INDIANA LAKE MICHIGAN COASTAL PROGRAM

Coastal Zone Management Section 309
Enhancement Grant Program

Assessment and Multi-Year Strategy
2016 – 2020

INDIANA
LAKE MICHIGAN
COASTAL PROGRAM

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PREPARED BY:

Indiana Department of Natural Resources
Indiana Lake Michigan Coastal Program

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I. Introduction

Section 309 of the Coastal Zone Management Act (CZMA), as amended in 1990 and again in 1996, establishes a voluntary grants program to encourage states and territories with approved programs to develop program enhancements in one or more of the following areas:

- ✓ Wetlands
- ✓ Public access
- ✓ Coastal hazards
- ✓ Cumulative and secondary impacts
- ✓ Energy and government facility siting
- ✓ Lake debris
- ✓ Lake resources
- ✓ Special Area Management Plans
- ✓ Aquaculture

Under this program the Secretary of Commerce is authorized to make awards to states and territories to develop and submit for federal approval program changes that support attainment of the objectives of one or more of the enhancement areas. The Office for Coastal Management (OCM) provides guidance to states and territories for developing or updating previous Assessment and Strategy documents. The OCM guidance provides a recommended format to address each enhancement area in the document. The most recent guidance was issued in June of 2014.

The current guidance included a new process and templates for developing the state plan and introduces the concept of "areas of national importance." In the 2016-2020 guidance, the NOAA identified the Coastal Hazard enhancement area as the "area of national importance." The program is encouraged to develop a strategy that addresses the Coastal Hazard enhancement area.

The Section 309 process consists of three mandatory and one optional step. The LMCP and other Coastal Management Programs (CMP) are to conduct a Phase I (High Level) Assessment for each of the nine enhancement areas. If an enhancement area receives a ranking of "High" priority, the CMP is to conduct a Phase II (In-depth) Assessment for the enhancement area. The CMP may then develop a Strategy for an enhancement area, in order to address the issues identified in the Phase II Assessment. In addition, the CMP may opt to develop a strategy for Coastal Hazards that can be submitted to the NOAA Project of Special Merit (PSM) competition.

As Stated in the NOAA Guidance - the intent of the PSM competition is to offer CMPs the opportunity to develop innovative projects that further "areas of national importance" enhancement areas – Coastal Hazards. PSM funding is awarded competitively and shall not be dependent on long-term levels of funding to succeed. Projects shall further the objectives of an approved enhancement area strategy but shall not be essential to meeting specific milestones in the strategy; therefore, these projects are not expected to, by themselves, accomplish a program change. PSM should not exceed an 18-month time frame, although NOAA is "exploring" if multi-year awards can be offered.

Available funding may vary depending on the total Section 309 funds available. OCRM will annually establish a maximum amount to be allocated for PSM. It is estimated that approximately 10-20 PSM will be selected annually. Funds not allocated for PSM will be returned to the weighted formula allocation. CMPs will be able to submit two projects of $75,000 to $250,000 each for PSM funding.

Participation in Federal Coastal Program -

The Coastal Zone Management Program is a national initiative that focuses on balancing the economic prosperity and environmental health of the nation's coasts. Thirty-four of the 35 coastal states and territories participate in the federal program. Alaska is the only eligible state or territory not currently participating. The National Oceanic and Atmospheric Administration (NOAA) administers federal funding for the Coastal Zone Management Program.

Participation in the Coastal Zone Management Program makes it possible for the Lake Michigan Coastal Program to support activities that achieve the following goals in the coastal region:

- Protect and restore significant natural resources;
- Prevent the loss of life and property in coastal hazard areas;
- Improve public access for recreational purposes;
- Protect and restore important historic and cultural resources;
- Improve government coordination and policy and decision making;
- Prevent, reduce, or remediate nonpoint source pollution that affects coastal waters;
- Revitalize urban waterfronts and ports; and
- Provide for priority water dependent uses.

The Indiana Lake Michigan Coastal Program (LMCP) received Federal Approval in August 2002.

Vision: Lake Michigan is healthy. All coastal resources are preserved, viable, valued, and accessible for present and future generations.

Mission: The mission of the Indiana Lake Michigan Coastal Program is to protect and enhance coastal resources by providing technical and financial assistance and coordination to current and future partners.

The LMCP is a "networked" program made up of several Indiana natural resource protection programs. The lead agency for implementing the program is the Indiana Department of Natural Resources (DNR). Since the program was approved in 2002, the Division of Soil Conservation had responsibility for providing administrative support to the coastal program staff and coordinating the networked state agency partners. In 2005 the LMCP staff and program coordination responsibilities moved to the DNR Division of Nature Preserves.

Based on Existing Policies and Laws

The Lake Michigan Coastal Program was developed on the strength of Indiana's existing policies and laws that address land and water uses and resource protection. The program document serves as a comprehensive reference that identifies entities that carry out existing programs, policies, and laws to manage coastal resources. The program document also serves as a reference for the identification of partnership and coordination opportunities. Through an extensive public process, 10 issue-areas were identified. Indiana's existing policies and laws were detailed for each of these areas.

- Procedural Framework
- Coastal Hazards
- Water Quality
- Water Quantity
- Natural Areas, Fisheries, Wildlife, and Native and Exotic Species
- Recreation, Access, and Cultural Resources
- Economic Development
- Pollution Prevention, Recycling, Reuse, and Waste Management
- Air Quality
- Property Rights

Coastal Advisory Board

The Coastal Advisory Board (CAB) serves as a stakeholder advisory group. The first meeting of the CAB was April 29, 2003. The 22 member CAB consists of representatives from northwest Indiana and is representative of the broad range of interests and experience in the coastal region. The CAB provides input on Coastal Program issues – 309 Priorities, Coastal Grant Priorities, and Coastal and Estuarine Land Conservation Program (CELCP) issues. In addition, the CAB members chair various LMCP Committees – Grants, Outreach and Education, CELCP/Habitat, and Technical Assistance Planning Program (TAPP.) The board meets every two months and can be convened for special meetings at the call of the Chair or a majority of members.

Coastal Program Area

The Coastal Program Area defines the lands and waters eligible for financial and technical assistance through the Lake Michigan Coastal Program. Based on public participation and comment, the proposed program boundary was established to approximate the region's watershed. The watershed encompasses the majority of the area that drains into Indiana's portion of Lake Michigan through its rivers, streams, ditches, wetlands, lakes, and groundwater. A watershed approach provides a comprehensive approach to planning for and managing natural resources that focuses on producing environmental results while incorporating the communities that depend on those natural resources. A watershed approach can also leverage financial and other resources, improve coordination among intergovernmental jurisdictions, and reduce duplication of efforts and conflicting actions. The boundary follows the 45 mile shoreline and the approximately 54 miles along an east-west trajectory across the Valparaiso Moraine.

The Coastal Program Area encompasses a total of approximately 604 square miles of land and approximately 241 square miles of Lake Michigan. It covers the northern portions of Lake, Porter, and LaPorte Counties. At its greatest extent, the inland boundary is approximately 17 miles from the Lake Michigan shoreline and at its narrowest extent; the inland boundary is less than 2 miles inland. It is located in the northern portions of Lake, Porter and LaPorte Counties along the southern shore of Lake Michigan[1].

Included within the boundary are lands subject to lake flooding and erosion, estuaries and wetlands, ecologically significant areas formed by glacial Lake Michigan, coastal recreation areas, and areas of cultural and historic significance to the region.

[1] Indiana Lake Michigan Coastal Program And Final Environmental Impact Statement April 2002; http://www.in.gov/dnr/lakemich/files/feis-i-iich1-4.pdf page 15

Coastal Program Network

There are numerous state and local entities that are responsible for managing resources in the coastal region. The role of these entities remains unchanged. The Lake Michigan Coastal Program sets forth a framework, based on existing policies, laws, and programs, that links existing agencies and laws into a comprehensive system.

Indiana Lake Michigan Coastal Grants Program

The Coastal Grants Program makes funding available through an annual competitive grants process. The LMCP makes approximately 80% of its cooperative award from NOAA available for the grant program. The Coastal Grant program is guided by public input each year. The LMCP and CAB hold an annual public input session at the June Board meeting. The Board uses the public input to set priorities for the upcoming funding cycle.

Section 309 Assessment and Strategy Development

The LMCP staff used the NOAA guidance as a template for assessment and strategy development. Program staff utilized input from the Coastal Advisory Board, state agency staff, local partners, and the public.

The LMCP staff conducted a facilitated discussion on Section 309 enhancement areas with the Coastal Advisory Board at a public Board Meeting in October 2013. The Board identified three issues that required further attention: wetlands, coastal hazards, and Great Lakes Resources.

Public participation is an important element of the Indiana Coastal Program and was a high priority for development of the 309 Assessment and Strategy. Public input for the development of this document was provided through meetings with the Coastal Advisory Board (CAB) and the general public. In addition, the LMCP solicited input via an online survey.

The LMCP presented an overview on Section 309 at the public Environmental Management Policy Committee at the Northwest Indiana Regional Planning Commission. Additional groups contacted for input include watershed groups, the regional MS4 organization, the NIRPC email contact list, LMCP email list serves, and the AOC CARE Committee. In addition, program staff met with DNR Division of Outdoor Recreation, Indiana Department of Environmental Management - Wetlands, and DNR Division of Water staff.

The LMCP posted the completed Draft Assessment and Implementation Strategy document to the web commencing on February 2, 2015. The public was invited to submit comments on this draft document for a period of 30 days to coincide with the NOAA review of the document. The LMCP received very few comments on the draft document during the review period. The majority of comments addressed grammatical and typographical items and the corrections are contained herein.

II. Summary of Recent Section 309 Achievements

Coastal Hazards:

Indiana Lake Michigan Shoreline Coastal Hazards Model Ordinances (Dec 2012) - The Indiana Lake Michigan Coastal Program developed this document to provide guidance for Coastal Communities to understand the ecological value of the natural shoreline and associated coastal resources and the coastal hazards that can negatively impact the shoreline, public safety, and shoreline properties and infrastructure. High Erosion Hazard Areas are identified for the entire Indiana Lake Michigan shoreline. The document further addresses the challenges faced by municipalities and decision makers when planning for shoreline development and permit issuing. Model ordinances are suggested to help assure that coastal redevelopment proceeds in a manner that will most likely assure the future social and financial health of the community. The likely result of these ordinances will be communities avoiding construction in hazard areas as well as the protection of coastal natural resources. The LMCP intends to undertake additional outreach and training to achieve these goals. This work was undertaken as part of the Technical Assistance Planning Program (TAPP) component of the LMCP.
http://in.gov/dnr/lakemich/files/lm-HazardOrd_TechnicalAssistance.pdf

GIS Mapping of the Indiana Lake Michigan Shoreline (Dec 2013)
The LMCP and partners identified coastal data as a gap in addressing Indiana coastal hazards. The LMCP utilized Section 309 funding to contract with the Polis Center and 39 Degrees North to fill this gap. The professional services contract contained two deliverables completed in 2013:

1. Complete and update requested Indiana Lake Michigan Shoreline GIS Data Layers Maps and attributes on shoreline structures and land use 1000 ft. inland, and
2. Indiana Lake Michigan Shoreline structure, land use, processes, for an electronic inventories catalogue

A variety of data layers collected/created during the GIS project can be used by local communities to reduce hazard risk. The inventory contained shoreline armoring, structures, and associated analysis. The packaged geodatabase was initially distributed in late 2014. The intended outcome is to direct future public and private development and redevelopment away from hazardous areas, including High Erosion Hazard Areas (HEHAs) and hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from Great Lakes level fluctuations. Prevent or minimize threats to existing populations and property from both episodic and chronic coastal hazards. Additional outreach activities to be developed upon refill of coastal resource planner position. The Indiana Geological Survey will place the GIS data layers on the Lake Rim GIS website for ease of access and use -
http://igs.indiana.edu/LakeRim/index.cfm

Public Access (2006-2009)

The 2005-2010 assessment identified public access as a high priority. The DNR Division of Outdoor Recreation develops the State Comprehensive Outdoor Recreation Plan every five years. It was noted that some of the information for the coastal area was erroneous and out of date. As such, the LMCP and partners worked to develop strategies to address these issues with the intent of developing a public access plan.

Within the framework of the development of a Coastal Public Access Management Plan, the contractor conducted a comprehensive inventory of existing public access sites and trails within the Indiana coastal area. The new information was incorporated into the Statewide Comprehensive Outdoor Recreation

Plan (SCORP) database. The overall goal of this project was to compile an accurate inventory of public recreation access sites and trails in the coastal area of Lake Michigan, within the State of Indiana as a first step in the overall planning and management of recreational resources in the Indiana Coastal area. http://in.gov/dnr/lakemich/files/lm-Public_Access_Eppley_Report.pdf

Coastal Area Needs Assessment Summary

The second phase of the public access management plan project entailed a needs assessment. This Public Access Needs Assessment compiled existing data and research to establish a clear plan for the improvement of and increase in public access land in the coastal region of Indiana. This region's unique characteristics—history, varied landscape, industry, and shifting trends in commerce—justify a formal needs assessment to determine appropriate measures to be taken toward its long-term overall improvement. In order to determine these measures, several methods were employed in three distinct sections, each educated by the others. The research and analysis phase includes a review of local and county parks and recreation master plans, federal, state, and regional planning and policy documents, a benchmarking study, condition assessments, and map development. The public engagement phase includes individual stakeholder meetings, focus group meetings, and a public meeting. The service standards and gaps phase includes the development of level of service (LOS) standards, a gap analysis, and a priority index.

