27] the National Survey on Fishing, Hunting, and Wildlife Associated Recreation,[28] and your state's tourism office.

The Ohio portion of the Lake Erie shore is 312 miles. Approximately 19 percent of Ohio's Lake Erie shore is publicly accessible. 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 counties. According to the Ohio county profiles prepared by the Ohio Development Services Agency in 2013, (http://development.ohio.gov/reports/reports_countytrends_map.htm) between 2000 and 2010, population within Ohio's coastal counties decreased 4.2 percent. Further, coastal county population is projected to decrease by another 3.3 percent between 2010 and 2020. Only Lorain County is projected to experience an increase in population (2.9 percent).

Despite quantifiable 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 attracts millions of visitors annually for boating, fishing, swimming, birding and nature-based recreation. According to "The Economic Impact of Tourism in the Lake Erie Region of Ohio (June 2014)," prepared by Tourism Economics, visitors to Ohio's Lake Erie region generated business sales of $12.9 billion in 2013, up 4.3 percent from 2012. The impact of tourism in Ohio's eight coastal counties represents 28 percent of the state's total tourism-related economy.

In 2013, the Ohio Department of Natural Resources (ODNR) developed its five-year update to the Ohio Statewide Comprehensive Outdoor Recreation Plan (SCORP). The SCORP (http://parks.ohiodnr.gov/Portals/parks/PDFs/stay_informed/SCORP/2013-SCORP.pdf) was prepared to solicit public perception of available outdoor recreation resources, facilities and activities; guide outdoor recreation land acquisitions, facility development and management; and increase recreational programming in Ohio. Public participation, through regional focus groups and online surveys, was instrumental in identifying outdoor recreation trends, barriers to facilities, needs and priorities. In the northeast and northwest Ohio focus group regions, which collectively included a total of 44 of Ohio's 88 counties, including all eight coastal counties bordering Lake Erie, the following lake-based activities were identified as activities/amenities on the increase: beach volleyball, birding, fishing (fly fishing and fishing tournaments), multiple-use trails, paddling (canoeing and kayaking) and water trails. Swimming beaches "at lakes" was listed as an activity in decline in the northeast Ohio region. The development of more trails and the improvement of existing trails, including the construction of better multiple-use trails, regional trail systems and motorized/snowmobile trails, was listed as a pressing need in both regions. Trail connectivity along the Lake Erie coast was specifically called out in the northwest region. More transient dockage on Lake Erie was also mentioned in the northwest region. Statewide, wildlife viewing/birding, shoreline fishing and fishing from a boat were all reported as highly popular wildlife-related activities. Canoeing and kayaking on a river or water trail was identified as the most popular boating activity in the state. Survey respondents were asked to rank a list of nine outdoor recreation improvements.

[27] Most states routinely develop "Statewide Comprehensive Outdoor Recreation Plans", or SCROPs, 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/scorps.

[28] 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 2011 data to 2006 and 2001 information to understand how usage has changed. See www.census.gov/prod/www/fishing.html.

"Improve public access to Lake Erie" was ranked sixth (30 percent of the respondents rated this improvement in their top three).

In 2011, the U.S. Fish and Wildlife Service developed its five-year update to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation survey. A summary for the state of Ohio was prepared separately (http://www.census.gov/prod/2013pubs/fhw11-oh.pdf). The survey aims to produce state-specific reports on fishing, hunting and wildlife-associated recreational uses for each state. Between 2006 and 2011, the total number of residents and nonresidents who fished, hunted or viewed wildlife in Ohio increased from 4.2 million people to 4.3 million people. Over the same six-year time period, resident and nonresident anglers fishing in Ohio increased by nearly 7 percent. The total number of Ohio residents that fished in Lake Erie increased from 275,000 people to 315,000 people (14.5 percent). The number of residents and nonresidents who hunted in Ohio between 2006 and 2011 increased by 10.6 percent, while the number of people participating in wildlife viewing activities decreased by 8.4 percent.

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.

   In 2012 and 2013, the Lake Erie Shores & Islands Welcome Center (cooperating visitor bureaus covering Erie and Ottawa counties) conducted annual visitor surveys of customers who requested a travel planner (http://www.shoresandislands.com/media/research.aspx). The surveys captured general demographic data and activities of interest, as well as traveling details, such as lodging preferences, time of year to visit and whether or not the respondent has previously visited the area. The top three responses for activities of interest in both years were specific to Lake Erie, including Lake Erie Islands (83 percent and 84 percent, respectively), beaches (72 percent in both years) and lighthouses (60 percent and 63 percent, respectively). Other Lake Erie-related activities that visitors expressed an interest in included visiting nature areas, boating, fishing and birding.

   According to the ODNR Division of Watercraft (http://watercraft.ohiodnr.gov), boating registrations in Ohio's eight coastal counties increased 4 percent from 2010 to 2013. Individually, boating registrations in each coastal county over the same four-year time period increased, with the greatest increases in Sandusky (7.45 percent), Lorain (6.98 percent), Ashtabula (6.66 percent) and Lake (6.56 percent) counties.

   According to the ODNR Division of Wildlife (http://wildlife.ohiodnr.gov), fishing registrations purchased in Ohio's eight coastal counties decreased 17.2 percent from 2010 to 2013. Individually, fishing registrations in each coastal county over the same four-year time period decreased, with the greatest decreases in Erie (24.3 percent), Ottawa (22.6 percent) and Lucas (20.8 percent) counties. However, statewide internet fishing license sales from 2010 to 2013 increased by 133 percent.

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.

Management Category	Employed by State or Territory	CMP Provides Assistance to Locals	Significant Changes Since Last Assessment

	(Y or N)	**that Employ** (Y or N)	(Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	Y	N
Operation/maintenance of existing facilities	Y	Y	Y
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.

Operation/maintenance of existing facilities

In 2013, the Cleveland Metroparks assumed management of Cleveland Lakefront State Park properties, including Edgewater Park, East 55th Street Marina, Gordon Park, Euclid Beach Park, Villa Angela Park and Wildwood Park. The Cleveland Metroparks holds a 99-year lease with the City of Cleveland to manage and enhance the lakefront parks. The City of Cleveland had previously leased the parks to the State of Ohio.

In 2013, Compass Pointe Management, LLC assumed management responsibilities of the township-owned, Bill Stanton Community Park in Madison Township. The park remains publicly accessible.

In 2014, Cleveland Metroparks assumed ownership of Whiskey Island in Cleveland, which included Whiskey Island Marina and Wendy Park. The property has previously been owned by Cuyahoga County.

Acquisition/enhancement programs

The Ohio Department of Natural Resources (ODNR) Office of Coastal Management administers Coastal Management Assistance Grants (CMAG) on a competitive basis, with applicants providing a minimum of 50 percent of the project costs. Local assistance grants are used for planning, land acquisition and construction. Since the previous assessment, two planning projects, one acquisition project and one construction project, totaling $203,177 were funded in three of Ohio's eight coastal counties. Those projects include:

- Cleveland Metroparks (Cuyahoga County) – issued $68,250 in 2010 to undertake a shoreline management plan for the portion of Huntington Reservation in Bay Village north of Lake Road.
- Put-in-Bay Township Park District (Ottawa County) – issued $70,000 in 2010 for the purchase of a 7.8-acre lakefront property on Middle Bass Island. The now publicly-accessible site, known as Middle Bass Island East Point Preserve features 600 linear feet of shoreline.
- City of Willoughby (Lake County) – issued $5,000 in 2011 to conduct a recreational analysis at Osborne and Sunset parks, which provides a framework to increase park usage by improving access to the water's edge through enhanced parking and trail networks, establishing park connectivity between the two areas and creating a sustainable public beach through offshore barrier islands (detached breakwaters).
- City of Euclid (Cuyahoga County) – issued $59,927 in 2012 to replace/construct a new ADA-accessible fishing pier at Sims Park.

Through the Coastal and Estuarine Land Conservation Program (CELCP), coordinated by the Ohio Coastal Management Program, federal funding is provided to help protect coastal and estuarine lands considered important for ecological, recreational, conservational, historical or aesthetic value, or lands that are threatened by conversion from a natural or recreational state to other uses. Between 2010 and 2013, two agencies received a combined total of $3,396,021 for four acquisition projects through the Great Lakes Restoration Initiative supplemental CELCP funding. Those projects include:

- Kelleys Island Village Park District Recreation Board (Erie County) – awarded $332,500 in 2011 to purchase 18.5 acres of red cedar habitat on Kelleys Island. The land, known as the Quinn Preserve is located adjacent to Kelleys Island State Park and is 0.25 miles from Lake Erie.
- Lake Metroparks (Lake County) – awarded a total of $3,063,521 in 2011 ($883,700), 2012 ($160,750) and 2013 ($2,019,071) for the multi-phase, multi-tiered Lake Erie Bluffs Preserve project in Perry and Painesville townships. Federal dollars were used to acquire and protect 96.4 acres, 40.5 acres and 153.7 acres, respectively, of undeveloped property along the Lake Erie shore.

The ODNR Office of Real Estate administers NatureWorks grants to local governments for acquisition, development or rehabilitation of existing public parks and recreation areas. Between 2010 and 2013, forty projects within Ohio's coastal counties were awarded a total of $1,301,133, including seven projects at shoreline access sites, totaling $209,557 (16 percent). Notable projects include:

- City of Euclid in Cuyahoga County – awarded $100,000 in 2010 for the construction of a replacement fishing pier at Sims Park
- Village of Put-in-Bay in Ottawa County – awarded $22,619 in 2011 to renovate its community beach
- Erie MetroParks (Erie County) – awarded $20,000 in 2013 for the acquisition of 0.62 acres to expand beach access at Wakefield MetroPark in Vermilion

  Also of note, in 2013 the village of Oak Harbor in Ottawa County was awarded $28,651 to construct a boat launch for non-motorized watercraft on the Portage River.

The Federal Land and Water Conservation Fund (LWCF) grant program provides assistance to state and local government subdivisions for acquiring, developing and rehabilitating public recreation areas. The program is administered through the ODNR Office of Real Estate in cooperation with the Federal Highway Administration. Between 2010 and 2013, LWCF has awarded $573,431 to projects within five of Ohio's eight coastal counties, including three projects at shoreline access sites, totaling $210,000 (36.6 percent). Those projects include:

- City of Sandusky in Erie County – awarded $70,000 in 2010 for the construction of a water playground and new restroom facilities at Lions Park
- Erie MetroParks (Erie County) – awarded $70,000 in 2010 and $70,000 in 2013 for the acquisition of 1.5 acres and 0.62 acres, respectively, to expand beach access at Wakefield MetroPark in Vermilion.