Level of Service Standards

The information gathered during the benchmarking process was utilized to develop new Level of Service (LOS) standards for the coastal region. The LOS standards set an attainable goal for public access in the region.

Facility Type	Access Requirement
Park Acreage	50 acres per 1,000 residents
Hard Surface Multi-Purpose Trails	2 miles per 10,000 residents
Public Access Launch Points for Personal Watercraft	0.45 per 10,000 residents
Public Fishing Access Points	1.14 per 10,000 residents
Natural Surface Hiking Trails	3.0 mi. per 10,000 residents

The Needs Assessment of Public Access Recreation Sites within the Indiana Coastal Area was conducted by the Eppley Institute for the Indiana Department of Natural Resources Lake Michigan Coastal Program in December 2009 utilizing 309 Grant Funding (December 2009)
http://in.gov/dnr/lakemich/files/lm-Public_Access_Needs_Assessment.pdf

According to the benchmarking study, the Indiana Coastal Area is:

- Below average in the miles of multi-use walking and biking trails
- Below average in the number of public access launch points for personal watercraft
- Above average in miles of public beaches
- The only region where beach fees are charged for residents
- Far above average in fishing access points
- Above the median in total park acres (Duluth has such a large number of acres for its population size that it skews the average)

While there are many public beaches available, access to them is often limited by a lack of parking and beach access points. Beach access in the benchmark communities is, for the most part, supported by state or municipal protection and easily accessible points near densely populated areas.

Also lacking in the Indiana Coastal region when compared to the benchmarks is public access to boating opportunities. The number of large, well placed public marinas directly on Lake Michigan is substantially lower than that of the benchmarks.

Public Engagement

The results of the stakeholder interviews and the focus groups are similar in many ways and provide many ideas for the improvement of public access in the region. The main ideas are as follows:

- Connectivity between trails and existing natural areas
- Ongoing management of restored natural areas
- Increase public awareness and access through communication and signage
- Implementation of the Marquette Plan
- Regional cooperation
- Increased funding

Gaps Analysis

The Gaps Analysis qualitatively and quantitatively assesses current levels of public access to determine the areas most in need of improvements. The qualitative section provides specific examples of sites and areas within the region where improvements in service should be made. The quantitative section assesses current conditions based on acreage and mileage values compared to the defined LOS standards to illustrate the state of public access land in the region.

The findings from this qualitative gaps analysis include:

- a need for additional public recreation lands and amenities in many communities across the region
- a need for improved signage and wayfinding to direct users to recreation sites
- a need to complete trail connections to complete what is now a fragmented trail system
- a need for connectivity of natural resource lands throughout the region
- a need for the creation of blueways for non-motorized boats in many areas of the region

Historic Public Access (2013-2015)

The Public Access studies conducted from 2006-2009 focused on access to recreation focused properties. A gap identified in the 2011-2015 assessment was access to properties of a cultural and historic nature.

The LMCP provided a grant to Indiana Landmarks (501c3) to conduct an assessment of cultural and historical properties in the coastal region. The project will provide updates to the Coastal Historic and Cultural Resources Study of the Lake Michigan Watershed and the Interim Reports for Lake, Porter and LaPorte counties. These updates will be utilized by Indiana Landmarks and DNR Division of Historic Preservation and Archaeology for updating site listings on the State and National Register, which have policies associated with the National Historic Preservation Act and SHPO Review. Communities will have access to the most current information regarding location and condition of historic resources, which will be used in updates of their Parks Master Plans, Comprehensive Plans and ordinance development.

In addition, within the Indiana Lake Michigan Coastal Program Area, Indiana Landmarks will conduct analysis and prepare a revised condition assessment of public access potential for these historic sites. If communities understand where these properties exist they may be more apt to apply to LMCP Grants Program for public access improvements. The condition assessment will be the first of its kind and will allow communities the ability to better articulate their needs, and will create consistency with the latest public access efforts of the LMCP: Public Access Inventory, Needs Assessment and Condition Assessment.

Provide an update to the LMCP Cultural and Historical Resources document. The project involves an updated survey of the coastal and historical resources located in the Lake Michigan coastal region. A report highlighting public access opportunities within the coastal region will also be produced.

Cumulative and Secondary Impacts (2008-2010)

The 2005-2010 assessment identified Cumulative and Secondary Impacts as a high priority area. More specifically the assessment identified Septic Systems as an issue requiring attention. The Indiana State Department of Health (ISDH) delegates the issuance of septic permits to the county health departments. The ISDH did not have a centralized septic permit database. The lack of a centralized database was identified as a weakness within the Cumulative and Secondary Impacts enhancement area. The LMCP and ISDH developed a strategy to address the weakness. The strategy used a mix of Section 309 and Section 306 funds. Tasks outlined in the strategy include: modification/enhancement of EPA funded TWIST database to meet ISDH needs, training program development, hands on training and support for county health departments, and provision of funds for county health departments to input data from paper records to the new database. The revised database was renamed Indiana Tracking Onsite Sewage Systems (iTOSS.)

The LMCP and ISDH worked together on the database project. Work included needs assessment, development of a scope of work for professional services, and contract oversight. The iTOSS database is currently online and in use by the ISDH and two of the three coastal counties. The LMCP provided direct funding via Section 306 grants to one county health department. The project provided funds to purchase GPS units and adequate computer resources to access and enter information into the iTOSS database. The LMCP was unable to reach agreement with county health departments regarding funds to input existing paper records into the iTOSS.

The ISDH developed and continues to provide legal and technical support to the initiative. The ISDH developed a training program to assist county health departments using iTOSS. In addition, legislation passed in 2010 allowing county health departments to require written operating permits. The ISDH developed a model ordinance for county health departments to institute permits for septic system operation. LaPorte County Indiana adopted an OSDS operating permit ordinance based on the ISDH Draft Model Ordinance (Local Ordinance 2012-01.) Other local Health Departments may follow suit and require operating permits for residential septic systems. Septics with operating permits have a higher functional rate and are less likely to cause nonpoint pollution impairments. There are four health departments in the Indiana Coastal Region that issue septic permits currently.

Ocean and Great Lakes Resources (2010 – 2014)

Shipwreck Management Plan

The LMCP used Section 309 funds to assess existing known underwater archaeological resources (shipwrecks). In addition, a management plan for these known shipwrecks was developed. Management recommendations included: increased outreach and education, establishment of a shipwreck preserve, installation of mooring/marker buoys, additional monitoring/exploration work, and nomination of sites to the National Register of Historic Places. Work was conducted by Dr. Kira Kaufmann and staff from Commonwealth Cultural Resources Group (CCRG.)

The *JD Marshall* Preserve was established in September 2013. This one hundred acre preserve protects the *JD Marshall* shipwreck just offshore from Indiana Dunes State Park in Porter County, Indiana. The LMCP used Section 309 funds from 2009 and 2010 for the site assessment and management plan development. The LMCP staff coordinated partners from the Indiana Department of Natural Resources Division of: Nature Preserves, State Parks and Reservoirs, Law Enforcement, Historic Preservation and Archaeology, and Fish and Wildlife. The mooring buoys and plaques for this site are being procured and should be installed in 2015.

The *Material Service* barge was nominated to the National Register of Historic Places in 2013. The nomination materials were developed by the same consulting firm that developed the shipwreck management plan. The *Material Service* is located in the Lake County portion of Lake Michigan.

The project resulted in multiple outcomes. The state now has a Management Plan for Underwater Archaeological Resources, Site Management Plant for *JD Marshall* preserve, an inter-division MOA for the management of the *JD Marshall* preserve, one additional shipwreck on the National Register of Historic Places, development of an avocational training program for recreational divers that want to assist in wreck monitoring, enhanced educational materials – www.indianashipwrecks.org and increased public access to the *JD Marshall* preserve with the addition of mooring buoys.

Phase I Assessments

Wetlands – Phase I Assessment

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[2] for a more in-depth discussion of what should be considered a wetland.

PHASE I (HIGH-LEVEL) ASSESSMENT:

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[3] or high-resolution C-CAP data[4] (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. 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 all wetlands and each wetlands type.

Summary of Wetland Change in Indiana – (Source: Coastal Change Analysis Program (C-CAP) Data)

Coastal Wetlands Status and Trends		
Current state of wetlands in 2011 (acres)	79,617. 8 (7. 6% of the state)	
Net change in total wetlands (in acres)	**from 1996-2011**	**from 2006-2011**
	-1,960.4	-1,555.9
Net change in freshwater (palustrine wetlands) (gained or lost)	**from 1996-2011**	**from 2006-2011**
	-1,902.1	-1,553.7
Net change in saltwater (estuarine) wetlands (gained or lost)	**from 1996-2011**	**from 2006-2011**
	NA	NA
Net change in unconsolidated shore wetlands (% gained or lost)	**From 1996 - 2011**	**From 2006 - 2011**
	-58.3%	0.0%

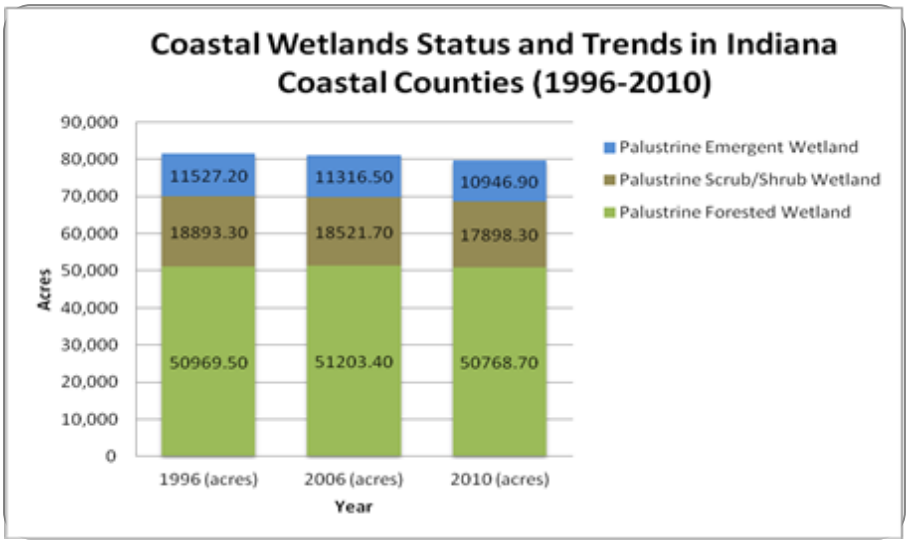
[2] http://coastalmanagement.noaa.gov/backmatter/media/czmapmsguide11.pdf
[3] http://www.csc.noaa.gov/ccapatlas/. Summary reports compiling each state's coastal county data are provided on the ftp site.
[4] http://www.csc.noaa.gov/digitalcoast/data/ccaphighres

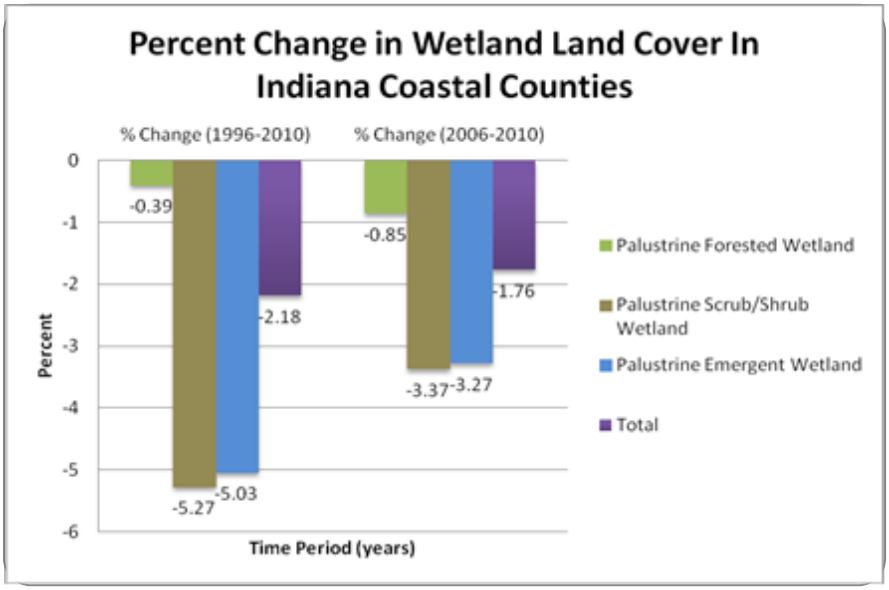
How Wetlands Are Changing		
Land Cover Type	**Area of Wetlands Transformed to Another Type of Land Cover between 1996-2011 (Acres)**	**Area of Wetlands Transformed to Another Type of Land Cover between 2006-2011 (Acres)**
Development	-1,846.3	-1,474.3
Agriculture	56.9	2.4
Barren Land	-79.6	-5.6
Water	50.5	-78.5
Total	-1,818.5	-1,556

The collection of information regarding wetland acreage losses highlights the gaps in data at the state and national level. The two tables above show a difference of 141. 5 acres lost. The difference between the second table 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 vice versa. Many of these additional changes are associated with timber, or silviculture, activities which (depending on the management practices in our 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 un-vegetated wetland types (such as unconsolidated bottom), which C-CAP does not map.

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.

The state currently lacks methods to track wetland gains and/losses outside of the above referenced remote sensing data. Staff conducted an assessment of wetland changes using C-CAP land cover data for an enhanced understanding of types of wetlands loses by subcategory.





Note: area within the state mapped by C-CAP is 1,053,546 acres. [5]

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.

Management Category	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	N
Wetlands programs (e.g., regulatory, mitigation, restoration, acquisition)	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.

The State of Indiana is currently considering adoption of an "In-Lieu Fee Program" proposed in 2014, to be sponsored by the IDNR and the Indiana Natural Resources foundation:

[5] Methodology - IDNR used the C-CAP Land Cover 1996, 2006, and 2010 layers, and clipped it to the three coastal counties, then calculated the area by taking the count of pixels and multiplying it by 900 since the pixel size was 30X30, and multiplied by 0. 000247105, the conversion constant to get from meters squared to acres. The percent change was then calculated in excel.

In-Lieu Fee Program Overview - The term "in-lieu fee program" refers to a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements. Similar to a mitigation bank, an ILF program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the ILF fee program sponsor. The operation and use of an ILF program are governed by an ILF program instrument, approved by the District Engineer.

The program sponsors, the Indiana Department of Natural Resources (IDNR) and the Indiana Natural Resources Foundation (INRF), have submitted a complete program prospectus dated June 25, 2014, entitled "*In-Lieu Fee Program Prospectus for Indiana Stream & Wetland Mitigation Program.* "
The Indiana Stream and Wetland ILF Mitigation Program is an ILF program being proposed as a means to fulfill the requirements for compensatory mitigation associated with projects, which may be permitted by the Corps and/or the Indiana Department of Environmental Management. If the program is approved, it would provide an alternative to permittee responsible mitigation.

Location – The proposed Indiana Stream and Wetland ILF Mitigation Program would be applicable for aquatic resource impacts within the entire State of Indiana.
http://www.lrl.usace.army.mil/Missions/Regulatory.aspx

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 Coastal Advisory Board identified Wetlands as the highest priority enhancement area in facilitated discussion of the 309 assessment at a Board Meeting in October 2013.

   A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, and the AOC CARE Committee also identified **Wetlands** as the highest priority enhancement area.

   Stakeholder Concerns: Invasive species in wetlands, need for additional acquisition, restoration, management, protective ordinances, local government and community education. Wetland fragmentation should be addressed through planning and prioritization for long term acquisition, restoration, and management of Coastal Wetlands.

Coastal Hazards – Phase I Assessment

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:

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[6] and summarized by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[7] 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[8]	70,885	71,903	1.4%
No. of people in coastal counties[9]	741,468	771,815	4.1%
Percentage of people in coastal counties in coastal floodplain	9.6%	9%	- 0.6%

[6] 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.

[7] www.csc.noaa.gov/digitalcoast/tools/snapshots

[8] 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.

[9] 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.

2. **Shoreline Erosion** (for all states other than Great Lakes and islands; for Great Lakes and islands, see Question 5):

Vulnerability to Shoreline Erosion		
Vulnerability Ranking	**Miles of Shoreline Vulnerable**[11]	**Percent of Coastline**
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):

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

Type of Hazard	General Level of Risk[10] (H, M, L)
Flooding (riverine, stormwater)	M
Coastal storms (including storm surge)[11]	H
Geological hazards (e. g. , tsunamis, earthquakes)	L
Shoreline erosion[12]	H
Sea level rise	NA
Great Lake level change	H
Land subsidence	L
Saltwater intrusion	-
Other – Ice Damage	M

responses.

[10] 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*

[11] 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 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/.

[12] 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.

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.

Indiana Dunes National Lakeshore Shoreline Management Plan (2014) – Identified high erosion areas along the Indiana Lake Michigan Shoreline and addressed alternative measures for beach sand loss and replacement in areas impacted by breakwalls.
http://parkplanning.nps.gov/document.cfm?parkID=139&projectID=33151&documentID=61458

Indiana Lake Michigan Shoreline Coastal Hazards Model Ordinances (Dec 2012) - The Indiana Lake Michigan Coastal Program developed this document to provide guidance for Coastal Communities to understand the ecological value of the natural shoreline and associated coastal resources and the coastal hazards that can negatively impact the shoreline, public safety, and shoreline properties and infrastructure. High Erosion Hazard Areas are identified for the entire Indiana Lake Michigan shoreline. The document further addresses the challenges faced by municipalities and decision makers when planning for shoreline development and permit issuing. Model ordinances are suggested to help assure that coastal redevelopment proceeds in a manner that will most likely assure the future social and financial health of the community.
http://in.gov/dnr/lakemich/files/lm-HazardOrd_TechnicalAssistance.pdf

Since the last assessment, Lake Michigan Coastal Counties developed Hazard Mitigation Plans with the help of contractual consultants and the Northwest Indiana Planning Commission (NIRPC). The 2010 Porter County Hazard Mitigation Plan Lake Michigan coastal hazard areas utilize the High Erosion Hazard tool (HEHA). The Lake County Multi-Hazard Mitigation Plan dated 2010 identified Flooding and Winter Storm risks as being "Severe". The LaPorte Co. Plan is under review.

- Lake County http://www.nirpc.org/media/23587/lake_county_mhmp.pdf
- Porter County http://www.nirpc.org/media/23584/porter_county_mhmp.pdf

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.

FEMA DNR FLOOD PLAIN MAP CHANGES:
The DNR and FEMA conducted public input meetings for new flood plain boundaries in the coastal communities since the last 309 assessment document. Coastal Counties have subsequently completed or are in the process of ground checking boundaries prior to finalizing their FEMA Flood Plain maps: Lake Co. – Completed 2012, LaPorte Co. - Completed 2013, and Porter Co. – Estimated completion 2015. Any new regulations governing building in or protection of the flood plain will be under the authority of each county. Discussion of possible V-zone designation for Lake Michigan shoreline areas is still underway at the state level by DNR/FEMA.

GIS Mapping of the Indiana Lake Michigan Shoreline:
The LMCP and partners identified coastal data as a gap in addressing Indiana coastal hazards. The LMCP utilized Section 309 funding to contract with the Polis Center and 39 Degrees North to fill this gap. The professional services contract contained two deliverables completed in 2013:

1. Complete and update requested Indiana Lake Michigan Shoreline GIS Data Layers Maps and attributes on shoreline structures and land use 1000 ft. inland, and
2. Indiana Lake Michigan Shoreline structure, land use, processes, for an electronic inventories catalogue

A variety of data layers collected/created during the GIS project can be used by local communities to reduce hazard risk. The inventory contained shoreline armoring, structures, and associated analysis. The packaged geodatabase was initially distributed in late 2014. Additional outreach activities to be developed upon refill of coastal resource planner position.

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[13]	N	N	N
management of development/redevelopment in other hazard areas	Y	Y	Y
climate change impacts, including sea level rise or Great Lake level change	N	N	N
Hazards planning programs or initiatives that address:			
hazard mitigation	Y	Y	Y
climate change impacts, including sea level rise or Great Lake level change	N	N	N
Hazards mapping or modeling programs or initiatives for:			
sea level rise or Great Lake level change	Y	Y	Y
other hazards	Y	Y	Y

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

Coastal Program
The Indiana Lake Michigan Coastal Program Final Environmental Impact Statement identifies a High Erosion Hazard Area (HEHA) as a portion of the shoreline with a long-term erosion rate greater than one foot per year. The Indiana shoreline of Lake Michigan includes several HEHAs; although, many of the areas are currently protected from erosion by man-made structures or are included in the National Park or State Park where the natural shoreline is preserved.

State of Indiana
For the purpose of identifying high hazard areas in the coastal region, the state utilizes FEMA Flood Plain Maps and Multi-Hazard Mitigation Plans. In reference to coastal hazard areas, the State Multi Hazard mitigation plan states with regards to coastal erosion: ‘‘The NFIP has not mapped flood areas along coastlines, but it has been estimated that 25 percent of homes and other structures within 500 feet of

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

the U. S. coastline and the shorelines of the Great Lakes will fall victim to the effects of erosion within the next 60 years. "[14]

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

State Hazard Regulations:

a. New FEMA Floodplain Maps – Flood Plain Maps identify areas appropriate for development and reduce areas of repetitive loss.
b. Not 309 or CZM driven changes.
c. Removing homes or restricting property development in the floodway or floodway fringe, thereby creating in perpetuity, green spaces, parks, golf courses and other unobstructed land are prime examples of the state's current mitigation efforts.

Hazard Planning:

a. Updated Hazard Mitigation Plans – Updated Plans provide guidance for local community hazard mitigation planning. Hazard Mitigation Plans revisited by the State and Counties identify floods, winter storms, and erosion as the most threatening hazards affecting the Coastal Region.
b. Not 309 or CZM driven changes.
c. The State of Indiana Multi-Hazard mitigation strategy is designed to reduce or eliminate the risk from natural and man-made hazards without diminishing the quality of life of its citizens or their communities. Severe Storms affecting the Lake Michigan shoreline in 2012, 2013, and 2014 caused extensive property and natural resource damages in the Lake Michigan Coastal Region. Coastal Region Hazard planning will need to address protective and proactive measures including the development of local ordinances and coastal community education.

Indiana Lake Michigan Shoreline Coastal Hazards Model Ordinances (Dec 2012)

a. (See Section 5 above.) The recent publication of the Lake Michigan Coastal Hazards Model Ordinances document provides information and assistance to Indiana Coastal counties and municipalities with model ordinances for the protection of flood and storm prone areas.
b. 309 driven change.
c. Preserve and restore the protective functions of natural shoreline features such as beaches, dunes, and wetlands. Outreach to local planners by the Coastal Program will likely contribute to adoption of protective coastal measures/ordinances by communities in the Lake Michigan Coastal Watersheds. The likely result of these ordinances will be communities avoiding construction in hazard areas as well as the protection of coastal natural resources.

Hazard Mapping

a. Lake Michigan Coastal Hazards Map – See Section 5 above.
b. 309 driven change.
c. Direct future public and private development and redevelopment away from hazardous areas, including the high hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from

[14] *2014 State of Indiana Standard Multi-Hazard Mitigation Plan*, IDHS and The Polis Center, Page 175

sea and Great Lakes level rise. Prevent or minimize threats to existing populations and property from both episodic and chronic coastal hazards.

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 Coastal Advisory Board identified Coastal Hazards as one of three priority enhancement areas in facilitated discussion of the 309 assessment at a Board Meeting in October 2013.

   A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, DNR LMCP list serve, and the AOC CARE Committee identified Coastal Hazards as the second highest priority enhancement area.

   The following stakeholder comment summarizes concerns identified: “Local governments not having enough information concerning coastal storms/climate issues and therefore their planning efforts are lacking in this area - also not planning far enough into the future and results tend to be reactionary vs. thoughtfully planned out for longer time period.”

Public Access – Phase I Assessment

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:

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**	**Changes or Trends Since Last Assessment** (↑, ↓, –, unkwn)	**Cite data source**
Beach access sites	90	Unknown: Last report was 84 beach/other shoreline access points	Email from IDEM
Shoreline (other than beach) access sites	11	Unknown: Last report was 84 beach/other shoreline access points. Data not split between the two categories.	GIO.FishAccess Sites_DNR_FW shapefile. Number of shoreline access points on Lake Michigan alone.
Recreational boat (power or non-motorized) access sites	30 (25 boat ramps and 8 carry down access points; some overlap in location)	↑ Last report = 18	GIO.FishAccess Sites_DNR_FW shapefile.
Number of designated scenic vistas or overlook points	Not Inventoried	Unknown	Not Inventoried
Number of fishing access points (i.e. piers, jetties)	79 (19 piers and 60 fishing access sites)	↑ Last report was 18 piers and 60 fishing access sites	GIO.FishAccess Sites_DNR_FW shapefile, and PiersLMCP shapefile
Coastal trails/ boardwalks	No. of Trails/ 125 Trails, 350 trail segments	↑ Last Report was 69 Trails totaling 117 miles of	GIO database. GIO.Trails_DNR

Public Access Status and Trends			
Type of Access	**Current number**	**Changes or Trends Since Last Assessment** (↑, ↓, –, unkwn)	**Cite data source**
	Miles of Trails/boardwalk 738.96	trails	_OutRec_IN shapefile
Number of acres parkland/open space	Total sites Lake, Porter LaPorte Counties – 16,123.4 acres Sites per miles of shoreline - Not available	↑ Last Report identified 12,657.8 acres of parkland	Indiana Statewide Outdoor Recreation Plan 2011 - 2015
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. [15] There are several additional sources of statewide information that may help inform this response, such as the Statewide Comprehensive Outdoor Recreation Plan,[16] the National Survey on Fishing, Hunting, and Wildlife Associated Recreation,[17] and your state's tourism office.

   There are several documents that address public access planning. These include State Agency and regional plans. The documents address current service levels, standards, and opportunities for future development. It is assumed that as the population of the Coastal Area increases that the demand for public access increases as well. The population within the state's coastal shoreline counties is projected to increase by 4% percent between 2010 and 2020. (NOAA Coastal Population Report)

   There are no specific processes for periodically assessing demand for public access in the Coastal area. However, the NIRPC 2040 Plan, the Marquette Plan, and the NIRPC Blueways and Greenways Plan provide opportunities for periodic updates of demand and access improvements. The Indiana Statewide Outdoor Recreation Plan is updated every 5 years and assesses needs and trends statewide.