  Also of note, in 2013 the village of Oak Harbor in Ottawa County was awarded $62,851 to construct a boat launch for non-motorized watercraft on the Portage River.

The ODNR Office of Real Estate, in cooperation with the National Park Service, administers the Recreational Trails Program (RTP). This program is a federally funded reimbursement grant program

that provides up to 80 percent project funding. The program is available to cities, villages, counties, townships, park districts and conservancy districts, among others. Type of projects available for RTP funding include new recreational trail construction (non-motorized, motorized and water trails), trail maintenance and restoration, trailside and trailhead facilities, acquisition of easements and property for trails and for educational programs promoting trail safety and environmental protection. Between 2010 and 2013, the RTP helped fund $1,428,960 to projects in seven of Ohio's eight coastal counties, including three projects at shoreline access sites, totaling $340,756 (24 percent). Those projects include:

- City of Euclid in Cuyahoga County – awarded $150,000 in 2010 for the construction of 4,000 linear feet of multi-use paved trails through Sims Park and trailhead development
- ODNR – awarded $150,000 in 2010 for resurfacing the eastern portion of the 4.6-mile multi-purpose trail at Maumee Bay State Park in Lucas County
- City of Willoughby – awarded $40,756 in 2013 for the construction of a 1-mile, 8-foot wide paved multiple-use trail at Osborne Park in Lake County.

The Clean Ohio Trails Fund is a state-funded grant program administered by the ODNR Office of Real Estate. Up to 75 percent of project costs may be reimbursed for new recreational trail construction, acquisition of property and easements for trails or trail corridors, trailhead development and trail engineering and design. In 2010, a total of $1,719,867 was awarded for six trail projects in Cuyahoga, Lucas, Ottawa and Sandusky counties, including a $350,000 award to the city of Euclid (Cuyahoga County) for the acquisition of eight lakefront parcels and construction a Lake Erie Waterfront Trail. In 2013, a total of $1,479,264 was awarded for six trail projects in Ashtabula, Cuyahoga and Sandusky counties, including a $250,000 award to the Ashtabula County Metroparks for the construction of 4.2 miles of bike path and bike lanes, which will connect the North Shore Trail in the city of Ashtabula to the Great Ohio Lake-to-River Greenway. No grant funding was awarded within Ohio's coastal counties in 2011 and 2012.

Through the Cooperative Boating Facility Grant program, administered by the ODNR Division of Watercraft, monies are made available annually statewide for the construction or improvement of public facilities for recreational boating on navigable waters within the state. Between 2010 and 2012, an award total of $4,472,865 was distributed to seven projects in four of Ohio's eight coastal counties, including a $3,000,000 award for the Huron River Boat Launch project in Huron (Erie County) in 2010. Funded projects at shoreline access sites include:

- City of Avon Lake in Lorain County – awarded $35,500 in 2010 for the Miller Road Boat Launch project
- ODNR – awarded $726,500 in 2010 for the Gordon Park Boat Ramp project at Cleveland Lakefront State Park (now Lakefront Reservation of the Cleveland Metroparks) in Cleveland (Cuyahoga County)
- Lorain County Metro Parks – awarded $65,865 in 2011 for the expansion of the Vermilion-Lorain Water Trail at four access sites in Lorain County.
- City of Lorain in Lorain County – awarded $150,000 in 2012 for the Lorain Municipal Pier and Boat Ramp project
- City of Toledo in Lucas County – awarded $425,000 in 2012 for the Cullen Park Lake Erie Access and Restoration project

Emergency Boating Access Grants are administered by the ODNR Division of Watercraft and intended for urgent repairs to boating access facilities. Funding is made available from the Waterways Safety Fund and varies year to year. In state fiscal years 2010 and 2011, a total of

$117,823 was awarded to nine projects in five of Ohio's eight coastal counties, including seven projects at shoreline access sites, totaling $96,651 (82 percent). Projects included dock repair at the Port of Conneaut's marina (Ashtabula County) and dock replacement at East Harbor State Park in Ottawa County, as well as ramp repair at Madison Township Park (Lake County) and ramp improvement at the Fairport Harbor Port Authority's (Lake County) boat access.

3. Indicate if your state or territory has a publically available public access guide. How current is the publication and how frequently it is updated?[29]

Public Access Guide	Printed	Online	Mobile App
State or territory has? (Y or N)	**Y** OCM published public access guidebooks for both Lake Erie access and for accessing Lake Erie's major river systems: *Ohio's Lake Erie Public Access Guidebook – Coast Edition* (241 pages) and *Ohio's Lake Erie Public Access Guidebook – Rivers Edition* (285 pages). OCM also produced an 18"x17", 2-sided, 10-panel fold-out public access brochure in 2012.	**Y** OCM developed accompanying websites for both the Lake Erie Public Access – Coast Edition and Rivers Edition guides.	N However the website was developed utilizing responsive web design techniques, which optimizes the viewing environment for a wide range of devices, including mobile phones and tablets.
Web address (if applicable)	Coast Access: http://coastal.ohiodnr.gov/gocoast River Access: http://coastal.ohiodnr.gov/gorivers	Coast 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 public access content is updated as new information is announced or identified	N/A
Frequency of update	Printed Coast Edition: 4-5 years between 1st and 2nd editions Printed Rivers Edition: 2nd edition not scheduled yet GIS inventory: annually	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 _____

[29] 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. However, you may choose to note that the local guides do exist and may provide additional information that expands upon the state guides.

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

While the population of Ohio's coastal counties is decreasing, the number of tourists to the Lake Erie region and people seeking Lake Erie-related outdoor recreational activities continues to rise. The demand and interest for Lake Erie public access and public access information can be gleaned from the popularity of OCM's public access publications: *Ohio's Lake Erie Public Access Guidebook* (2010), *Ohio's Lake Erie Public Access Guidebook – Rivers Edition* (2013) and *Ohio Lake Erie Public Access Guidebook – Coast Edition* (2014; update of 2010 edition). Limited inventory due to high number of requests of the first edition guidebook (52,000 printed) prompted OCM to develop a brochure in 2012 (50,000 printed), and subsequently a fully-updated edition in 2014 (49,000 printed). Approximately 85 percent of the Rivers Edition (44,000 books printed) has been distributed. In 2013, OCM conducted a survey to gather feedback regarding the Lake Erie Public Access Guidebook publications. Respondents consisted of coastal partners and visitor service specialists, including state and local park managers, parks and recreation administrators, local visitor bureau representatives and marina operators. Below is a sampling of the open-ended responses:

- "Both guides are a tremendous asset to the citizens of Ohio and have proved very popular."
- "I…find the guides extremely useful for the many citizens/visitors who stop at our office for information on lake/river access and with general questions."
- "Great resource that so many Ohioans can benefit from!"
- "These books are very helpful and requested often."

Outdoor recreation trends across the United States are assessed in the U.S. Forest Service's "Outdoor Recreation Trends and Futures" (March 2012). The assessment states that outdoor recreation plays a large role in the lifestyles of many Americans and that the mix of outdoor activities and their relative popularity is evolving. In "Outdoor Recreation Participation in the United States – Projections to 2060" (July 2013), Cordell, et al, considered various demographic, land use and climate conditions to determine outdoor recreation trends over the next 50 years. They concluded that while the number of outdoor recreation participant days is projected to increase, the nation's growing population will result in decreasing recreational opportunities for most Americans. It is important for natural resource managers and park/recreation planners to creatively and efficiently plan for population growth to optimize future recreational opportunities and demands.

While not identified as one of the top three priorities from the stakeholder survey responses, the public access enhancement area was noted by the stakeholders and is a high priority for this assessment.

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. Use the table below to provide additional data on public access availability within the coastal zone not reported in the Phase I assessment.

Public Access Status and Trends			
Type of Access	**Current number**[30]	**Changes or Trends Since Last Assessment**[31] (↑, ↓, –, unkwn)	**Cite data source**
Access sites that are ADA compliant[32]	85 sites* 45%	↑ Previous assessment listed 22% of access sites (36 of 162) provided handicap accessible amenities. Changes range from installation of new amenities to newly-verified facilities.	- Managing authority webpages (i.e. local parks and recreation websites, metropark/park district websites, state parks websites, etc.) - Ohio's Lake Erie Public Access Guidebook Coast Edition (2014)

*Includes all sites with verified ADA-compliant amenities and sites that promote handicap accessibility and handicapped-accessible amenities (ADA-compliance not specified).

2. What are the three most significant existing or emerging threats or stressors to creating or maintaining public access within the 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 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 (HAB)	The Western Basin of Lake Erie between Toledo and the Lake Erie Islands is most affected, however blooms can reach into the Central Basin
Stressor 2	Lake level changes/sediment buildup within shallow draft	Recreational harbors across the entire Lake Erie coast, particularly shallower harbors in the Western Basin.

[30] 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.
[31] 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/unchanged since the last assessment, note that with a ↑ (increased), ↓ (decreased), – (unchanged). If the trend is completely unknown, simply put "unkwn."
[32] For more information on ADA see www.ada.gov.

	recreational harbors	
Stressor 3	Economic challenges in maintaining public access sites	Throughout entire coastal area

3. 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- The emergence and spread of harmful algal blooms (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. HABs occur as the result of warm temperatures, sunlight and the increased presence of anthropogenically-accumulated amounts of nutrients, such as phosphorous. Such nutrients enter the water system due to the heavy use of fertilizers, livestock near water supplies and urban/suburban run-off (NOAA GLERL, 2014). HABs prominently occur in the shallower, warmer Western Basin of Lake Erie, but have also developed along the shore in the Central Basin. While peak conditions typically occur during summer months, HABs can happen at any time of year (NOAA GLERL, 2014). 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. Collective consequences of changing climate in the Great Lakes region suggest amplified HAB frequency and duration (GLISA, 2014).