   Indiana Statewide Outdoor Recreation Plan 2011-2015 – Updated every 5 years.
   http://www.in.gov/dnr/outdoor/4201.htm

   Needs Assessment of Public Access Recreation Sites within the Indiana Coastal Area was conducted by the Eppley Institute for the Indiana Department of Natural Resources Lake Michigan Coastal Program in December 2009 utilizing 309 Grant Funding (December 2009)
   http://in.gov/dnr/lakemich/files/lm-Public_Access_Needs_Assessment.pdf

[15] See NOAA's Coastal Population Report: 1970-2020 (Table 5, pg. 9): http://stateofthecoast.noaa.gov/coastal-population-report.pdf
[16] Most states routinely develop "Statewide Comprehensive Outdoor Recreation Plans", or SCORPs, that include an assessment of demand for public recreational opportunities. Although not focused on coastal public access, SCORPs could be useful to get some sense of public outdoor recreation preferences and demand. Download state SCORPs at www.recpro.org/scorps.
[17] 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.

Coastal Area Needs Assessment Summary

According to the benchmarking study, the Indiana Coastal Area is:

- Below average in the miles of multi-use walking and biking trails
- Below average in the number of public access launch points for personal watercraft
- Above average in miles of public beaches
- The only region where beach fees are charged for residents
- Far above average in fishing access points
- Above the median in total park acres (Duluth has such a large number of acres for its population size that it skews the average)

While there are many public beaches available, access to them is often limited by a lack of parking and beach access points. Beach access in the benchmark communities is, for the most part, supported by state or municipal protection and easily accessible points near densely populated areas.

Also lacking in the Indiana Coastal region when compared to the benchmarks is public access to boating opportunities. The number of large, well placed public marinas directly on Lake Michigan is substantially lower than that of the benchmarks.

Public Engagement

The results of the stakeholder interviews and the focus groups are similar in many ways and provide many ideas for the improvement of public access in the region. The main ideas are as follows:

- Connectivity between trails and existing natural areas
- Ongoing management of restored natural areas
- Increase public awareness and access through communication and signage
- Implementation of the Marquette Plan
- Regional cooperation
- Increased funding

Gaps Analysis

The Gaps Analysis qualitatively and quantitatively assesses current levels of public access to determine the areas most in need of improvements. The qualitative section provides specific examples of sites and areas within the region where improvements in service should be made. The quantitative section assesses current conditions based on acreage and mileage values compared to the defined LOS standards to illustrate the state of public access land in the region.

The findings from this qualitative gaps analysis include:

- a need for additional public recreation lands and amenities in many communities across the region
- a need for improved signage and wayfinding to direct users to recreation sites
- a need to complete trail connections to complete what is now a fragmented trail system
- a need for connectivity of natural resource lands throughout the region
- a need for the creation of blueways for non-motorized boats in many areas of the region

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.

Coastal Region:
Beyond the Beach Discovery Trail funded in part by the Lake Michigan Coastal Program identifies public access natural resource and recreation areas in the Coastal Region and is updated on a continuous basis by the Porter County Tourism Bureau.
http://www.indianadunes.com/beyond-the-beach/

Ped, Pedal & Paddle Plan (2010) – Northwestern Indiana Regional Planning Commission. Will be updated in 2015. (5 year update)
http://www.nirpc.org/greenways-blueways/planning-initiatives/2010-ped-pedal-plan.aspx

Greenways & Blueways Map (2012) – Northwestern Indiana Regional Planning Commission. Will be updated and incorporated into Ped, Pedal & Paddle Plan in 2015. (3 year update).
http://nirpc.org/greenways-blueways.aspx

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 (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	N	N	N
Operation/maintenance of existing facilities	N	N	N
Acquisition/enhancement programs	Y	Y	Y

2. For any management categories with significant changes briefly provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference to the other section rather than duplicate the information:
   a. Describe the significance of the changes;
   Indiana Bicentennial Nature Trust (BNT) - Former Governor Mitch Daniels announced the Bicentennial Nature Trust (BNT) in his 2012 State of the State Address as a new statewide effort to honor Indiana's 200th anniversary in 2016. The BNT was created to preserve and protect important conservation and recreation areas throughout Indiana by matching donations of land or dollars. Property acquired with this fund will become part of the public trust to ensure that the land is protected for future generations of Hoosiers to use and enjoy. The state has obligated $20 million in state funding to support the BNT and the Lilly Endowment contributed an additional $10 million grant. Several properties in the Coastal Region will be preserved through the BNT, some in partnership with Coastal Program grants and Coastal and Estuarine Land Conservation Program (CELCP) funding.

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

Coastal Program and partners were able to identify properties eligible for BNT funds and develop partnerships to match BNT and Coastal funds for land acquisition and preservation in the Coastal region. The 2015 Lake Michigan Coastal Grants Program awarded bonus points for utilization of BNT funds. Program received CELCP funding resulting in the potential future preservation of approximately 140 acres of land.

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

Coordination between the BNT and Lake Michigan Coastal Program grant programs allowed for acquisition of additional lands for public access to coastal areas of recreational, historical, aesthetic, ecological, or cultural value. New opportunities for public access will be set forth in local plans include the Marquette Vision Plan, and the regional Ped, Pedal, Paddle and Blueways and Greenways Plans.

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?

Public Access Guide	Printed	Online	Mobile App
State or territory has? (Y)	Y	Y	Y
Web address (if applicable)	• 2014 DNR Indiana Recreation Access Guide • Hunting & Fishing Guides DNR	http://www.in.gov/dnr/5280.htm http://www.eregulations.com/indiana/fishing/ http://www.eregulations.com/indiana/hunting/	IDNR Mobile Application for Recreation Access, Fishing and Hunting
Date of last update	2014		
Frequency of update	Annual		

State:
Indiana Lake Michigan Recreation Access Guide created in 1998 has not been updated. (IDNR) http://in.gov/dnr/lakemich/files/access.pdf

Indiana Recreation Guide 2015 updated annually (IDNR) – http://www.in.gov/dnr/5280.htm

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.

   A stakeholder survey conducted October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, DNR LMCP list serve, and the AOC CARE Committee identified Public Access as the third highest priority enhancement area.

   Stakeholder summary comment: While the region already has some good public access opportunities with the Indiana Dunes National Lakeshore and Indiana Dunes State Park in particular, there are extensive existing systems that could use maintenance and perhaps some revisiting. Inadequate directional trail markers and interpretive signage, etc. There are likely other preserves within the Coastal Region that could use some parking lot and trail development to give people better local access to nature and provide a broader diversity of habitat types. Need to develop appropriate access that maintains as well as protects ecologically sensitive areas.

Marine Debris – Phase I Assessment

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:

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, unknwn)	**Type of Impact** (aesthetic, resource damage, user conflicts, other)	**Change Since Last Assessment** (↑, ↓, –, unkwn)
Land-based			
Beach/shore litter	M	Aesthetic, user conflict, danger to wildlife (dangerous debris items such as syringes, glass, etc.) (potential entanglement from balloon strings, etc. to wildlife)	↑
Dumping	M	Aesthetic, resource damage user conflict, danger to wildlife	-
Storm drains and runoff	H	Aesthetic, user conflict, danger to wildlife	-
Fishing (e. g. , fishing line, gear)	L	Aesthetic, danger to wildlife (potential entanglement in fishing lines, nets, etc.)	-
Other (please specify)			
Ocean or Great Lake-based			
Fishing (e. g. , derelict fishing gear)	L	Aesthetic, danger to wildlife (potential entanglement in fishing lines, nets, etc.)	-
Derelict vessels	L		-
Vessel-based (e. g. , cruise ship, cargo ship, general vessel)	L	Resource damage, user conflict	-
Hurricane/Storm	H	Resource damage, danger to wildlife	↑

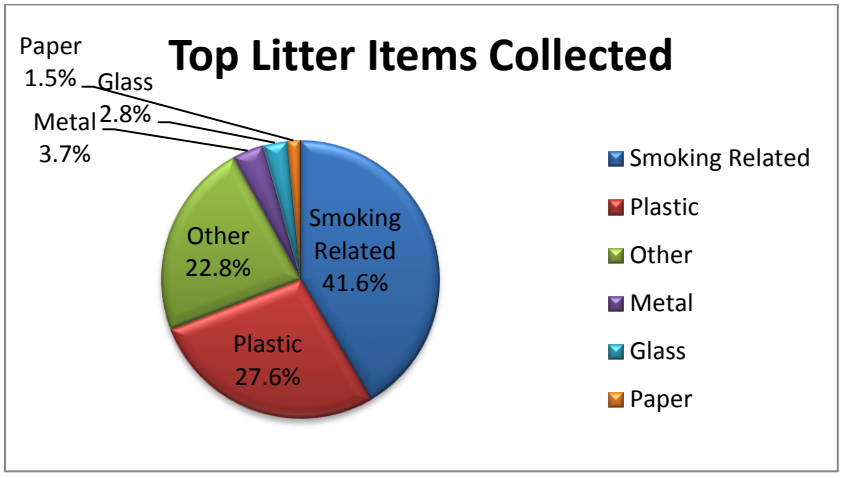
Tsunami	NA	NA	
Other (please specify)	M (derelict dredge equipment)	Resource Damage (Historic shipwrecks)	↑

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.

Shipwreck study direct and indirect assessments found *Muskegon* wreck impacted by pipe of unknown origin. Additional assessment work shows that the pipe may be a lost hydraulic dredge pipe. Removal plan and site stabilization plan developed for the wreck site.

Trash:
2013: 818 volunteers collected 2,711 pounds of trash on the International Beach Clean Up Day. (2013 International Beach Cleanup Day Report)

2014: 1,031 volunteers collected 5,346.3 pounds of trash In Indiana during one day Clean up event September 2014. (Alliance for the Great Lakes website http://www.greatlakes.org/adoptabeach)



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	N
Marine debris removal programs	Y	Y	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 and 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.

    A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, DNR LMCP list serves, and the AOC CARE Committee identified Marine Debris as a low priority enhancement area.

Cumulative and Secondary Impacts – Phase I Assessment

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:

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,[18] 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 2002)	Total (# of housing units)	% Change
2007	762,469	1.06%	323,110	0.32%
2012	770,546		324,151	

2. Using provided reports from NOAA's Land Cover Atlas[19] or high-resolution C-CAP data[20] (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.

[18] 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.
[19] www.csc.noaa.gov/ccapatlas/. Summary data on land use trends for each coastal state is available on the ftp site.
[20] 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	72,539.0	3,359.3
Developed, Low Intensity	105,131.6	7,412.4
Developed, Open Space	28,215.9	4,411.6
Grassland	44,549.9	-4,053.1
Scrub/Shrub	22,780.4	-2,594.5
Barren Land	2,585.3	-953.9
Open Water	80,904.4	61.6
Agriculture	516,630.9	-4,897.6
Forested	97,784.8	-1,192.3
Wetlands	79,423.4	-1,553.7

Note: Coastal County area within the state mapped by C-CAP is 1,053,546 acres. Numbers presented above may be slightly off due to rounding errors.

3. Using provided reports from NOAA's Land Cover Atlas[21] or high-resolution C-CAP data[22] (Pacific and Caribbean Islands only), please indicate the status and trends for developed areas in the state's coastal counties between 2006 and 2011 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**
Acres/Percent land area developed	190,703.2 (18.2%)	205,886.5 (19.6%)	15,183.3 (8.0%)
Acres/Percent impervious surface area	76,843.3 (7.3%)	81,613.4 (7.8%)	4,770.1 (6.2%)

How Land Use is Changing in Coastal Counties	
Land Cover Type	**Areas Lost to Development Between 2006-2011** (Acres)
Barren Land	1,019.7
Wetland	1,477.1
Open Water	248.9
Agriculture	6,307.8
Scrub/Shrub	1,081.1
Grassland	3,830.1
Forested	1,331.9

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

4. Using data from NOAA's State of the Coast "Shoreline Type" viewer,[23] indicate the percent of shoreline that falls into each shoreline type. [24] You may provide other information or use graphs or other visuals to help illustrate.

Shoreline Types	
Surveyed Shoreline Type	**Percent of Shoreline**
Armored	63.53%
Beaches	36.47%
Flats	NA
Rocky	NA
Vegetated	NA

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.
   NA

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	Y	Y
Guidance documents	N	N	N
Management plans (including SAMPs)	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:

   AOC Remedial Action Plan (RAP) - *SAMP like plan

   a. Describe the significance of the changes;

      AOC Remedial Action Plan (RAP) implementation resulted in 2.3 million pounds of contaminated sediment removal and habitat restoration on approximately 6 miles of the river. Lake Michigan Coastal Program staff provides support for habitat restoration/preservation and management.

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

[24] 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).

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

c. Characterize the outcomes or likely future outcomes of the changes.
The cleanup of the Grand Calumet River/Indiana Harbor Ship Canal will dramatically reduce exposure to contamination from the river, help reduce the stigma of pollution, and make the river more beautiful. There are currently ideas to improve activities like bird watching, walking, and biking along the river, but these are dependent on local funding. In addition the restoration will further restore wetland habitat including native trees, grasses, and other plants, providing food and shelter to local fish and wildlife. The vast majority of the improvements in the AOC are EPA funded. LMCP support is minor and includes funding for seasonal staff restoration activities.

Onsite Sewage Disposal Systems (OSDS) Operating Permits

a. Describe the significance of the changes;
A new Residential Onsite Sewage System Rule developed by the Indiana State Department of Health (ISDH) became effective November 19, 2012 and allows local health departments to require written operating permits.

b. Specify if they were 309 or other CZM-driven changes;
Support work CZM driven. Indiana Tracking Onsite Sewage Systems (iTOSS) Septic Permit Database Section 309 Driven

c. Characterize the outcomes or likely future outcomes of the changes.
As part of the rule, the ISDH developed a Draft Model Ordinance for OSDS Operation and Maintenance for use by local Health Departments. The LMCP has been working with State and Local Health Departments to educate decision makers and septic system owners on the health, environmental, and economic benefits of inspecting and maintaining residential septic systems. LaPorte County Indiana adopted an OSDS operating permit ordinance based on the ISDH Draft Model Ordinance (Local Ordinance 2012-01.) Other local Health Departments may follow suit and require operating permits for residential septic systems. Septics with operating permits have a higher functional rate and are less likely to cause nonpoint pollution impairments. There are four health departments in the Indiana Coastal Region that issue septic permits currently.

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.

A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, DNR LMCP list serve, and the AOC CARE Committee identified Cumulative and Secondary Impacts as a medium priority enhancement area.

The LMCP and partners are currently working to address this issue. No further Section 309 strategy is required at this time.

Special Area Management Planning – Phase I Assessment

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:

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
Gary/Chicago Airport	Development in ecologically sensitive areas
Lake Michigan Industrial Shoreline and Interior	Re-use and Access to abandoned or Underutilized Industrial Properties. Marquette Vision
Grand Calumet RAP	Clean up of contaminated areas and potential future recreational uses
Near Shoreline	Preservation and access to dunes and beaches, protection of natural resources, and water quality

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.
   Grand Calumet Area of Concern –The Grand Calumet River has been designated as an Area of Concern pursuant to the Great Lakes Water Quality Agreement. The Grand Calumet River, originating in the east end of Gary, Indiana, flows 13 miles (21 km) through the heavily industrialized cities of Gary, East Chicago and Hammond. The majority of the river's flow drains into Lake Michigan via the Indiana Harbor and Ship Canal, sending about one billion gallons of water into the lake per day. The Area of Concern (AOC) begins 15 miles (24 km) south of downtown Chicago and includes the east branch of the river, a small segment of the west branch and the Indiana Harbor

and Ship Canal. Today, 90% of the river's flow originates as municipal and industrial effluent, cooling and process water and storm water overflows. Although discharges have been reduced, a number of contaminants continue to impair beneficial uses of the River.

(2012 -2014) Since the last 309 assessment, Great Lakes Legacy Act funds are being utilized to remediate contaminated sediment at several locations in the Grand Calumet River Area of Concern (AOC.) Many partners are helping with Great Lakes Legacy Act sediment remediation, including US Fish and Wildlife Service, The Nature Conservancy, Shirley Heinze Land Trust, Save the Dunes, the cities of Hammond, East Chicago, and Gary, and many more. Most remediation areas include habitat restoration with invasive species removal and native species plantings. The Indiana Lake Michigan Coastal Program staff supports habitat restoration, preservation, and management in the AOC. CZM funding has provided support for planning and preservation.

1. **Stateline to Hohman**
   A cleanup was designed, and remediation began in winter 2014. It will be similar to past cleanups with a combination of sediment removal and riverbed capping. Partners sharing the cost are USEPA, IDEM, IDNR, and NiSource.
2. **Hohman to Columbia**
   Remediation began October 2009 and was completed September 2011.
3. **Columbia to Indianapolis**
   Remediation began July 2011 and was completed May 2012.
4. **Indianapolis to Kennedy, Indiana Harbor Canal, & Lake George Canal**
   Sediment will be sampled and studied this summer, and options for cleaning up these stretches will be developed in early 2015. Partners sharing the cost are USEPA and East Chicago Waterway Management District.
5. **Kennedy to Cline**
   River dredging is complete. Marsh excavation should finish in April, with backfill sand applied around May to help new plants grow. The cap will be installed late summer. Partners sharing the cost are USEPA, IDEM, and IDNR.
6. **Cline to US Steel Reach**
   By the end of 2014, we should know if using contaminated sediment from the Grand Cal to close Ralston St Lagoon is feasible. Partners sharing the cost are USEPA and Gary Sanitary District.
7. **US Steel Reach**
   Remediation was completed July 2007.

The Marquette Plan – The southern shore of Lake Michigan is an unparalleled opportunity and challenge. The Marquette Phase I project set a goal of increasing public access and developing the urbanized area. The Marquette Plan Phase II addressed a new set of challenges with a different set of stakeholders and interest groups. The Marquette Plan Phase II identified the needs of the smaller communities and created a vision that identified and protected greenways identified possible water trails in the region and addressed the needs of smaller communities. The Marquette Plan is a regional plan that creates a comprehensive land use vision for the Lake Michigan drainage basin and a strategy for implementation of that vision.

Since the last 309 Assessment, 2010-2014, over 100 million dollars from the NW Indiana Regional Development Authority, a quasi-state agency has been committed to lakefront planning and implementation projects in Portage, Gary, Hammond, and Whiting to restore and revitalize coastal resources. The LMCP provided funding for the update of the Marquette Plan to include cultural and historic resource protection.

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*	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:

Grand Calumet River RAP – *SAMP like plan

a. Describe the significance of the changes-

Ongoing cleanup of Grand Calumet River and restoration of adjacent areas has significantly improved environment. In the long term the project should improve Lake Michigan water quality.

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

The RAP is not 309 or CZM driven but CZM has provided support through staffing and minor grant support for habitat restoration in the Grand Calumet River AOC.

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

Continued remediation and restoration of sections of the Grand Calumet River will contribute to removing beneficial use impairments and will provide opportunities for recreation such as trails, parks, and boating. River neighborhoods will be improved and property values increased. Implementation - Lake Michigan will be protected from pollutants contained in contaminated sediments.

Marquette Plan –

a. Describe the significance of the changes

As a result of the original Marquette Planning initiative and subsequent updates over 100 million dollars of state and local match funding has been utilized to restore and revitalize shoreline parks, green space, and recreation amenities along the Indiana Lake Michigan shoreline.

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

The Marquette Plan and updates has been in part CZM driven – total **$335,000** Section 306 planning funds.

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

Implementation of the Marquette Plan will result in protection and restoration of the Lake Michigan shoreline, improved public access and recreational amenities, cleanup and restoration and reuse of brownfields, and economic revitalization of NW Indiana communities.

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.

   A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, DNR LMCP list serve, and the AOC CARE Committee identified Special Area Management Plans as a Medium priority enhancement area.

Ocean and Great Lakes Resources – Phase I Assessment

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

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), 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 (2010)				
	Establishments (# of Establishments)	**Employment** (# of Jobs)	**Wages** (Millions of Dollars)	**GDP** (Millions of Dollars)
Living Resources	17	77	1.8	13.2
Marine Construction	20	471	36.2	60.3
Marine Transportation	69	3,182	180.5	350.1
Offshore Mineral Extraction	7	33	1.8	5.5
Tourism & Recreation	382	6,314	80.4	174.4
All Ocean Sectors	514	12,412	422.2	796

Data taken from NOAA ENOW website using the coastal counties of Indiana - Lake, Porter, and LaPorte counties.

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2010)				
	Establishments (% change)	**Employment** (% change)	**Wages** (% change)	**GDP** (% change)
Living Resources	54.55%	2.7%	50.00%	175.00%
Marine Construction	0.00%	34.19%	91.53%	76.83%
Marine Transportation	2.99%	-9.74%	4.09%	8.12%
Offshore Mineral Extraction	-36.36%	-38.88%	-40.00%	-24.66%
Tourism & Recreation	11.69%	3.00%	22.37%	25.56%
All Ocean Sectors	8.44%	-12.10%	-4.62%	-1.14%

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.)	unkwn
Sand/gravel	-
Cultural/historic	–
Other (please specify)	Native Plants - ↑
Use	
Transportation/navigation	↑
Offshore development[25]	-
Energy production	-
Fishing (commercial and recreational)	-
Recreation/tourism	-
Sand/gravel extraction	-
Dredge disposal	-
Aquaculture	-
Other (please specify)	

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.

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	Ocean Acidification	Other (Specify)
Native Plants	X			X								
Transportation/navigation	X			X				X	X			

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.

   The LMCP sponsored shipwreck management plan project identified several threats to the underwater archaeological resources in Lake Michigan waters of Indiana. Observed threats include: anchor scars, anchors embedded in/under wreck, remnant rope tied to wreck structure, and derelict

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

hydraulic dredge piping. All of the threats noted are anthropogenic in origin. The plan recommended increased preserve management and public outreach to increase awareness.

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	Y	Y	N
Regional comprehensive ocean/Great Lakes management plans	Y	Y	N
State comprehensive ocean/Great Lakes management plans	Y	Y	N
Single-sector management plans	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.

Shipwreck Management Plan
The LMCP used Section 309 funds to assess existing known underwater archaeological resources (shipwrecks). In addition, a management plan for these known shipwrecks was developed. Management recommendations included: increased outreach and education, establishment of a shipwreck preserve, additional monitoring/exploration work, and nomination of sites to the National Register of Historic Places. Work was conducted by Dr. Kira Kaufmann and staff from Commonwealth Cultural Resources Group (CCRG.)

The *JD Marshall* Preserve was established in September 2013. This one hundred acre preserve protects the *JD Marshall* shipwreck just offshore from Indiana Dunes State Park in Porter County, Indiana. The LMCP used Section 309 funds from 2009 and 2010 for the site assessment and management plan development. The LMCP staff coordinated partners from the Indiana Department of Natural Resources Division of: Nature Preserves, State Parks and Reservoirs, Law Enforcement, Historic Preservation and Archaeology, and Fish and Wildlife. The mooring buoys and plaques for this site are being procured and should be installed in early summer 2015.

The *Material Service* barge was nominated to the National Register of Historic Places in 2013. The nomination materials were developed by the same consulting firm that developed the shipwreck management plan.

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)	N	Y – NIRPC 2040 – June 2011
Under development (Y/N)	N	Y – Marquette Plan
Web address (if available)	NA	http://www.nirpc.org/2040-plan/2040-crp.aspx http://nirpc.org/about/plans,-programs-studies/the-marquette-plan-2015.aspx
Area covered by plan	NA	Lake, Porter, and LaPorte Counties

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.

A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, DNR LMCP list serve, and the AOC CARE Committee identified Ocean and Great Lakes Resources as a low priority enhancement area. LMCP previously implemented strategies to address underwater archaeological resources (A.K.A. shipwrecks)

Energy and Government Facility Siting – Phase I Assessment

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)

PHASE I (HIGH-LEVEL) ASSESSMENT:

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 states or territories 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[26]	Y	↑	Y	↑
Electrical grid (transmission cables)	Y	unknown		unknown
Ports	Y	-	Y	-
Liquid natural gas (LNG)[27]		unknown		unknown
Other (please specify)				
Energy Facilities				
Oil and gas	Y	↑	Y	unknown
Coal	Y	↓	N	-
Nuclear[28]	N	-	N	-
Wind	N	-	N	-
Wave[29]	N	-	N	-
Tidal[36]	N	-	N	-
Current (ocean, lake, river)	N	-	N	-
Hydropower	N	-	N	-
Ocean thermal energy conversion	N	-	N	-

[26] For approved pipelines (1997-present)
[27] For approved FERC jurisdictional LNG import/export terminals:
[28] 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
[29] For FERC hydrokinetic projects: www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp

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)
Solar	Y	↑	Unkwn	unknown
Biomass	N	-	unkwn	unknown
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. -- None known

3. Briefly characterize the existing status and trends for federal government facilities and activities of greater than local significance[30] in the state's coastal zone since the last assessment.

   No significant military installations in Coastal Region. The Indiana Dunes National Lakeshore is the most significant Federal Government facility in the Coastal region. There are no significant changes in the status and trends.

   Military Installations in Coastal Region:
   - Michigan City Coast Guard Station – operational – provides support to Indiana and Southern Michigan waters of Lake Michigan. No change in status since last assessment.
   - Michigan City Naval Armory – operational – used by Army National Guard. No change in status since last assessment.
   - Gary Naval Marine Reserve Training Center – closed – 1999. No change in status since last 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	N	N
State comprehensive siting plans or procedures	N	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:

[30] 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).

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.

No significant changes since last Assessment. Previous plans by LMCP to develop guidelines and an offshore wind siting planning tool were not implemented due to state policy decisions.

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.

   A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, and the AOC CARE Committee identified Energy and Government Facility Siting as a low priority enhancement area.