   Stakeholders and reports focused on HAB issues:

   - The Ohio Lake Erie Phosphorous Task Force is a partnership workgroup comprised of members from the Ohio Environmental Protection Agency, Ohio Lake Erie Commission, Ohio Department of Agriculture and the Ohio Department of Natural Resources. The purpose of the task force is to develop nutrient management strategies, develop reduction targets for total and dissolved reactive phosphorous that can be used to track future progress and develop policy and management recommendations based upon new and emerging data and information. The aim is to change agricultural and land management practices to better protect water resources and reduce HABs in Lake Erie (Ohio Lake Erie Phosphorous Task Force, 2013).
   - In 2012, in response to the growing issues relating to algal blooms in Lake Erie, the International Joint Commission (IJC) established the Lake Erie Ecosystem Priority (LEEP). Key findings, including the effects that HABs have on human health, regional tourism, beach recreation and recreational fishing from the LEEP study are presented in *A Balanced Diet for Lake Erie: Reducing Phosphorous Loadings and Harmful Algal Blooms* (2014). The report also lists strategies and recommendations for establishing new phosphorous loading targets, adaptive management and implementing best management practices to reduce future HABs (IJC, 2014).
   - The Great Lakes Integrated Sciences and Assessments (GLISA) Center is a collaboration of the University of Michigan and Michigan State University funded by the National Oceanic and Atmospheric Administration. GLISA focuses on adaptation to climate change and variability in the Great Lakes region. Fact sheets prepared by GLISA include information on how climate change will increase the frequency and duration of HABs (GLISA, 2014).
   - Additional sources regarding HABs and HAB safety include many Ohio Sea Grant publications, the U.S. Centers for Disease Control and Prevention's HAB webpage (www.cdc.gov/hab) and the

World Health Organization's guide to toxic cyanobacteria in water (www.who.int/water_sanitation_health/resources/toxicyanbact).

Stressor 2- Low water levels and sediment buildup within shallow draft recreational harbors are a hazard and have a significant impact on charter fishing and recreational boating. Dredging of materials at Lake Erie's recreational harbors and within designated boating channels is essential for boater safety and economic stability. The lack of funding and declined regional priority has affected all Great Lakes small harbor dredging efforts (GLSHC). This has impacted many areas along Ohio's Lake Erie coast, including Vermilion Harbor, which required emergency funding in 2013 to remove excess silt deposited from Superstorm Sandy in 2012. The U.S. Army Corps of Engineers (2014) states that "Ohio shallow draft harbors are in serious need of maintenance dredging and/or navigation structure repair." Stakeholders for this issue include commercial and public marinas, recreational boaters, port authorities, charter fishing operations and surrounding businesses. Recreational boating economic impact statistics and studies prepared by Ohio Sea Grant and the Great Lakes Commission and dredging evaluations by the U.S. Army Corps of Engineers provide valid justification for focus on this stressing condition. Additionally, climate change poses a threat to Lake Erie water levels and subsequently water depths at recreational harbors. According to the National Wildlife Federation, Lake Erie water levels could drop 4 to 5 feet by the end of the century.

Stakeholders and reports focused on small harbor dredging and lake levels:

- The Great Lakes Small Harbors Coalition (GLSHC) is a group representing Great Lakes small harbors where dredging and harbor maintenance issues are of particular concern. The GLSHC represents the shared needs and interests of Great Lakes communities with commercial and small harbors and aims to work with federal and local entities to address long-term viability and safety of Great Lakes harbors (GLSHC, 2014).
- Mackey (2014) comprehensively discusses the effects of Great Lakes water levels due to climate change in *Climate Change in the Midwest—A Synthesis Report for the National Climate Assessment*.

Stressor 3- All Lake Erie communities face public access maintenance challenges due to weather-related and natural hazards. Storm events producing strong winds and intense wave action may potentially cause beach and/or bluff erosion, infrastructure damage and general aesthetic impairments at Lake Erie's public access sites. Facility damages pose hazardous conditions for visitors and costly cleanup/repair efforts for managing entities. Efforts such as cleanup, repair and rebuilding can be challenging economic obstacles, especially for financially-strapped communities. In 2012, many public access sites along the Lake Erie shore suffered damages during the Hurricane Sandy event, including damages to marina infrastructure, personal watercraft, breakwaters and natural shoreline.

Additionally, since the last assessment, a handful of public access sites have been moderately-to-significantly altered due to erosion, including Mentor Lagoons Nature Preserve in Mentor, Painesville Township Park in Painesville Township, Bill Stanton Community Park in Madison Township and Tuttle Park also in Madison Township. Erosion at Bill Stanton Community Park has eliminated the switchback path that provides beach access, while erosion at Tuttle Park has limited beach access.

4. 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 variability and subsequent affects	Uncertain how climate variability will ultimately affect public access to Lake Erie. In addition to the potential impacts listed above, climate variability may cause a shift in seasonal use of specific sites and amenities. Additionally, lake level fluctuations due to climate variability will alter beach access, boating access, paddling access and the spatial footprints of access localities. Nicholls (2014) addresses the potential effects of climate variability on outdoor recreation and tourism in the Midwest in *Climate Change in the Midwest—A Synthesis Report for the National Climate Assessment*.

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.

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;
   <u>Comprehensive Access Management Planning:</u>
   2011: OCM awarded $25,103 in Coastal Management Assistance Grants (CMAG) to the Ashtabula County Board of Commissioners/Port Authority to develop a county coastal development plan. Plan

components included an analysis of coastal resources, identification of priority development and conservation areas and the development of a coastal portfolio to optimize growth.

2010: OCM awarded $68,250 (CMAG) to the Cleveland Metroparks to develop a Shoreline Management Plan for Huntington Reservation in Bay Village. Plan strategies include replacing aging infrastructure (e.g. jetties), beach stabilization, improving public access to beach, addressing high-bluff erosion, improving amenities (e.g. restrooms and concession area) and eradicating invasive plants.

2010: OCM awarded $10,480 (CMAG) to the village of Marblehead to develop a trail system master plan. Plan objectives included guiding decision making in regards to trail development per community needs and overall vision and seeking funding sources.

2010: OCM awarded $5,000 (CMAG) to the city of Willoughby to conduct a coastal recreation analysis at Sunset and Osborne parks. Plan goals included developing concise strategies and a framework to increase park usage and public access to the water, establishing connectivity between the two areas and creating sustainable public beaches.

Notable non-CMP planning efforts:

- In 2012, the Cleveland City Planning Commission approved the Cleveland Downtown Lakefront Plan. The geographic extent of the plan spans between West 3rd Street (west) and East 18th Street (east) and includes the North Coast Harbor. Redevelopment strategies that are proposed include mixed-use commercial development, new public arcades and walkways connecting existing attractions and enhanced lake access.

<u>GIS Mapping/Database of Access Sites:</u>
Based on yearly fieldwork efforts, OCM continually updates its Lake Erie public access inventory and GIS database, which includes publicly accessible sites along major Lake Erie tributaries (information collected in 2011). OCM has developed a comprehensive database (in Excel) that highlights all Lake Erie coastal access sites, lists amenities and documents changes. Since the last assessment, OCM has identified, recognized and/or verified 27 new Lake Erie public access sites (191 total) and 220 public access sites along major Lake Erie tributaries.

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

<u>Comprehensive Access Management Planning:</u>
All abovementioned projects, with the exception of the Cleveland Downtown Lakefront Plan (community funded), were funded through CZM-driven Coastal Management Assistance Grants (CMAG), not Section 309.

<u>GIS Mapping/Database of Access Sites:</u>
GIS work supported via CZM-driven funding.

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

<u>Comprehensive Access Management Planning:</u>
Enhanced connectivity, comprehensive site planning, improved aging amenities and enhanced Lake Erie public access.

<u>GIS Mapping/Database of Access Sites:</u>
Up-to-date GIS and database products for map product development, data distribution, publications and interactive map viewer products.

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 safety

   Description: Engage in an effort to improve public safety at Lake Erie access sites. Utilize the OCM Public Access Guide to increase safety awareness at access sites. Coordinate with state and local emergency management agencies to promote the sharing of access information that will strengthen emergency preparedness planning and first response. Promote an increase and standardization of public access signage.

   Management Priority 2: __ Comprehensive planning

   Description: Encourage coastal communities to prioritize Lake Erie public access as a key part of comprehensive planning. Establishing coastal access as local assets involves recognizing the needs and requirements of the public, focusing on amenity availability and accessibility, enhancing site-to-community and site-to-site connectivity, identifying funding opportunities for site enhancement and improving site signage. As part of the planning process, communities will also be encouraged to identify mechanisms and funding opportunities to help cleanup, repair and rebuild facility assets and damaged infrastructure.

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	-Comprehensive method to identify and address non-point source stormwater pollution and agricultural run-off that impacts growth of HABs and heightens *E. coli* levels -Assess support and demand for standardized safety signage and warning systems -vulnerability and resilience assessment tools
Mapping/GIS	N	

Data and information management	N	
Training/Capacity building	Y	-develop and plan approach for providing safety education materials
Decision-support tools	Y	-provide resources and/or assistance to communities to assist them with vulnerability and resilience assessments
Communication and outreach	Y	-Coordinate with relevant agencies, organizations and communities to develop standardized signage and educational materials
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.

A strategy will not be developed for this enhancement area at this time. Public access is a priority and work towards the identified priority needs will be conducted with other CZM funding as staffing and time permits.

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.

Source of Marine Debris	Existing Status and Trends of Marine Debris in Coastal Zone		
	Significance of Source (H, M, L, unknown)	**Type of Impact**[33] (aesthetic, resource damage, user conflicts, other)	**Change Since Last Assessment** (↑, ↓, –, unknown)
Land-based			
Beach/shore litter	M-H, by site	Aesthetic, resource damage, public health	-
Dumping	M-H, by site	Aesthetic, resource damage, public health	-
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	↑
Fishing (e.g., fishing line, gear)	M	Aesthetic, resource damage, water quality impairment, damage to boats and engines	-
Other (please specify) Plastic Microbeads	M	Resource damage, public health	↑
Ocean or Great Lake-based			
Fishing (e.g., derelict fishing gear)	L	Aesthetic, resource damage, damage to equipment	-
Derelict vessels	L	Aesthetic, resource damage, damage to equipment	-

[33] 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	Aesthetic, resource damage, public health, economic, public safety	↑
Tsunami			-
Other (please specify)			-

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.

Lakeshore communities from Bay Village to Cleveland suffered damaging winds and numerous other communities in the region suffered flooding, power outages and disruption of public services as a result of Hurricane Sandy in October 2012. 20-foot waves pummeled the Lake Erie shore in Cleveland and resulted in the closing of the East Shoreway. The Cleveland breakwater along with docks and boats at the Edgewater Marina also sustained significant damage. The damage to the marina resulted in its closure for the 2013 boating season.