Aquaculture – Phase I Assessment

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:

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. [31]

Type of Facility/Activity	Status and Trends of Aquaculture Facilities and Activities		
	# of Facilities[32]	Approximate Economic Value	Change Since Last Assessment (↑, ↓, –, unkwn)
All	0	0	-

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 Indiana Department of Natural Resources (DNR) issues two types of "aquaculture" permits. One permit – Fish Haulers and Supplies, is very broad and multi-purpose permit that covers most species to sell, produce, or transport fish in Indiana. It covers 38 species of fish. If someone wants to sell, produce or transport something other than one of those 38 species, they need an Aquaculture Permit. The Aquaculture Permit is more specialized than the general Fish Haulers and Suppliers permit. The Aquaculture Permit was mainly established to handle triploid grass carp for vegetation control in private ponds. It also has additional coverage for "other" species that are not covered by the Fish Haulers and Suppliers Permit. The DNR Division of Fish and Wildlife issues approximately 200 Fish Hauler permits and 20 Aquaculture Permits annually statewide.

[31] 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.

[32] 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.

Management Characterization:

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

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	N	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;
   In 2014 the US Department of Agriculture (APHIS) lifted regulations for VHS (Viral hemorrhagic septicemia, a fish virus detected in 2006 in the Great Lakes). Indiana Department of Natural Resources and Board of Animal Health (BOAH) jointly coordinated State regulations to continue protection for absence of the federal regulation.
   b) Specify if they were 309 or other CZM-driven changes; and --- None to date.
   c) Characterize the outcomes or likely future outcomes of the changes.
   No significant impacts are anticipated from this change that could facilitate or impede public or private aquaculture facilities in the coastal zone.

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.

   There are not any Aquaculture facilities in the three counties coastal area as of this time. The Illinois Indiana Sea Grant Program addresses Aquaculture development and promotion. The DNR Division of Fish and Wildlife handles Aquaculture permitting and issues on a statewide basis.

   A stakeholder survey conducted in October/November 2014 through a public meeting at the Northwest Indiana Regional Planning Commission and online to watershed groups, the regional MS4 organization, the NIRPC email contact list, DNR LMCP email list serve, and the AOC CARE Committee identified Aquaculture as a low priority enhancement area.

Phase II Assessments

Wetlands – Phase II Assessment

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	Development, urban sprawl, and other activities that result in the loss and fragmentation of wetlands through the placement of fill	Throughout coastal region
Stressor 2	Run-off to wetlands (isolated and jurisdictional) and jurisdictional waterways from existing infrastructure, new development, redevelopment, agricultural run-off, and other activities that are associated with the discharge of pollutants. These sources of pollutants are associated with point sources which may or may not be regulated under NPDES while others would be non-point sources	Throughout coastal region
Stressor 3	The widespread existence of the invasive species has resulted in an impact to natural wetland systems and the conversion to monoculture. This area of the state also has one of the most significant populations of Common Reed (*Phragmites australis*).	Throughout coastal region
Stressor 4	Lake Michigan Level Fluctuations - The potential for Lake Michigan to fluctuate may have a significant impact on the resource. If water levels recede, existing adjacent coastal wetland diversity could be altered, including the encroachment of invasive species. There is also the potential that the three criteria that classifies an area to be a wetland could be altered, thereby increasing the opportunity for these areas to succumb to the pressures of development. The alteration of water levels could affect pollution mixing zones for permitted NPDES Discharges.	Throughout coastal region

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.

The coastal area is one of the most highly developed regions of the state. New development and its associated impacts pose a threat to established wetland systems. In addition, the area consists of a highly urbanized residential, commercial, and industrial landscape that historically resulted in large expansive areas of impervious surfaces. At the time of development, many of these areas did not take into consideration the utilization of storm water quality measures to address the quality of discharges and management of run-off rates.

The functional value of wetlands in the coastal area is compromised. The once vast network of wetlands has been reduced to a fragmented mosaic. The functional value of the remaining wetlands may be compromised further due to the spread of invasive species such as purple loosestrife, reed canary grass, and common reed (*Phragmites australis.)* The Phase I assessment shows a loss of almost two thousand acres of wetlands during the period 1996-2011. The numbers may not accurately reflect the functional loss of wetlands during this period. As of this time, the state has not adopted a functional assessment methodology to track wetland gains and losses.

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

The issues identified above appear to be the most significant and at this time and we have not identified any other emerging issues. Other issues may be identified within the coastal area through watershed planning and assessment (TMDL Program etc.), land use planning strategies, and land use assessment. Many of these efforts may be achieved by local organizations and agencies (i.e. MS4s).

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	N	N	N
Wetland mapping and GIS	Y	N	N
Watershed or special area management plans addressing wetlands	N	N	N
Wetland technical assistance, education, and outreach	Y	Y	N
Other (please specify)	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. --- **NONE**
    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? --- **NONE.**

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.

    Management Priority 1: Further Develop IDEM Wet Site

    Description: Utilize the current agency permitting database (will require modifications), and an online permit tool (requires modification of the system). This activity would allow tracking specific information and data that could be used in future planning and allow applicants an electronic method of submitting applications; which in turn could expedite permitting. A part of this initiative would also allow the agency to tie in the program Wet Site to the database. An estimated cost to pursue this project is $250,000. Additional Enhancement - Develop a publically accessible database that can be used to submit locations of verified wetlands, restored, or protected wetlands. Develop educational resource materials, including brochures that explain the permitting process, identify specific types of wetlands; their identification, and functionality as a natural system and from a resource management perspective. An estimated cost to develop and print materials is unknown at this time.

    Promote the use of the new High Priority Wetland Conservation Site mapping tool and encourage submission of data.

    Management Priority 2: Tools for restoration/mitigation sites

    Description: Further develop the current IDEM Matchmaker site that will allow the public and other agencies to identify areas that would be available for mitigation. Explore the utilization of new planning tools to aid in identifying restoration and mitigation target areas. Develop a consistent strategy to monitor success of restoration projects and develop guidance for implementation. Refine existing wetland maps.

    Management Priority 3: Wetlands Functional assessments

Description: Review and compare various existing functional assessment tools. IDEM staff and partners will work towards piloting a wetlands functional assessment tool in Coastal area.

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 functional assessment methodologies
Mapping/GIS	Y	Updated maps of current wetlands
Data and information management	Y	Database to track wetland permits
Training/capacity building	Y	Train municipal staff on online database, decision support tools, and role that wetlands play in overall landscape. Wetland functions related to water quality improvements, storm water attenuation, and habitat quality.
Decision-support tools	Y	Online webmapping – tie functional assessment and database (Wet Site) into Decision Support tool. Explore tie in with IL IN SG Tipping Points.
Communication and outreach	Y	Develop brochures explaining permitting process.
Other (Specify)		

Enhancement Area Strategy Development:

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

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

   The LMCP and partners will develop a strategy for the wetlands enhancement area. The LMCP Coastal Advisory Board, public survey, and meetings with state agency staff all identified this as an issue that should be addressed. However, given costs and funding constraints, the LMCP cannot develop strategies to address all issues identified in this assessment. The LMCP will develop strategies that tie with the program goal of providing technical and financial assistance to local communities regarding coastal resource management. Issues fitting with the goal include – functional wetlands assessment, updated wetlands mapping, and outreach materials addressing wetland protections.

Coastal Hazards – Phase II Assessment

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[33] and summarized by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[34] 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.

2007 - 2011 Populations in Coastal Counties at Potentially Elevated Risk to Coastal Flooding[35]				
	Under 5 and Over 65 years old		**In Poverty**	
	# of people	**% Under 5/Over 65**	**# of people**	**% in Poverty**
Inside Floodplain	12,785	19.26%	8,468	12.75%
Outside Floodplain	138,582	19.70%	103,691	14.74%

Total Coastal County Population	769,964
Total # inside Floodplain	66,395
Total # outside Floodplain	703,569

Population - In Floodplain	**Lake**	**Porter**	**LaPorte**	**TOTAL**
Total	52,130	6,524	7,741	66,395
# In Poverty	6,996	591	881	8,468
# Under 5	3,252	365	449	4,066
# Over 65	6,981	727	1,011	8,719
TOTAL Under 5 and Over 65	10,233	1,092	1,460	12,785

Population - Outside FP	**Lake**	**Porter**	**LaPorte**	**TOTAL**
Total	443,142	156,882	103,545	703,569
# In Poverty	74,090	14,844	14,757	103,691
# Under 5	30,355	9,484	6,199	46,038
# Over 65	58,590	19,293	14,661	92,544
TOTAL Under 5 and Over 65	88,945	28,777	20,860	138,582

[33] http://stateofthecoast.noaa.gov/pop100yr/welcome.html
[34] http://www.csc.noaa.gov/digitalcoast/tools/snapshots
[35] Source: American Community Survey 5-year estimates, http://coast.noaa.gov/digitalcoast/dataregistry/#/acs; http://coast.noaa.gov/htdata/SocioEconomic/AmericanCommunitySurvey/AmericanCommunitySurvey_DataDescription.pdf

1b. **Flooding In-depth** (for all states besides territories): Using summary data provided for critical facilities, derived from FEMA's HAZUS[36] and displayed by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[37] 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.

County	year	Schools	Police Stations	Fire Stations	Emergency Centers	Medical Facilities	Communication Towers
Lake	2010	192	30	24	4	6	7
LaPorte	2010	48	8	19	2	2	4
Porter	2010	65	10	19	1	1	6
	Total	305	48	62	7	9	17

* Data Taken from NOAA FTP site.

Critical Facilities in the FEMA Floodplain[44]						
	Schools	Police Stations	Fire Stations	Emergency Centers	Medical Facilities	Communication Towers
Inside Floodplain (state)*	27	3	15	3	0	9
Coastal Counties**	9	1	5	1	0	3

* Data Taken from NOAA FTP site.

** Data Taken from NOAA FTP site.

2. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards[38] 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	Loss of Dunes/Shoreline/Erosion	Lake Michigan shoreline and adjacent coastal natural resource areas and communities.
Hazard 2	Fluctuating Lake Levels	Along shoreline and coastal tributaries
Hazard 3	Flooding	Throughout coastal floodplains and hydrologically connected areas

[36] 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.

[37] http://www.csc.noaa.gov/digitalcoast/tools/snapshots

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

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.

In the IDNR Lake Michigan Coastal Program publication, "Lake Michigan Shoreline Coastal Hazard Model Ordinances" Coastal hazards are defined as: detrimental impacts of coastal processes to the use, and amenity of the shoreline[39].

Hazard 1 – Beaches/Dunes/Shoreline Erosion
Beaches and dunes are important elements of the Lake Michigan shoreline environment; they are critical to the health of the coastal systems and are the first line of defense during a hazard event. As recently as October 2014, a storm event resulted in the loss of 10 – 15ft. of foredune along the natural coastline. In some cases, homes built on the foredune lost their "front yard", and in other areas, questionable piping was exposed. Although storms and lake levels cannot be controlled, property and natural resource damage caused by storms, erosion and fluctuating lake levels can be mitigated through early planning designed to protect shoreline and community resources. The LMCP has developed model ordinances to address protection, management, and restoration of beaches and dunes in coastal communities. Further technical assistance and outreach is needed to communicate information and facilitate adoption of ordinances appropriate to each community's needs.

GIS Mapping of the Indiana Lake Michigan Shoreline (Dec 2013)
The LMCP and partners identified coastal data as a gap in addressing Indiana coastal hazards. A variety of data layers collected/created during the GIS project can be used by local communities to reduce hazard risk. The inventory contained shoreline armoring, structures, and associated analysis. The intended outcome is to direct future public and private development and redevelopment away from hazardous areas, including the high hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from Great Lakes level fluctuations. Initial analysis shows some development encroachment and undocumented shoreline armoring. Further analysis of the data is required in order to determine the level of risk associated with coastal hazards along the shoreline. Additional outreach activities to be developed upon refill of coastal resource planner position.

Shoreline Aerial Photos
The LMCP procures aerial photos of the Lake Michigan shoreline each year. This partnership project with the Indiana Department of Transportation and the DNR Division of Water is conducted annually. The aerial photos are used as a decision support tool for Division of Water regulatory staff. Aerial photos from past years used as the base map for shoreline assessment. The aerial photos from this spring will to be used in assessing damage from the October 31, 2014 storm and identifying areas at risk from erosion.

Hazard 2 – Lake level fluctuation
In the mid-1970s and 1980s, high lake levels led to severe erosion and flood conditions along Indiana's shoreline. Lake levels reached over three feet above the "long term average" in October 1986. [5] Damage was reported by most shoreline communities. Roughly $867,526 in damages were reported by the Indiana Department of Civil Defense (now the Indiana State Emergency Management Agency) for the 6. 5 miles of shoreline in LaPorte County. Lake level fluctuations affect both shoreline and hydrologically connected areas. Coastal area water tables rise and fall with Lake Michigan sometime causing significant flooding of basements and normally dry areas. In 2013, low lake levels created

[39] http://in.gov/dnr/lakemich/files/lm-HazardOrd_TechnicalAssistance.pdf

problems for at least one Indiana Lake Michigan marina operator causing a full dock of slips to be put out of commission. Higher lake levels in 2014 contributed to property damage when an October storm surge pushed lake water further landward and eroded substantial portions of protective foredune. Native dune grasses stabilizing the foredunes were undercut, uprooted and washed away. Most shoreline communities were not prepared to implement dune restoration measures and some had allowed developments that contributed to dune erosion and property damage. Adoption of model ordinances developed by the Coastal Program could guide development and redevelopment in a manner that would best protect the future social and financial health of coastal communities.

Hazard 3 – Flooding

The relatively flat topography and high ground water table prevalent in many coastal areas contributes to severe flooding episodes resulting from storms and fluctuating water levels. Damages occur at every level from flooded basements and failing septic systems, to rivers overtopping their banks and serious property and natural resource damages. The risks of flooding and changing lake levels present challenges for coastal community development. Although structures such as seawalls or breakwaters have been constructed in the Lake or along the coast to afford protection for industrial, residential, and commercial developments, these structures contribute to the alteration of the shoreline. What provides protection for one area of the coast can negatively affect another. Dams and levees have also been constructed to manage tributary waters in the coastal region, the largest being the Little Calumet River, Indiana Flood Control and Recreation Project designed to provide structural flood protection along the main channel of the Little Calumet River from the Illinois State Line to Gary, In. (http://littlecalriverbasin.org/about.html)

Many of these flooding issues can be addressed locally in the coastal region through integrated planning and ordinance development. Green Infrastructure practices provide feasible and cost-effective measures to manage precipitation on-site and reduce localized flooding. Wetlands and greenspace protection can further reduce damages from high water and tributary flooding. Further, integrating Lake Michigan tributary watershed plans into comprehensive plans, ordinances and codes is another way of integrating green infrastructure into land use strategies.

Coastal Hazard Stakeholder Input

The Coastal Program 309 Assessment stakeholder survey conducted in September and October of 2014 identified Coastal Hazards as the second highest enhancement priority for the coastal region. The primary concern was that coastal communities do not have adequate information and ordinances in place for planning and development efforts that create a balance between conservation, protection, and new development along the Lake Michigan shoreline and within coastal communities. Ongoing education on the importance of dune protection, erosion, and flooding prevention, and wetland and greenspace protection was suggested for local governments and coastal residents.

The Lake Michigan Coastal Program Advisory Board identified protection of remaining undeveloped coastal dunes as a priority for strategy development in October of 2013.

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.

5.

Emerging Issue	Information Needed

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	Y	Y	Y
Hard shoreline protection structure restrictions	Y	Y	N
Promotion of alternative shoreline stabilization methodologies (i.e., living shorelines/green infrastructure)	Y	Y	Y
Repair/replacement of shore protection structure restrictions	Y	Y	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)	Y	Y	Y
Freeboard requirements	Y	Y	N
Real estate sales disclosure requirements	Y	Y	N
Restrictions on publicly funded infrastructure	Y	Y	N
Infrastructure protection (e. g. , considering hazards in siting and design)	Y	Y	N
Other (please specify)			
Management Planning Programs or Initiatives:			
Hazard mitigation plans	Y	Y	Y
Sea level rise/Great Lake level change or climate change adaptation plans	Y	Y	Y
Statewide requirement for local post-disaster recovery planning	Y	Y	N
Sediment management plans	N	N	N
Beach nourishment plans	N	N	N
Special Area Management Plans (that address hazards issues)	Y	Y	N
Managed retreat plans	N	N	N

Other (please specify)			
Research, Mapping, and Education Programs or Initiatives:			
General hazards mapping or modeling	Y	Y	Y
Sea level rise mapping or modeling	N	N	N
Hazards monitoring (e. g. , erosion rate, shoreline change, high-water marks)	Y	Y	Y
Hazards education and outreach	Y	Y	Y
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?

   The IDNR Lake Michigan Coastal Program publication, "Lake Michigan Shoreline Coastal Hazard Model Ordinances" (2010) provided an overview of Coastal Hazards including natural processes like waves, wind, lake levels and storms as well as human influences such as beach nourishment, breakwalls, and other man-made structures. Following detailed description of shoreline reaches and shoreline community conditions the document provides suggested model hazard ordinances that could be adapted to the characteristics of each community.

   Subsequent to the Lake Michigan Coastal Hazard Model Ordinance publication, there has not been an evaluation of the effectiveness of the state's management efforts. Based on stakeholder input and partner consultation, the LMCP has determined that additional outreach, education, and technical assistance should be provided to Coastal Communities to promote and facilitate adoption of model ordinances that reflect each community's local interests and issues.

   It is also recognized by the LMCP that the "toolbox" to address Coastal Hazards should be supplemented by information and model ordinances on wetland, greenspace, and flooding protection and management for inland and well as shoreline communities in the coastal region.

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.

   Management Priority 1: Beach and Dune Resource and Shoreline Community Protection

   Description: Natural processes, storms, lake levels, and human influences have resulted in loss of native beach and dune resources. Not all Coastal Communities have the resources and capacity to develop protective measures and practices to protect, restore and manage dune and shoreline resources within their boundaries. It is important to provide tools, technical assistance, and resource guidance to these communities in order to protect both natural and community shoreline resources.

   Management Priority 2: Shoreline and Coastal Region Planning & Development

Description: Coastal hazards challenge municipalities and decision makers when planning for new development, redevelopment, and permit issuing in the Coastal Region. Along with shoreline hazards, hazards associated with tributary flooding, loss of wetlands and green space, and effective storm water management, must be addressed. These needs call for an integrated approach to natural resource management within coastal communities that unifies the different levels of government agencies responsible for regulating natural resources and community development with a balance between development and conservation.

It is important that sustainable coastal planning and development address and integrate all coastal hazards relevant to that community. The current LMCP "toolkit" and model ordinances address many of the issues faced by coastal communities, but additional coastal community hazard protection tools need to be developed for wetland protection and green infrastructure practices. To support planning efforts, coastal community natural resource maps need to be updated in conjunction with the Coastal Hazards GIS Layer developed by the Coastal Program.

Further outreach, training, and technical assistance is needed to provide communities with options to address their planning and development needs.

Management Priority 3: Wetlands, Greenspace and Flood Protection

Description: The LMCP has identified the need to incorporate wetland protection and green infrastructure flooding prevention ordinances in the community technical assistance "toolbox". In many cases community decision-makers are not aware of the ecosystem services provided by wetlands and greenspace in their communities. New green infrastructure measures can contribute to flood reduction as well as providing community enhancements such as parks, trails, and gardens. Flood protection is overseen through community zoning ordinances regulating flood plain boundaries but the connectivity between wetlands, open space, and green infrastructure in flood management is not always incorporated into siting and development planning. Existing wetland maps for the coastal region are not complete or accurate in some areas and need to be updated for community wetland protection and planning as recommended in the Wetlands section of this document.

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	Review existing model ordinances for wetland and flooding protection for inclusion in Lake Michigan Coastal Hazards Toolbox
Mapping/GIS/modeling	Y	Coastal resource maps need to be created and updated with a focus on wetlands and a wetlands permitting database.
Data and information management	Y	Tracking model ordinance adoption and effectiveness
Training/Capacity building	Y	Training for staff and communities on community needs and adoption of model ordinances

Decision-support tools	Y	Coastal Atlas website with hazard maps and model Ordinance Toolbox
Communication and outreach	Y	Effective outreach and education program to Coastal Communities on Coastal Hazards and model ordinances
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.

   Coastal Program staff, partners, and stakeholders have identified Coastal Hazards as a priority enhancement area to be addressed by outreach and education to Coastal Communities on hazard impacts and benefits of integrating protection, restoration, and management of coastal resources into coastal planning and ordinance development. Technical assistance and training are needed to advance coastal hazard ordinance adoption and implementation.

   The enhancement area will be addressed in a cross cutting strategy. The LMCP shall develop a local government technical assistance program. The existing Coastal Hazard Ordinances and GIS map will be supplemented by enhanced wetland and flooding model ordinance development and technical assistance and training.

Public Access – Phase II Assessment

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**[40]	**Changes or Trends Since Last Assessment**[41] (↑, ↓, –, unkwn)	**Cite data source**
Access sites that are ADA compliant[42]	No. of Sites 200* Percent of Sites 50%**	unkwn	Indiana DNR Division of Outdoor Recreation Facility Inventory Database

Notes – * information reported above is for the number of self-reported "accessible" outdoor recreation sites in the coastal program area. The LMCP cannot verify the level of accessibility at these sites. **Percentage of sites that have some level of ADA accessibility. Sites may not be fully accessible.

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	Private development pressure	Throughout coastal zone
Stressor 2	Funding for long term maintenance of current & future sites	Throughout coastal zone
Stressor 3	Legacy contamination	Throughout coastal zone

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

[40] 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.

[41] 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."

[42] For more information on ADA see www.ada.gov.

assessment.

The stressors/threats were identified with input from partners/stakeholders. Local property tax caps reduced local budgets.

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
Heightened demand for water trails.	Information regarding potential user conflicts. Long term management of access points. Issue of "navigability" and access.

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	Y	Y	N
GIS mapping/database of access sites	Y	Y	N
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;
    b. Specify if they were 309 or other CZM-driven changes; and
    c. Characterize the outcomes or likely future outcomes of the changes.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's management efforts in providing public access since the last assessment.

The DNR Division of Outdoor Recreation is currently updating the Statewide Comprehensive Recreation Plan (SCORP) update. The Indiana DNR Division of Outdoor Recreation staff collects a variety of information regarding outdoor recreation.

The access to trails in the state has increased. The Governor's 2006-2015 trail plan called for a trail within 7.5 miles or 15 minutes of all state residents. As of June 2014, that state is within 98% of this goal. Governor Pence recently announced a new goal: a trail within 5 miles or 10 minutes of all Hoosiers. Current access is 93.4% of the new goal.

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.

   Management Priority 1: Funding

   Description: Identify new and unique funding for long term management and accessibility of publicly owned recreational lands.

   Management Priority 2: Strategic Planning technical assistance

   Description: Provide technical assistance to local governments regarding long term green space/natural area acquisition planning, health and economic values of access to local recreation and natural resource areas, and connectivity to regional trails and natural resources. Technical assistance with local park plans, comprehensive plans, and associated model ordinances.

   Management Priority 3: Guidance on brownfield issues

   Description: Some properties in coastal area have legacy contamination issues. The IDEM used to have a publication regarding steps to clean up and convert brownfields to parks. The Indiana Finance Authority at one time had funding from EPA to run the Brownfields Program Trails and Parks Initiative. The IFA program provided funds to communities to conduct assessments on brownfield sites that could potentially be converted to a recreational asset.

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	"Impacts" and use of trails – health benefits, congestion mitigation, financial, etc.
Mapping/GIS	Y	Updates to managed facilities inventory. Updates to conditions assessments to include ADA
Data and information management	Y	Aging datasets and multiple data platforms – GIS, Access, Excel, etc.

Training/Capacity building	Y	Incorporate public access values into community training
Decision-support tools	Y	Update and include in Technical Assistance Planning Program (TAPP) Toolkit
Communication and outreach	Y	Service gaps. Existing data availability.
Other (Specify)		

Enhancement Area Strategy Development:

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

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

In the 1990's NIRPC made the first bikeway plan which identified the locations of those corridors for trail development. The 1994 bikeway plan was a successful model document and NIRPC built on that in 1994 with the Ped & Pedal Plan, which also encompasses pedestrian travel. The creation of the regional priorities trail map aided greatly in determining where to utilize the federal funds. The Ped & Pedal Plan was then updated in 2010, with mapping showing funded or completed trails. The 2007 Greenways & Blueways Plan identified bike, hike and water trails throughout the region and 15 potential corridors between Lake Michigan and the Kankakee River. The many creeks in the three counties are recreational opportunities. The update of the *2020 Greenways & Blueways Plan* will combine the two plans into three major planning initiatives of conservation, recreation and transportation. The target date of completion is December 2015. Many of the priority issues identified for Public Access by Coastal partners and stakeholders such as funding, brownfields, and maintenance will be addressed through the NIRPC 2020 Greenways and Blueways planning initiative. The Coastal Program will participate in this initiative and incorporate the resulting plans and public access tools and recommendation in the Coastal TAPP outreach program.

The enhancement area will be addressed in a cross cutting strategy as well as through a standalone item. The LMCP shall develop a local government technical assistance program. The existing public access inventory and level of service standards shall be incorporated into the program. The LMCP shall consult with DNR staff to develop an ADA assessment checklist to update facilities conditions assessment information.

STRATEGIES

	Strategy Title	2016	2017	2018	2019	2020	Total Funding
Wetlands	*GIS Mapping Update*						
	GIS Mapping Needs Assessment (staff time)	$5,000					$5,000
	Wetland GIS Updates (Contract)		$70,000				$70,000
	Functional Wetland Assessment						
	Needs Assessment (Staff)		$2,500				$2,500
	Functional Assessment Development (Contract)			$70,000			$70,000
	Model Wetland Ordinance Development (Staff)		$2,500				$2,500
Public Access	Public Access – ADA assessment (Staff)			$5,000			$5,000
Coastal Hazards	Model Ordinance update – flooding (Staff – base funding)	X					
Multi – PA, Wetlands, Hazards	*Coastal Program Integration*						
	Needs Assessment (Staff – 2015 base funding)						
	Training Program Development (Contract)	$70,000					$70,000
	Current Website Updates (Staff – base funding)	X	X	X	X	X	
	Website Update – Coastal Atlas / other tools				$75,000	$75,000	$150,000
	Total Funding	**$75,000**	**$75,000**	**$75,000**	**$75,000**	**$75,000**	**$375,000**

Wetland Protection Improvements

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
- **X** - 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;

X - 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,

X - 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:*** Increase technical assistance to government agencies regarding wetland protection via technical toolkit enhancements. Develop improved wetland GIS, functional assessment methodology, and model wetland protection ordinance and incorporate into LMCP TAPP toolkit.