Since the last assessment, a minimum of 109 clean-up events have been held as part of CoastWeeks, Adopt-A-Beach, and the Ohio Clean Marinas programs collecting over 192,319 pounds of beach/shore debris from the shores of Lake Erie.

NOAA's MDP works with Ohio Clean Marinas to incorporate marine debris prevention messages into signs, best management practices (BMPs), and boater tip sheets at Ohio marinas.

Ohio's Clean Marina Program is administered by the Ohio Sea Grant College Program. The Ohio Clean Marina Program was developed in partnership with the Ohio Department of Natural Resources Office of Coastal Management, Division of Soil and Water Resources, and Division of Watercraft; the Ohio Department of Health; Ohio EPA; Ohio Department of Commerce, State Fire Marshall Division; U.S. Coast Guard; U.S. Army Corps of Engineers; Lake Erie Marine Trades Association, Greater Cleveland Boating Association, local health departments, local fire marshals, and marina and yacht club owners and managers. An advisory board provides technical expertise, development and review of programmatic materials, program development and assistance with program implementation. Funding for Ohio's Clean Marina Program is provided by the Ohio Sea Grant College Program and by the Ohio Coastal Management Program with Section 306 funds.

- 44 currently certified marinas and 33 marinas currently pledged to become certified
  - 8 marinas became certified between 2011 – 2015
  - 5 BMPs are related to marine debris in Ohio Clean Marinas Program checklist (http://www.ohioseagrant.osu.edu/_documents/cmarina/checklist.pdf)
  - 13 marinas pledged between 2011 – 2015 (in order to pledge, had to attend mandatory training that went over all of the BMPs to become a certified Clean Marina)

- 283 boaters that took the Ohio Clean Boater Pledge from 2011 – 2015 (and counting…)
  - Clean Boater pledge: "I pledge to be a Ohio Clean Boater and follow Best Boater Practices (BBPs) to keep oil, sewage, toxic boat cleaning and maintenance products, plastics, cigarette butts and other trash, fishing gear and invasive species out of the water."
- 1 marina clean ups that took place from 2011 – 2015: 3 people, 100 pounds of trash collected, .25 mile cleaned in 1.5 hours.
- There are at least 20 monofilament recycling bins and educational signage distributed to marinas and fishing piers in the Lake Erie Watershed from 2011 – 2015 to collect and recycle used fishing line. This was accomplished in partnership with NOAA's MDP and the Boat US Foundation.
- In February 2014, the Ohio Clean Marinas Program Coordinator (along with a representative from the ODNR Office of Coastal Management) participated in a workshop to develop a Land-Based Marine Debris Plan for the Great Lakes. The plan can be found at: http://marinedebris.noaa.gov/sites/default/files/Lowe%202014%20-%20GL%20Action%20Plan.pdf
- In 2014, Ohio Clean Marinas was awarded a NOAA Coastal Storms small grant to develop a "Coastal Storms Preparation, Adaptation, and Response Tool for Great Lakes Marinas"
  - Grant period: June 2014 – June 2016
  - Tool will include addressing how to prepare and respond to debris at marinas related to coastal storm events. Will discuss abandoned vessels, storm debris, and land-based marine debris.
- 760,000 pounds of shrink wrap were collected and recycled from 2011 – 2015
  - 125 participants in the program
  - 137.7 miles of guardrail blocks produced
  - 15.8 buses worth of shrink wrap kept out of landfills
  - To date, over 2.27 million pounds of shrink wrap have been recycled to produce nearly 330,000 guardrail blocks used to protect over 411 miles of highway

Shrink Wrap Numbers: 2010 = 219,000 lbs.
2011 = 210,000 lbs.
2012 = 300,000 lbs.
2013 = 250,000 lbs.

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.

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	N	N	Y
Marine debris removal	Y	Y	N

programs			

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. Plastic Microbeads: The bi-national committee of advisors to the Great Lakes Fishery commission recently passed a resolution (www.glfc.org/staff/resol2014_2.pdf) that calls on state, provincial and federal governments in the US and Canada to prohibit the sale by 2015 of cosmetic or personal care products containing plastic microbeads. The resolution supports legislative action pending in several Great Lakes states. Once microbeads are discharged into the water, they persist – that is, they do not break down or degrade over time – and collect toxic chemical pollutants on their surface. They are mistaken for food by organisms throughout the aquatic food web, where they can cause physical blockages and internal damage and serve as a pathway for dangerous pollutants to enter the food web and contaminate the fish and wildlife (resource damage and public health). Illinois has already banned plastic microbeads by 2017 (first in the world to do so). (Source: Ohio Outdoor News 7/18/14)

   b. Plastic Microbeads: The Great Lakes Fishery Commission resolution was not a 309 or other CZM-driven change.

   c. Plastic Microbeads: Legislation has also been introduced at Federal (Microbead-Free Waters Act of 2014) and State (Senate Bill 304, 130th General Assembly 2013-2014) levels. Many companies have started the process of phasing out plastics in their products (such as Cincinnati-based Proctor & Gamble). Should these legislative initiatives be successful, new sources of plastic microbeads entering the waters of Lake Erie from the United States will be eliminated.

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.

   Beach clean-up programs and recycling initiatives are in place and are active in addressing human-generated debris. It is expected that organic debris will be reduced as a result of initiatives through the Ohio EPA, ODNR Division of Soil and Water Resources, and the U.S. Department of Agriculture to address stormwater and other nonpoint pollution sources at both the watershed and individual parcel level. The issue of plastic microbeads and pending state and federal legislation will be

monitored but no action by the coastal management program is anticipated at this time. Therefore, the OCMP has attributed a low priority for this enhancement area.

A strategy using 309 funds will not be developed for this enhancement area. Ongoing programs and initiatives, including the Ohio Clean Marina Program, Alliance for the Great Lakes (Adopt-a-Beach), Ohio Lake Erie Commission (Coastweeks), Ocean Conservancy (International Coastal Cleanup), are addressing the enhancement objective. The stakeholder engagement process which included feedback from the divisions and agencies represented on the Integrated Management Team (IMT) and the Policy Planning Committee (PPC) as well as the Coastal Resources Advisory Council did not address the Marine Debris enhancement area.

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, [34] please indicate the change in population and housing units in the state's coastal counties between 2012 and 2007. 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 (2012-2007) to approximate current assessment period.

Trends in Coastal Population and Housing Units				
Year	**Population**		**Housing**	
	Total (# of people)	% Change (compared to 2007)	Total (# of housing units)	% Change (compared to 2007)
2007	2,697,464	-1.44%	1,234,157	0.59%
2012	2,641,005		1,241,491	

2. Using provided reports from NOAA's Land Cover Atlas[35] or high-resolution C-CAP data[36] (Pacific and Caribbean Islands only), please indicate the status and trends for various land uses in the state's coastal counties between 2006 and 2011. 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 and the Commonwealth of the Northern Mariana Islands (CNMI) currently only have data for one time point so will not be able to report trend data. Instead, Puerto Rico and CNMI should just report current land use cover for developed areas and impervious surfaces.

[34] www.oceaneconomics.org/. Enter "Population and Housing" section. From drop-down boxes, select your state, and "all counties." Select the year (2012) and the year to compare it to (2007). Then select "coastal zone counties." Finally, be sure to check the "include density" box under the "Other Options" section.
[35] www.csc.noaa.gov/ccapatlas/. Summary data on land use trends for each coastal state is available on the ftp site.
[36] www.csc.noaa.gov/digitalcoast/data/ccaphighres. Summary data on land use trends for each coastal state is available on the ftp site.

Distribution of Land Cover Types in Coastal Counties		
Land Cover Type	**Land Area Coverage in 2011 (Acres)**	**Gain/Loss Since 2006 (Acres)**
Developed, High Intensity	144,236.0	9,117.1
Developed, Low Intensity	325,440.7	3,587.2
Developed, Open Space	147,485.4	4,004.0
Grassland	35,237.8	-603.6
Scrub/Shrub	40,330.0	1,863.9
Barren Land	12,663.2	380.5
Open Water	511,893.4	122.1
Agriculture	1,140,264.4	-12,455.4
Forested	322,783.0	-5,282.5
Woody Wetland	227,782.4	-717.0
Emergent Wetland	144,236.0	9,117.1

3. Using provided reports from NOAA's Land Cover Atlas[37] or high-resolution C-CAP data[38] (Pacific and Caribbean Islands only), please indicate the status and trends for developed areas in the state's coastal counties between 2006 and 2010 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 and CNMI currently only have data for one time point so will not be able to report trend data. Unless Puerto Rico and CNMI have similar trend data to report on changes in land use type, they should just report current land use cover for developed areas and impervious surfaces.

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 high-resolution C-CAP data are available. Puerto Rico and CNMI do not need to report trend data.*

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

[37] www.csc.noaa.gov/ccapatlas/. Summary data on land use trends for each coastal state is available on the ftp site.
[38] www.csc.noaa.gov/digitalcoast/data/ccaphighres. Summary data on land use trends for each coastal state is available on the ftp site.

** 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 CNMI do not report.*

4. Using data from NOAA's State of the Coast "Shoreline Type" viewer,[39] indicate the percent of shoreline that falls into each shoreline type.[40] You may provide other information or use graphs or other visuals to help illustrate.

Shoreline Types*	
Surveyed Shoreline Type	**Percent of Shoreline**
Armored	16.6
Beaches	12.0
Flats	14.72
Rocky	39.1
Vegetated	17.3
Not Classified	0.3

*Data included above is a summary of a dataset created as part of the Great Lakes Program ecoregional planning effort. This original dataset was developed for the International Joint Commission's Levels Reference Study, and used to assess the influence of lake levels on shore erosion. The Nature Conservancy's Great Lakes Program modified this dataset for use in a basinwide conservation planning effort. Additional explanation of the nearshore classification is available in Higgins et al. 1998 "Freshwater Conservation in the Great Lakes Basin: Development and Application of an Aquatic Community Classification Framework" The Nature Conservancy, Great Lakes Program, Chicago, Illinois. This document is available at www.freshwaters.org. Note that this data is for the nearshore and significantly under-reports the percent of shore that is armored.

5. If available, briefly list and 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 and habitat fragmentation, since the last assessment to augment the national data sets.

   Tracking of Sand Bypassing Volumes: As part of the ODNR Shore Structure Permit authority, ODNR requires that projects that impact sand transport be monitored on at least an annual basis and all accumulated littoral material be bypassed. OCM tracks the reported bypass volumes for each project.

6. Coastal Regulatory Database Updates: OCM has revised the coastal regulatory database and created reporting that tracks the acres of beach, and nearshore areas lost 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)
2010	2.03	1.17	1,145
2011	1.85	1.90	1,000

[39] http://stateofthecoast.noaa.gov/shoreline/welcome.html

[40] Note: Data are from NOAA's Environmental Sensitivity Index (ESI) Maps. Data from each state was collected in different years and some data may be over ten years old now. However, it can still provide a useful reference point absent more recent statewide data. Feel free to use more recent state data, if available, in place of ESI map data. Use a footnote to convey data's age and source (if other than ESI maps).

2012	3.92	1.91	475
2013	7.88	2.89	1,380

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.

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	Y
Management plans (including SAMPs)	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;
      i. Lake Erie Shore Erosion Management Plan (LESEMP): As part of the Lake Erie Shore Erosion Management Plan, a guidance document for coastal property owners has been developed that provides information on how to minimize impacts to coastal habitats when completing a construction project along the shore of Lake Erie. Finally, a textural GIS tool has been developed that calculates the amount of granular sediment that is potentially added to the littoral system through erosion of coastal bluffs.
      ii. Lake Erie Phosphorous Task Force: In 2012, Ohio EPA, in partnership with the Ohio Lake Erie Commission, the Ohio Department of Agriculture, and the Ohio Department of Natural Resources reconvened the Ohio Lake Erie Phosphorus Task Force as a Phase II effort. Shortly after the 2010 publication of the Ohio Lake Erie Phosphorus Task Force Final Report, (Phase I) new information became available and the conversation about nutrient management was broadened to include more stakeholders with additional areas of expertise. A wide range of participants in a variety of disciplines, including members of the original Ohio Lake Erie Phosphorus Task Force, agri-business representatives and crop consultants came together to build upon the findings of the 2010 Phosphorus Task Force report and assess new information. In November of 2013 the Task Force released the Ohio Lake Erie Phosphorus Task Force II Report which included a list of 20 recommendations to reduce all sources of dissolved phosphorus, urban and rural, point and nonpoint sources.
   b. Specify if they were 309 or other CZM-driven changes; and
      i. LESEMP was a 309 driven change.
      ii. Lake Erie Phosphorous Task Force was not a 309 or CZM-driven change.

c. Characterize the outcomes or likely future outcomes of the changes.
   i. LESEMP: The finalization of the habitat fact sheet provides educational information to property owners, with the long-term goal of incorporating habitat neutral (or beneficial) components to coastal projects. Development of the textural GIS tool allows for access to data related to secondary and cumulative impacts, specifically related to impacts to littoral drift, while completing technical reviews of regulatory applications. The availability of data will result in the ability to make more informed regulatory decisions.
   ii. The Lake Erie Phosphorous Task Force II Report provides a path forward for reducing levels of dissolved phosphorous entering Lake Erie from multiple sources.

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 cumulative and secondary impact enhancement area is a high priority for the Ohio Coastal Management Program due to the magnitude of nonpoint and nutrient runoff impacts resulting from agricultural uses as well as from continued development throughout the coastal watersheds and communities. Nearshore habitat and sand resources are also being impacted by development activities occurring along the shore. Continued efforts are necessary to assess these impacts and develop mechanisms to address them.

   Stakeholder input received from networked state agencies and members of the Coastal Resources Advisory Council identified Cumulative and Secondary Impacts as one of the top three enhancement area priorities citing issues such as altered hydrology, dredging and open lake disposal, a lack of management plans in place to prioritize and direct action, and a lack of education and general understanding about landuse impacts on waterways and ultimately Lake Erie in addition to the needs already discussed above.

Cumulative and Secondary Impacts II

In-Depth Resource Characterization:
Purpose: To determine key problems and opportunities to improve the CMP's ability to address cumulative and secondary impacts of coastal growth and development.

1. What are the three most significant existing or emerging cumulative and secondary stressors or threats within the coastal zone? Indicate the geographic scope of the stressor, i.e., is it prevalent throughout the coastal zone or are there specific areas that are most threatened? Stressors can be coastal development and impervious surfaces; polluted runoff; agriculture activities; forestry activities; shoreline modification; or other (please specify). Coastal resources and uses can be habitat (wetland or shoreline, etc.); water quality; public access; or other (please specify). When selecting significant stressors, also consider how climate change may exacerbate each stressor.

	Stressor/Threat	**Coastal Resource(s)/Use(s) Most Threatened**	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Stressor 1	Shoreline modification	Sand resources, shoreline and nearshore habitat	Throughout coastal zone
Stressor 2	Polluted runoff	Water quality	Western Basin major, nearshore areas throughout coastal zone
Stressor 3	Dredging and open lake disposal	Coastal economy, fishery and sand resources	Ports and recreational harbors

2. Briefly explain why these are currently the most significant cumulative and secondary stressors or threats from coastal growth and development within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.
   a. Stressor 1- **Shoreline modification** that results in hardening and armoring to control erosion impacts both shoreline and nearshore habitat and also has the potential to affect the availability of sand resources through the loss of sediment sources and disruption of or modification to sediment transport. These changes can result in increased erosion along adjacent shorelines or increased accumulation of material resulting in the need for increased dredging. This stressor was cited in the Stakeholder input as one of the critical problems related to the Cumulative and Secondary Impacts enhancement area.
   b. Stressor 2- **Polluted runoff** impacts like harmful algal blooms are a major environmental problem throughout the coastal zone which can have severe impacts on human health, aquatic ecosystems and the economy. Nutrient pollution, largely in the form of soluble reactive phosphorus and total phosphorus, from agricultural runoff and failing home sewage treatment systems coupled with more frequent severe storms makes the problem worse, leading to more severe blooms that occur more often. In August 2014, wind and water currents pushed an algal bloom that was present in the western basin of Lake Erie, near Toledo, into the area where the Toledo water plant takes in water from the lake. Wind also caused waves that mixed the cyanobacteria into the water column where they could be sucked into the water plant. The plant had been removing toxins from the raw lake water to produce the final drinking water, but on August 2, 2014, the treated drinking water had a toxin concentration that was above the 1.0 ppb level recommended by the World Health Organization (WHO). When levels of algal toxin exceeded those recommended by the WHO, the city issued a drinking water ban. This stressor

was also cited in the Stakeholder input as one of the critical problems related to the Cumulative and Secondary Impacts enhancement area.

c. Stressor 3- **Dredging and open lake disposal** is an environmental and economic stressor for port and recreational harbor communities. In order to maintain and increase commerce and provide recreational opportunities, ports and harbors must be dredged. However, there are challenges in disposing of the dredge material in an economical and environmentally safe manner and in funding recreational harbor dredging. The disposal location of dredge material can impact fisheries and sand resources. The disposal of coarse-grained sediments in an upland location or a confined disposal facility removes material from the littoral system potentially limiting beach replenishment and altering habitat; the disposal of fine-grained material in the open lake can increase turbidity and alter the composition of bottom sediments. Dredging and open lake disposal was cited in the Stakeholder input as one of the critical problems related to the Cumulative and Secondary Impacts enhancement area.

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
Harmful Algal Blooms	Solutions
Sediment Management	Sediment management strategies and options for beneficial use of dredge materials

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

1. For each additional cumulative and secondary impact management category below that is 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.

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)
Methodologies for determining CSI impacts	Y	Y	N
CSI research, assessment, monitoring	Y	Y	N
CSI GIS mapping/database	Y	N	N
CSI 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 addressing cumulative and secondary impacts of development since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state and territory's management efforts? Please see response included in the Coastal Hazards enhancement category.

Identification of Priorities:

1. Considering changes in cumulative and secondary impact threats 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 the effectiveness of its management effort to better assess, consider, and control the most significant threats from cumulative and secondary impacts of coastal growth and development. *(Approximately 1-3 sentences per management priority.)*

   Management Priority 1: __Develop and/or provide for a streamlined regulatory implementation and/or approval process.

   Description: Develop information that facilitates more effective review, leasing and/or permitting among State, Federal, and local authorities for a specific class of activity such as beneficial use of dredge material, shore protection, habitat restoration, or offshore energy infrastructure.

   Management Priority 2: __Beneficial use of dredge materials

   Description: Promote exploration of beneficial use of dredge materials and facilitate the identification of pilot use project opportunities.

   Management Priority 3: __Home sewage treatment system compliance assistance

   Description: Reduce impacts to water quality by fostering partnerships and coordination among state and local agencies to encourage the development of a practical funding assistance mechanism for those that need assistance to repair or replace a failing septic system.

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	Research relationships between nearshore ecosystems, sand resources and shoreline alterations
Mapping/GIS	Y	Map nearshore habitat and potential restoration areas
Data and information	Y	Collect, promote and share beneficial use and nearshore habitat

management		restoration information
Training/Capacity building	Y	Coastal and nearshore habitat
Decision-support tools	N	
Communication and outreach	Y	Coordination with agencies on HSTS compliance assistance
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 this enhancement area based on the research and feedback obtained during the development of the assessment. The identified stressors have a significant impact within the coastal zone and warrant continued efforts by the Ohio CMP to improve the effectiveness of its management efforts.

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 special area management plan (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.

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 Ohio Coastal Management Program 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 idea of a SAMP was briefly explored by the OCMP as a tool that could potentially address dredged material management issues in Lake Erie, but there are many past and existing efforts to organize interested parties in dredging issues. Consequently, a SAMP would likely provide a duplicative, and potentially confusing, additional effort to organize the various parties involved in these discussions.

Ocean/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), [41] indicate the status of the ocean and Great Lakes economy as of 2010, as well as the change since 2005, 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 (2011)				
	Establishments (# of Establishments)	**Employment** (# of Jobs)	**Wages** (Millions of Dollars)	**GDP** (Millions of Dollars)
Living Resources	41	423	9.3	36.9
Marine Construction	34	297	23.2	41.8
Ship & Boat Building	17	167	6.4	15.5
Marine Transportation	212	7,768	379.7	675.7
Offshore Mineral Extraction	49	231	11.6	29.0
Tourism & Recreation	1,988	33,545	505.1	1,100.0
All Lake Erie Sectors	2,341	42,431	935.3	1,898.9

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2011)				
	Establishments (% change)	**Employment** (% change)	**Wages** (% change)	**GDP** (% change)
Living Resources	0.00	+63.95	+53.53	+108.18
Marine Construction	-24.44	-32.65	+3.35	+3.19
Ship & Boat	+30.77	-79.53	-77.69	-81.65

[41] www.csc.noaa.gov/enow/explorer/. If you select any coastal county for your state, you receive a table comparing county data to state coastal county, regional, and national information. Use the state column for your responses.

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2011)				
	Establishments (% change)	**Employment** (% change)	**Wages** (% change)	**GDP** (% change)
Building				
Marine Transportation	+1.92	+5.59	+25.95	+18.77
Offshore Mineral Extraction	+32.43	-7.97	-0.14	-13.49
Tourism & Recreation	+11.43	-2.20	+10.76	+13.04
All Ocean Sectors	+10.01	-2.28	+13.21	+10.51

2. 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.

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)
Resource	
Benthic habitat (including coral reefs)	-
Living marine resources (fish, shellfish, marine mammals, birds, etc.)	↑
Sand/gravel	-
Cultural/historic	-
Other (please specify)	N/A
Use	
Transportation/navigation	↑
Offshore development[42]	-
Energy production	↑
Fishing (commercial and recreational)	↑
Recreation/tourism	↑
Sand/gravel extraction	-
Dredge disposal	↑
Aquaculture	-
Other (please specify)	N/A

3. For the ocean and Great Lakes resources and uses in Table 2 (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.

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

Major Contributors to an Increase in Threat or Use Conflict to Ocean and Great Lakes Resources												
Resource	**Major Reasons Contributing to Increased Resource Threat or Use Conflict** (Note All that Apply with "X")											
	Land-based development	Offshore development	Polluted runoff	Invasive species	Fishing (Comm & Rec)	Aquaculture	Recreation	Marine Transportation	Dredging	Sand/Mineral Extraction	Climate Change	Other (Specify)
Example: Living marine resources		*X*	*X*	*X*	*X*	*X*		*X*	*X*			
Benthic habitat												
Living marine resources	X	X	X	X	X				X		X	
Sand/gravel												
Cultural/historic												
Transportation/navigation				X					X			
Offshore development												
Energy production		X										
Fishing			X	X					X		X	
Recreation/tourism	X	X	X	X								
Sand/gravel extraction												
Dredge disposal	X		X						X			
Aquaculture												

4. 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.

   See the discussion of the Lake Erie Phosphorus Task Force reports under Public Access Phase II Assessment.

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?

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	No	Yes	No
Regional comprehensive ocean/Great Lakes management plans	Yes	No	Yes
State comprehensive ocean/Great Lakes management plans	Yes	Yes	No
Single-sector management	Yes	Yes	No

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)
plans			

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.

Regional Comprehensive Management Plans

a. The **Great Lakes Restoration Initiative (GLRI) Action Plan II** summarizes the actions that federal agencies plan to implement during FY15-19 using GLRI funding — actions to protect and restore the largest fresh surface water system in the world. These actions will build on restoration and protection work carried out under the first GLRI Action Plan, with a major focus on:
    - Cleaning up Great Lakes Areas of Concern
    - Preventing and controlling invasive species
    - Reducing nutrient runoff that contributes to harmful/nuisance algal blooms
    - Restoring habitat to protect native species

    The **GLRI Action Plan II** incorporates a science-based adaptive management framework that is used to prioritize ecosystem problems and commits agencies to develop and incorporate climate resiliency criteria in project selection processes.

b. The changes were implemented at the federal agency level.

c. The most significant outcomes from the plan are driven through increased funding for habitat protection and restoration projects. In Ohio, funding was provided for habitat acquisition projects along the Lake Erie shore, habitat restoration along Lake Erie tributaries, and the cleanup of legacy contaminants in designated Areas of Concern.

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 (2013)	Yes
Under development (Y/N)	No	Yes
Web address (if available)	http://lakeerie.ohio.gov/ProtectionRestorationPlan.aspx	http://greatlakesrestoration.us/
Area covered by plan	Ohio portion of the 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 Great Lakes Resources enhancement area has been given a high priority due to the need for coordinated planning to balance development with the protection of coastal resources, to achieve social and economic objectives such as increased public access, to improve coastal resilience; and to address dredge disposal and beneficial use opportunities.

   Stakeholder input received from networked state agencies identified Great Lakes Resources as one of the top three enhancement area priorities citing issues such as aquatic invasive species and water quantity in addition to the needs already discussed above.

Ocean and Great Lakes Resources II

In-Depth Resource Characterization:
Purpose: To determine key problems and opportunities to enhance the state CMP to better address cumulative and secondary impacts of coastal growth and development.

1. What are the three most significant existing or emerging stressors or threats to ocean and Great Lakes resources within the 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** (Nutrient, marine debris, storm run-off, sewage waste water, 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:** Habitat degradation continues to be a major stressor to Lake Erie coastal resources. The degradation is exacerbated by nutrient impairment, with dissolved reactive phosphorus leading to harmful algal blooms throughout the coastal zone and particularly in the western basin of Lake Erie. The Ohio Lake Erie Phosphorus Task Force identified agriculture as the leading source of phosphorus contribution in the western basin of Lake Erie. Additionally, many species indigenous to the region are subject to population decline or extirpation due to habitat loss and competition from invasive species, causing biodiversity to decline. For example, in Ohio 78 freshwater mussel species were present historically, with 44 species occurring in the Lake Erie watershed. Five of those species are now extinct and 13 are extirpated from the State. The Ohio ODNR Division of Wildlife lists 54% of all Ohio unionid species as endangered, threatened, or species of concern (Grabarkiewicz & Gottgens, 2011). Habitat degradation is also occurring in wetlands due to development, fragmentation, and other factors such as invasive species. Dredge material management, including open lake placement of dredged materials, is an additional potential habitat stressor.

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 in physical impacts to Lake Erie through more intense water level fluctuations, changes to 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 result in an increased number of combined sewer overflow events.

c. **Stressor 3 – Invasive Species:** Aquatic invasive species such as the Asian Carp pose a current threat to the habitat and ecosystem of Lake Erie. Bighead and silver carp are deemed a dire threat to Lake Erie's $11.5 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 shallowest and smallest by volume. The Ohio Lake Erie sport fishery contributes more than $800 million to the Ohio economy. The industries most acutely affected by invasive species include sport and commercial fishing, water treatment, power generation, industrial facilities using surface water, and tourism. Together, these industries employ over 125,000 workers in the Great Lakes region. Present invasive species such as zebra and quagga mussels, round goby, sea lamprey, etc. also continue to impact food chains, the ecosystem and the economy. Terrestrial invasive species such as phragmites 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
Climate Change impacts	A comprehensive planning effort that addresses climate change, coastal resilience, habitat restoration, and economic development is needed to fully link and address these issues in a coordinated manner.

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.

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	N	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?

   The Ohio Lake Erie Phosphorus Task Force developed two reports (2010 and 2013) that address the extent of phosphorus loading in Lake Erie and provide recommendations to minimize the amount of phosphorus entering Lake Erie and associated impacts caused by the phosphorus loading.

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: __Nearshore habitat

   Description: Conduct research on the relationships between nearshore ecosystems, sand resources and shoreline alterations and develop recommendations for creating living shorelines/ restoring functional nearshore habitats. Revise regulatory procedures for assessing shore structure permits and incorporate recommendations for nearshore habitat enhancements where feasible.

   Management Priority 2: __Provide for an ecosystem-based coastal resilience plan to address the management of invasive species.

   Description: Develop and implement a plan to acquire data and information to support more efficient management of invasive species on a regional level. Areas of interest include nearshore, dune, coastal bluff and wetland environments.

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	Identify and obtain data needed to develop an effective ecosystem-based coastal resilience and marine spatial plan.
Mapping/GIS	Y	Develop interactive GIS mapping application to support coastal resiliency planning.
Data and information management	Y	Identify an effective mechanism to collect and manage stakeholder input to be used in the development of an ecosystem-based coastal resilience and marine spatial plan.
Training/Capacity building	N	
Decision-support tools	N	
Communication and outreach	Y	Develop a communication and outreach strategy to engage stakeholders in the plan development and implementation.
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 in order to facilitate the development of an effective ecosystem-based coastal resilience plan. Such a plan will integrate climatic changes and effects along with the ecological, economic, and social needs of the Ohio coast in a balanced way resulting in a resilient Lake Erie coastal and marine environment.

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) [43]

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. The MarineCadastre.gov may be helpful in locating many types of energy facilities in the coastal zone.

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	**Exists in CZ**		**Proposed in CZ**	
	(# or Y/N)	Change Since Last Assessment (↑, ↓, –, unkwn)	(# or Y/N)	Change Since Last Assessment (↑, ↓, –, unkwn)
Energy Transport				
Pipelines[44]	Yes	unkwn	No	unkwn
Electrical grid (transmission cables)	Yes	↑	Yes	↑
Ports	8	–	No	–
Liquid natural gas (LNG)[45]	No	–	No	–
Other (please specify)				
Energy Facilities				
Oil and gas	No	–	Yes	↑ (coal to gas conversion)
Coal	Yes	–	Yes	↓ (coal to gas conversion)
Nuclear[46]	2	–	No	–

[43] 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.
[44] For approved pipelines (1997-present): www.ferc.gov/industries/gas/indus-act/pipelines/approved-projects.asp
[45] For approved FERC jurisdictional LNG import/export terminals: www.ferc.gov/industries/gas/indus-act/lng/exist-term.asp
[46] The Nuclear Regulatory Commission provides a coarse national map of where nuclear power reactors are located as well as a list that reflects there general locations: www.nrc.gov/reactors/operating/map-power-reactors.html

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	**Exists in CZ**		**Proposed in CZ**	
	(# or Y/N)	Change Since Last Assessment (↑, ↓, –, unkwn)	(# or Y/N)	Change Since Last Assessment (↑, ↓, –, unkwn)
Wind	No	–	Yes	–
Wave[47]	No	–	No	–
Tidal[36]	No	–	No	–
Current (ocean, lake, river)[36]	No	–	No	–
Hydropower	No	–	No	–
Ocean thermal energy conversion	No	–	No	–
Solar	No	–	No	–
Biomass	Yes	–	No	–
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.

   The Ohio Office of Coastal Management has developed draft Ohio Administrative Code rules for administering submerged lands authorizations for offshore energy facilities through a cooperative effort with other state and federal regulatory agencies and has updated these draft rules based upon feedback from the current ODNR Administration.

   Until recently, an OAC rule package for offshore energy development in Lake Erie was considered to be a low priority due to the poor economics related to private investment. However, $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 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) requires 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 must be generated from alternative energy sources. At least 12.5 percent must be generated from renewable energy resources, including wind, hydro, biomass and at least 0.5 percent solar. The remainder can be generated from advanced energy resources, including nuclear, clean coal and

[47] For FERC hydrokinetic projects: www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp

certain types of fuel cells. In addition, at least one half of the renewable energy used must be generated at facilities located in Ohio. All companies must meet annual renewable and solar energy benchmarks that increase as a percentage of electric supply each year.

In June 2014, Ohio enacted legislation that freezes, 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. The Public Utilities Commission of Ohio (PUCO) is in the process of updating these requirements and changes.

Note: The alternative energy portfolio standard does not specify any offshore or coastal components. However, the state, through the Department of Development Ohio Energy Office, is promoting the development of wind power within the state, including in the coastal zone and offshore in Lake Erie.

3. Briefly characterize the existing status and trends for federal government facilities and activities of greater than local significance[48] 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.

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	N
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.

[48] 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).

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 _____

2. 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 continued momentum of the proposed pilot offshore wind project and Ohio's Advanced Energy Portfolio (even though frozen for two years). This enhancement area was not one of the top three priorities identified from the stakeholder input but energy production, among other Lake Erie services, was highlighted as an opportunity for the OCMP to promote this resource a valuable to the Ohio economy, and 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.[49]

Type of Facility/Activity	Status and Trends of Aquaculture Facilities and Activities		
	# of Facilities[50]	Approximate Economic Value	Change Since Last Assessment (↑, ↓, –, unkwn)
State fish hatchery	2 in Lake Erie Watershed		–

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.

   The ODNR Division of Wildlife operates six (6) state fish hatcheries. Of the six, only the Castalia and St. Marys hatcheries are located within the Lake Erie Watershed. The Castalia State Fish Hatchery is located in Erie County, a Lake Erie coastal county. St. Marys State Fish Hatchery is located in Auglaize County near the Lake Erie-Ohio River watershed divide.

Management Characterization:

[49] While focused on statewide aquaculture data rather than just within the coastal zone, the *Census of Aquaculture* (www.agcensus.usda.gov/Publications/2002/Aquaculture/) may help in developing your aquaculture assessment. The 2002 report, updated in 2005, provides a variety of state-specific aquaculture data for 2005 and 1998 to understand current status and recent trends. The next census is scheduled to come out late 2014 and will provide 2013 data.

[50] 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.

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.

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 – 1. With exception to the proclamation banning the transport, sale or distribution of fish species susceptible to Viral Hemorrhagic Septicemia. 2. The Asian Carp Regional Coordinating Committee (ACRCC) announced on 6/24/2014 a coordinated strategy to protect the Great Lakes from silver and bighead carp, building on previous Obama Administration efforts to prevent self-sustaining populations from becoming established in the Great Lakes.

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. Therefore, this enhancement area priority level is low.

IV. Strategy

Building Resilient Shorelines

I. Issue Area(s)

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

- ☐ Aquaculture
- ☐ Energy & 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:*** Develop 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 development of 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.

The database and research findings 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 energy infrastructure,

and identification of potential locations for beneficial reuse and habitat restoration 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 finding of studies of relationships is needed for assessing regional conditions and identifying 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.

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.

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 and coastal habitat. 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.
Total Years: 3
Total Budget: $198,000

Year(s): 1-2
Description of activities: Development of geospatial database of shore conditions including shore type, shore structures (type, effectiveness, age), 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: $66,000

Year(s): 2-3
Description of activities: Study of relationship between shoreline type/vegetation and habitat.
Major Milestone(s): Completion of study; Completion of education materials; Updated review procedures to incorporate findings.
Budget: $66,000

Year(s): 2-3
Description of activities: Study of sand monitoring and bypassing activities.
Major Milestone(s): Completion of study; Completion of education materials; Updated review procedures to incorporate findings.
Budget: $66,000

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

Coastal Erosion Area Mapping

I. Issue Area(s)

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

- ☐ Aquaculture
- ☐ Energy & 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:*** Revise Coastal Erosion Area designation and propose changes to the Revised and/or Administrative Code to update the methodology and procedures used to predict future erosion rates and designate Coastal Erosion Areas.

C. The proposed strategy includes finalization of updated Coastal Erosion Area Maps and an assessment of the predictive capability of the mapping methodology. The current procedures for finalization of an updated designation includes the release of draft maps, public hearings, public comment period, revisions to the draft maps, and the final release of updated Coastal Erosion Area Maps. Upon finalization of the updated Maps, an assessment of the methodology used to designate coastal erosion area maps will be completed. The assessment will utilize data from three mapping periods, 1973-1990, 1990-2004 and 2004-2015, to identify areas where the mapping methodology accurately predicted future erosion rates and where it did not. The information gleaned from this assessment will be used to draft proposed changes to the mapping methodology to increase the predictive capability of future mapping efforts.

III. Needs and Gaps Addressed

The current Coastal Erosion Area designation was finalized in December of 2010 and is based on erosion rates measured between 1990 and 2004. An updated designation based on more recent

erosion rate data is needed. Additionally, a study of the effectiveness of the current mapping methodology is needed to ensure usefulness of the Coastal Erosion Area Maps.

IV. Benefits to Coastal Management

Updating the Coastal Erosion Area maps will provide the latest, most accurate information to coastal property owners and stakeholders. An assessment of the methodology and resulting recommended changes will increase the effectiveness of future mappings.

V. Likelihood of Success

Finalization of the update to the mapping during the five-year assessment cycle is very likely. Data collection for the updated mapping is planned for the spring of 2015 and coordination with ODNR Divisions partnering with the Office of Coastal Management on the mapping began in 2014. The process of finalizing the updated designation spans approximately one year, as described in Ohio Revised Code, beginning when the preliminary mapping is released. The assessment of the mapping is a necessary component which will provide an opportunity to enhance the methodology and provide stakeholders with an assurance of ODNR's commitment the Coastal Erosion Area Mapping program.

VI. Strategy Work Plan

Strategy Goal: Finalization of updates to the Coastal Erosion Area designation of Ohio's Lake Erie coastal areas and propose changes to the Revised and/or Administrative Code to update the methodology and procedures used to predict future erosion rates and designate Coastal Erosion Areas.
Total Years: 2
Total Budget: $99,000

Year(s): 1-2
Description of activities: Release preliminary Coastal Erosion Area Maps; hold public hearings in each of the 8 shoreline counties; review objections to preliminary designation; revise preliminary designation if necessary; release final Coastal Erosion Area Maps.
Major Milestone(s): Each of the above-listed tasks completed.
Budget: $66,000

Year(s): 2
Description of activities: Assess effectiveness of mapping methodology and draft recommended changes to Revised and/or Administrative code.
Major Milestone(s): Assessment completed; proposed code changes drafted.
Budget: $33,000

VII. Fiscal and Technical Needs

A. Fiscal Needs: Section 306 and state funding will be used to collect data and draft the preliminary Coastal Erosion Area Maps.

B. Technical Needs:
The proposed strategy will be completed in partnership with the staff from ODNR's Office of Coastal Management, Division of Geological Survey and Office of Information Technology. Outside resources will be needed for court reporting services for transcription of the public hearings.

VIII. Projects of Special Merit (Optional)

Coastal Wetland Prioritization and Assessment

I. Issue Area(s)

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

- ☐ Aquaculture
- ☐ Energy & 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:*** Enhanced incorporation of wetlands into existing coastal management strategies.

Implementation of this strategy will be used to revise and target coastal grant programs such as the Coastal Estuarine Land Conservation Program (CELCP) and Coastal Management Assistance Grant (CMAG) program to support projects that more accurately identify wetlands that incorporate Landscape Conservation Design (LCD) approaches to reduce nonpoint source pollution into Lake Erie and provide opportunities for the beneficial use of dredged sediments.

C. The strategy focuses on an update to the Ohio CELCP Plan as the vehicle to identify opportunities similar to previous successful acquisitions through CELCP and the National Coastal Wetlands Conservation Grant Program through the U.S. Fish and Wildlife Service. The information and data used as the basis for updating the Ohio CELCP Plan can also be shared with other agencies and organizations with the shared goal of wetlands protection and restoration.

III. Needs and Gaps Addressed

The strategy focuses on a need to develop a wetlands acquisition, protection, and restoration program that includes the identification of priority wetlands using a Landscape Conservation

Design (LCD) approach and decision-support tools developed by the Coastal Conservation Workgroup of the Upper Midwest and Great Lakes Landscape Conservation Cooperative (LCC). LCD decision-support tools will be applied to identify, protect, and restore coastal and riparian wetlands that reduce nonpoint source pollution that contributes to the development of Harmful Algal Blooms (HABs). The LCD decision-support tools will also be used to identify potential wetland restoration opportunities through the beneficial use of dredged materials. Other areas addressed include the need to revise the Ohio Coastal Nonpoint Pollution Control Program to continue to address HABs using the latest data, tools, and information. Finally, adjustments to existing wetlands management programs referenced in applicable enforceable policies of the Ohio Coastal Management Program would likely benefit from the projects contained in this strategy.

IV. Benefits to Coastal Management

Benefits include capitalizing on the existing federally-approved Ohio CELCP Plan, last updated in 2010, for additional program direction and strategies. While the existing plan contains a wealth of information and required significant resources to develop and obtain approval, its value to the program could be enhanced if it is updated to include emerging priorities for wetland acquisition and restoration projects. Data gathered through this strategy could also be utilized by agencies that have authorities referenced in applicable enforceable policies of the Ohio Coastal Management Program. This data could be used to support future rule, policy, or other program changes with regard to wetlands management. Other benefits potentially include revisions to the Ohio Coastal Nonpoint Pollution Control Program based on the information and program changes stemming from the projects outlined in this strategy.

V. Likelihood of Success

The likelihood of success is high as a LCD-based decision support tool is already currently under development by Central Michigan University investigators using data from the 5-year GLRI funded Great Lakes Coastal Wetland Monitoring program. Decision-tool development is funded by the LCC and is anticipated to be completed within the next Federal fiscal year. The final program change – updating the Ohio CELCP Plan – is entirely within the control of core coastal management program staff.

VI. Strategy Work Plan

Strategy Goal: Develop revisions to the Ohio CELCP Plan and Ohio Coastal Nonpoint Pollution Control Program to more accurately identify wetlands acquisition projects that incorporate landscape conservation design, reduce nonpoint source pollution into Lake Erie, and provide opportunities for the beneficial use of dredged sediments.
Total Years: 4
Total Budget: $199,000

Year(s): 2 (FY17)
Description of activities: Partner with outside entity to conduct modeling that will identify priority areas for wetland conservation within the Lake Erie watershed
Major Milestone(s): Initiate modeling effort (test and validate decision-support tool)
Budget: $33,000

Year(s): 3 (FY18)

Description of activities: Partner with outside entity to conduct modeling that will identify priority areas for wetland conservation within the Lake Erie watershed
Major Milestone(s): Completion of modeling effort (apply decision-support tool)
Budget: $33,000

Year(s): 4 (FY19)
Description of activities: Partner with outside entity to identify wetland design practices and evaluate the nutrient processing capabilities of various wetland types in order to recommend future wetland acquisitions as well as effective wetland design alternatives.
Major Milestone(s): Initiate acquisition/restoration effort; update of the Ohio CELCP Plan to incorporate the results of the FY17 and FY18 efforts.
Budget: $66,000

Year(s): 5 (FY20)
Description of activities: Partner with outside entity to identify potential wetlands acquisition/restoration activities that utilized dredged materials and provide for landscape conservation design.
Major Milestone(s): Completion of evaluation project; complete updates to Ohio CELCP Plan as well as sharing of project results with wetland management agencies and non-government organizations.
Budget: $66,000

VII. Fiscal and Technical Needs

A. Fiscal Needs: 309 funds will be used for contracting with outside entities for the three year-long efforts. 306 funds will be used to support internal staff efforts to update the Ohio CELCP Plan.

B. Technical Needs: Ohio Coastal Management Program staff have been in discussion with Old Woman Creek National Estuarine Research Reserve staff and the Landscape Conservation Cooperative regarding the identification of outside experts that can provide the research needed to obtain applicable wetlands data.

VIII. Projects of Special Merit (Optional)

N/A

Coastal Nonpoint Source Pollution

I. Issue Area(s)

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

- ☐ Aquaculture
- ☐ Energy & 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:*** Improve Lake Erie water quality through revisions to the Ohio Coastal Nonpoint Pollution Control Program Plan.

C. The proposed strategy involves partnering with outside entities to implement two projects that will lead to revisions to the Ohio Coastal Nonpoint Pollution Control Program Plan. Specifically, the projects will address several management measures that have yet to obtain full federal approval. One project will address the management measures dealing with home sewage treatment systems by focusing on education and outreach relating to Ohio Administrative Code rules recently promulgated by the Ohio Department of Health. The second project will address local roads, bridges, and highways by focusing on the implementation of best management practices at the local government level.

III. Needs and Gaps Addressed

The Ohio Coastal Nonpoint Pollution Control Program Plan was conditionally approved by US EPA and NOAA in 2002. Since that time, the majority of the original conditions have received federal approval. Currently, 13 management measures remain conditionally approved. Of those 13, a minimum of six measures are expected to be addressed through this strategy.

IV. Benefits to Coastal Management

Several benefits to coastal management are expected to result from this strategy. From a programmatic standpoint, the strategy will assist with obtaining full federal approval of the Ohio Coastal Nonpoint Pollution Control Program Plan. Pursuant to the Coastal Zone Act Reauthorization Amendments of 1990, program disapproval would result in a 30% reduction in federal funds to the Ohio Coastal Management Program and the Ohio Section 319 Water Pollution Control Program. This strategy is designed to assist with obtaining full federal program approval in order to avoid such drastic funding cuts by US EPA and NOAA and the resulting reduction in technical assistance, education, and on-the-ground projects. From a resource management standpoint, the strategy will provide benefits by supporting improvements to Lake Erie water quality with a goal of reducing Harmful Algal Blooms in the western basin.

V. Likelihood of Success

The likelihood of success is very high for this strategy. The projects will be designed to specifically address action items that have been mutually agreed to by the Ohio Coastal Management Program and US EPA/NOAA staff.

VI. Strategy Work Plan

Strategy Goal: Revise the Ohio Coastal Nonpoint Pollution Control Program to address management measures that have yet to receive full federal approval.
Total Years: 3
Total Budget: $165,000

Year(s): 3 (FY 18)
Description of activities: Initiate evaluation of new management measures designed to address home sewage treatment systems and local roads, bridges, and highways.
Major Milestone(s): Identification of potential partners and geographic focus areas.
Budget: $33,000

Year(s): 4 (FY 19)
Description of activities: Development of a homeowner financial assistance program to assist with home sewage treatment systems maintenance and upgrades within the coastal zone.
Major Milestone(s): Identification of potential funding sources and implementation partners.
Budget: $66,000

Year(s): 5 (FY 20)
Description of activities: Refinement of management measures in cooperation with the Ohio Department of Transportation to minimize nonpoint water quality impacts caused by local roads, bridges, and highways.
Major Milestone(s): Development of guidance materials and an outreach plan for the dissemination of agreed upon management measures related to the local roads, bridges, and highway projects.
Budget: $66,000

VII. Fiscal and Technical Needs

A. Fiscal Needs: Section 306 funding will be used to make actual revisions to the Ohio Coastal Nonpoint Pollution Control Program and submit the revisions to US EPA and NOAA to seek approval.

B. Technical Needs: Technical knowledge and expertise is available within the networked agencies of the Ohio Coastal Management Program.

VIII. Projects of Special Merit (Optional)

N/A

5-Year Budget Summary by Strategy

At the end of the strategy section, please include the following budget table summarizing your anticipated Section 309 expenses by strategy for each year.

Strategy Title	**Year 1 Funding**	**Year 2 Funding**	**Year 3 Funding**	**Year 4 Funding**	**Year 5 Funding**	**Total Funding**
Building Resilient Shorelines	$66,000	$66,000	$66,000	0	0	$198,000
Coastal Erosion Area Mapping	$66,000	$33,000	0	0	0	$99,000
Coastal Wetland Prioritization and Assessment	0	$33,0000	$33,000	$66,000	$66,000	$198,000
Coastal Nonpoint Source Pollution	0	0	33,000	$66,000	$66,000	$165,000
Total Funding	$132,000	$132,000	$132,000	$132,000	$132,000	$660,000

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, and the members of the Coastal Resources Advisory Council (CRAC), 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 August 22, 2014 IMT/PPC meeting and individual stakeholder survey responses received from CRAC members, the top three priorities identified were 1) Cumulative and Secondary Impacts, 2) Wetlands, and 3) Ocean/Great Lakes Resources. Other enhancement areas acknowledged were Public Access, Coastal Hazards, and Special Area Management Plans.

1) Cumulative and Secondary Impacts

Greatest Problems:

Nutrient runoff/nonpoint pollution, algae, eutrophication; Dredging and open lake disposal; Altered hydrology; Shoreline alteration (hardening, armoring to control erosion); Sand availability; Lack of education and understanding about how homeowner, farmer, or industry actions impact the watershed and ultimately Lake Erie; Lack of management plans in place to prioritize and direct action in the region; Failing septic systems are an ongoing issue that needs to be addressed to aid recreational use of the nearshore areas; Inability to influence the destruction of existing habitats and resulting impact on adjacent wetlands during major road construction

Greatest Opportunities:

Public awareness of issues brought about by Harmful Algal Blooms (HABs); Habitat restoration planning; Living shorelines; Beneficial use of dredge materials; Opportunity to build on increased awareness of Lake Erie issues momentum to further educate and incentivize these stakeholders to change their behavior; Facilitate low interest loans to replace/connect failing septic systems, including grants to those that need assistance; Demonstrate good stewardship of property owned or controlled by the State of Ohio

2) Wetlands

Greatest Problems:

Connectivity of riparian areas to Lake Erie; Need more restoration of wetlands; Finding ways to provide benefits of wetlands to streams; Impacts of invasives – monitoring and management; Mitigation locations not associated with original sites; Value awareness (lack of); Challenging to find land that is publicly available to restore, enhance, or preserve; Competing interests between preserving wetlands for ecosystem benefits and developing wetlands for a strictly economic benefit; Creating natural areas and forms of green infrastructure near the shores to help water quality

Greatest Opportunities:

Promote wetlands as treatment; Tracking wetland changes; Update Wetland inventory; Utilize USFWS TRACS/GIS to track impacts on conservation species; Strategic siting, prioritizing (new or enhanced) management areas; Enhancement opportunities on State property; Monitor "created" wetlands for function (track success); Add/increase connectivity to lakes/streams; OCMP could offer grant funding assistance for acquiring new wetlands for preservation or preserving existing

wetlands; As a unifying entity, OCMP can examine current wetland projects and potential projects to piece together a larger wetland enhancement project that will have greater impact on our Lake ecosystem; Providing a state funded consultant that would evaluate city, township, and county shoreline opportunities for natural areas that would encourage birding and picnicking as well as "off limit" areas for habitat

3) Ocean/Great Lakes Resources

Greatest Problems:

Aquatic Invasive Species (AIS), Asian carp, etc. - connections across watersheds as it relates to the management of AIS; Shipping use – ballast water containment; Water quantity – fresh water resource / drinking water availability; Lack of marine spatial planning; Difficulty in stakeholders collaborating and compromising to find solutions for Great Lakes resources that truly place a value on environmental as well as economic benefits of a resource; Lack of adequate public access to the Lake that results in communities and citizens being less likely to value and want to protect the Lake

Greatest Opportunities:

Utilize canal management opportunities such as the Chicago canal to address AIS; Consolidate and increase access to existing data; Designate discharge zones – vessels (not ballast water); Planning for future needs – water quantity/quality, consumption (drinking water), cultural resources - underwater preserves, marine protected areas and sanctuaries, etc.; Increase communication and coordination between levels of local governments, for example- Great Lakes Cities Initiative, Coastal County Forums – Port Authorities, cities, etc.; The existing momentum around the services Lake Erie provides: drinking water, energy production, and the potential for dredged material use, provides an opportunity for OCMP to promote these resources as valuable to our Ohio economy, and to encourage the sustainable use of these resources through guidance and permitting

Prior to public review, the draft 309 Assessment and Strategies will be distributed to Ohio Department of Natural Resources (ODNR) Divisions and Offices and the Integrated Management Team (IMT) for review and comment.

Ohio's 309 Assessment and Strategies document will be made available for public review via the Office of Coastal Management website for a minimum of 30 days. A news release will be issued to announce the comment period. The Policies and Programs Coordinating Committee (inter-agency network) and the Coastal Resources Advisory Council will be sent an email request for review and comment with a link to the Draft Assessment and Multi-year Strategy document.

A summary of the comments received will be included in the final draft document.