C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)

The strategy entails three parts – 1) updated wetlands mapping, 2) review/development of functional assessment methodology, and 3) development of model wetlands protection ordinance and associated best management practices for long term stewardship. The State and local governments lack a current inventory of wetlands in the coastal area. The lack of current data regarding wetland occurrence hinders planning to protect and avoid the parcels. The wetland functional assessment methodology will assist coastal resource managers in identifying and protecting key wetland resources. The LMCP previously developed a model coastal hazard ordinance as part of the Technical Assistance Planning Program (TAPP) toolkit. The addition of a comparable model ordinance for wetland resource protection improves the reach of the TAPP.

The implementation of this strategy shall be achieved via the cross cutting strategy described in the next section.

III. Needs and Gaps Addressed

Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.

The State of Indiana has a no net loss of wetlands policy. The Phase I assessment data appears to show that this may not be the case in practice. The C-CAP data shows that there were nearly two thousand acres of wetlands lost from 1996-2011. However, this information may not capture the full picture regarding the extent and function of wetlands in the coastal area. The proposed strategy addresses the programmatic need of filling data gaps and working with agency staff to use that information in decision making. Local planners can use the updated maps in the comprehensive planning process. The model wetland protection ordinance can be adopted in the implementation phase of the local comprehensive plan and help protect existing wetlands. Many communities struggle with maintaining existing wetland systems. The management BMPs serve to provide a framework for maintaining wetland health and function. The functional assessment portion of the strategy can be used to identify wetland areas of high function and those that may require restoration. The long term outcome of successfully implementing these strategy components are higher quality wetlands, more intact aquatic systems and lower potential flood risk along riparian areas.

IV. Benefits to Coastal Management

Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.

The strategy furthers the LMCP vision that coastal resources are preserved, viable, valued and accessible for present and future generations. The strategy provides additional tools that the LMCP and partners can use in planning for the future of these shared coastal resources.

V. Likelihood of Success

Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change and the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

The strategy has support at the state level. The needs addressed are raised from the local level. The cross cutting strategy outline further in this plan outlines the implementation component of this strategy.

VI. Strategy Work Plan

Strategy Goal: Increase technical assistance to government agencies regarding wetland protection via technical toolkit enhancements.

Total Years: Three – 2016, 2017, & 2018
Total Budget: $150,000

Year(s): 2016 - 2017
Description of activities: GIS Mapping Update
Major Milestone(s): Updated map of National Wetland Inventory for Coastal Area – 2016 – Needs Assessment; 2017 – Contractual Work – GIS updates.
Budget: $75,000

Year(s): 2017
Description of activities: Model wetland protection ordinance and associated BMPs
Major Milestone(s): Develop model wetland protection ordinance. Develop best management practices for wetland preservation
Budget: $2,500

Year(s): 2017 - 2018
Description of activities: Functional Wetland Assessment review and development
Major Milestone(s): 2017 - Needs assessment; 2018 - Model Ordinance Development
Budget: $72,500

VII. Fiscal and Technical Needs

A. Fiscal Needs: If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.

The anticipated funding from 309 is not sufficient to address all the needs related to this enhancement area. If wetlands were considered an issue of national importance, a project of special merit proposal would be developed to address the shortfall.

The last need identified and not addressed in a strategy is an enhanced wetland permit database. The cost estimate for the database is $250,000. Based upon the anticipated Section 309 funding levels, this task was not included as a strategy. Our partners at the Indiana Department of Environmental Management may pursue outside funding sources to address this need. The Indiana Legislature is discussing the next biennial budget July 1, 2015 - June 30, 2016. It is unlikely that funding for the database project will be included in this budget given current and future budget reserve guidance.

B. Technical Needs: If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).

It is possible that the State possesses the technical knowledge to develop the permit database. However, the level of staff capacity to conduct the work is unknown at this time. The LMCP worked with the Indiana Office of Technology on a grants management database. Work on that project was terminated due to lack of staff capacity and funding within IOT to manage the project. It is anticipated that the wetland permit database may experience the same issues.

VIII. Projects of Special Merit (Optional)

None at this time. As the Wetlands Enhancement Area is not an area of National Importance, the LMCP cannot submit a Project of Special Merit for this area.

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
GIS Mapping Update	$5,000	$70,000				
Functional Wetland Assessment		$2,500	$70,000			
Model Wetland Ordinance Development		$2,500				
Total Funding	$5,000	$75,000	$70,000			$150,000

Indiana Coastal Community Hazard Protection

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
- **X** 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;

X New or revised local coastal programs and implementing ordinances;

X 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:*** Fully develop model coastal hazard ordinance to include consideration for all hazards.

Review current model ordinances addressing flooding issues and incorporate into current coastal model hazard ordinance. Work with a minimum of 5 prioritized Lake Michigan Coastal communities to provide information on coastal hazard impacts and the benefits of ecosystem services and natural resource protection for long term community social and economic sustainability. Utilize information and model ordinances in the existing Coastal Program TAPP Toolkit with the addition of No Adverse Impact (NAI) Floodplain Management strategies and wetland protection model ordinances. Assist shoreline communities with the development of appropriate model ordinances for coastal hazard protection

No Adverse Impact:
http://www.floods.org/index.asp?menuID=349&firstlevelmenuID=187&siteID=1

C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)

The task is to be conducted using current LMCP staff and budget resources. The Coastal Planner will: 1) Conduct a needs assessment including a literature review to identify existing community ordinances designed to protect Coastal Communities from impacts of flooding and to incorporate strategies aligned with No Adverse Impact Floodplain planning, 2) Develop model flood ordinance and add to the TAPP toolkit for Coastal Communities, 3) Work with prioritized coastal communities to determine existing level of coastal hazard risks, 4) incorporate into outreach and training program, 5) The Coastal Program will work with staff and utilize planning products from the Northwest Indiana Regional Planning Commission, the Illinois/Indiana Sea Grant, and the NW Indiana Urban Waters Partnership to assist with implementation of the coastal resource protection strategy.

III. Needs and Gaps Addressed

Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.

In 2010 the LMCP developed "The Lake Michigan Shoreline Coastal Hazard Model Ordinances" [43]document designed for use by Coastal Communities to address hazard planning and mitigation through local planning and ordinances. Although flooding was not specifically addressed in the original publication, flooding impacts to property and natural resources in the coastal region can be severe. Floodplain issues are addressed through local floodplain ordinances and boundaries as set by FEMA but flood protection and prevention are not often incorporated in development and redevelopment planning. Incorporating flood prevention into the coastal hazards model ordinances manual, cross-cutting outreach program and community training module will add an important element to the TAPP toolkit for coastal community protection. The Coastal Hazards assessment identified coastal dune protection, fluctuating lake levels, and flooding as the priority concerns of coastal stakeholders and partners. Addressing local flood prevention and mitigation through the integration of green space, green infrastructure, wetland protection into comprehensive planning and ordinance development will provide communities with a comprehensive approach to community hazard protection and sustainability.

There is presently not a strong, consistent local outreach component to address the needs and provide technical assistance and training to coastal communities on the benefits of natural resource planning and protection. This is a significant need and a gap that can most appropriately be filled by the LMCP.

IV. Benefits to Coastal Management

Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.

The strategy furthers the LMCP vision that coastal resources are preserved, viable, valued and accessible for present and future generations. The strategy provides additional tools that the LMCP and partners can use in planning for the future of these shared coastal resources.

[43] http://in.gov/dnr/lakemich/files/lm-HazardOrd_TechnicalAssistance.pdf

V. Likelihood of Success

Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change and the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

This strategy has support at the state and local level. The needs addressed are raised from the local level. Partner agencies and organizations such as the Northwest Indiana Regional Planning Commission and the Illinois Indiana Sea Grant have developed tools and guidance that will contribute to the success of the strategy. The cross cutting strategy outlined further in this plan outlines the implementation component of this strategy.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCRM recognizes that they may change somewhat over the course of the five-year strategy unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.

Strategy Goal:
Total Years:
Total Budget:

Year(s):
Description of activities:
Major Milestone(s):
Budget:

VII. Fiscal and Technical Needs

A. Fiscal Needs: If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.

B. Technical Needs: If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).

VIII. Projects of Special Merit (Optional)

The LMCP may develop a PSM for the Coastal Hazard component of the Coastal Training Program strategy. Potential project concepts entail full scale development of a coastal atlas site with modeling add ins. The LMCP may partner with the Regional Planning Commission (NIRPC), Illinois Indiana Sea Grant, and or the Indiana Geological Survey to deploy a robust online coastal atlas platform.

5-Year Budget Summary by Strategy

Not applicable. The LMCP shall address this issue using existing staff and budget resources.

Public Access 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
- **X** 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;

X 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,

X 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:*** Conditions assessment updates to include ADA accessibility. Assessment to be incorporated into coastal training program and Coastal Grants guidance documents.

C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)

Coastal Program shall work with DNR Division of Outdoor Recreation and other partners to develop an ADA accessibility checklist. Coastal intern position to work with state and local park partners to assess current level of accessibility at managed parks throughout coastal area. Information to be entered into GIS and into the Public Access Conditions Assessment report. LMCP will integrate the information into the coastal training program and the Coastal Grants program guidance. Local communities can use the information in their public access improvement decisions.

III. Needs and Gaps Addressed

Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the

priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.

The DNR Division of Outdoor Recreation (DOR) is charged with creating the State Comprehensive Outdoor Recreation plan every five years. The DOR collects self-reported public access information from local parks departments. The quality of the information varies and is dependent on the level of resources at the local level. The process lacks a uniform set of criteria for determining ADA accessibility.

The LMCP is the appropriate entity to coordinate state and local efforts on this issue. The LMCP has staffing, financial resources, and working relationships with local entities and can coordinate project development and implementation.

IV. Benefits to Coastal Management

Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.

The LMCP vision is that all coastal resources are preserved, viable, valued, and accessible for present and future generations. Accessibility information will improve public access coastal grant implementation and further the program purpose.

V. Likelihood of Success

Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change and the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

It is highly likely that the LMCP will attain the stated goal and program change within the assessment cycle. The DNR DOR supports the effort and the LMCP has the resources to conduct the work. The LMCP has existing contacts with the appropriate local partners to complete the work. The information will be incorporated into the coastal training program.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCRM recognizes that they may change somewhat over the course of the five-year strategy unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.

Strategy Goal: Review public access sites in the coastal area for level of ADA accessibility.

Total Years: 1
Total Budget: $5,000

Year(s): 2018
Description of activities: LMCP shall work with partners to conduct an assessment of public access sites for ADA accessibility
Major Milestone(s):
- Develop ADA accessibility checklist
- Assessment of properties listed in state managed facilities database
- Updated managed facilities database

Budget: $5,000

VII. Fiscal and Technical Needs

A. Fiscal Needs: If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.

The LMCP has adequate funds to complete the project work. Some program staff time to be coded to base CZMA funding during project development and start up.

B. Technical Needs: If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).

The state possesses adequate technical knowledge, skills, and equipment to complete the strategy.

VIII. Projects of Special Merit (Optional)

The state will not pursue project of special merit funding for this issue. As the project addresses public access it is not eligible for funding per the NOAA guidance.

5-Year Budget Summary by Strategy

Strategy Title	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total Funding
Condition Assessment – ADA accessibility		$5,000				
Total Funding		$5,000				

Coastal Training Program

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
- **X** Coastal Hazards
- ☐ Ocean/Great Lakes Resources
- ☐ Special Area Management Planning
- **X** Cumulative and Secondary Impacts
- **X** Wetlands
- ☐ Marine Debris
- **X** 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;

X 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,

X 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:*** Integrated coastal training program for enhanced technical assistance.
Develop a coastal training program framework for multiple enhancement areas. Program clearly explains functional application of all LMCP work products developed to date, as well as future work products. This framework will also explain to stakeholders how to use the LMCP's work products in their planning efforts.

C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)

The LMCP has developed several important documents/tools (the Eppley Institute Public Access studies, the Lake Michigan Shoreline Coastal Hazards Ordinances, the GIS Shoreline Hazards Layer, and the TAP Toolkit) which are designed to assist local Coastal communities with their planning efforts. As identified in the Wetland, Public Access, and Coastal Hazards Assessment and Strategies of this document, additional tools and ordinances would be developed in these areas for inclusion in the TAP Toolkit.

Implementation of this strategy would include a needs assessment and review of existing local community plans to determine which governments/entities are actually in need of the tools offered by LMCP. Based on the results of the needs assessment, a training program will be developed to communicate the benefits and applicability of the tools and model ordinances and to provide technical assistance for incorporating relevant elements into local comprehensive plans and ordinances. Identifying and developing relationships with the appropriate local administrators and decision-makers will also be key to implementing a successful training program. Part of the scope of work will include a niche assessment – identifying existing training efforts and gaps as a way to further focus the LMCP efforts.

Additional considerations would also be addressed by the Needs Assessment. For example, in addition to the "on the ground" training program, should these tools be available on the LMCP website as webinars? Could other social media communication such as Facebook and YouTube be employed?

III. Needs and Gaps Addressed

Identify what priority needs and gaps the strategy addresses and explain why the proposed program change or implementation activities are the most appropriate means to address the priority needs and gaps. This discussion should reference the key findings of the assessment and explain how the strategy addresses those findings.

The purpose of the TAPP Toolkit and the studies and model ordinances previously developed by the Coastal Program was to inform local planning efforts and provide technical assistance for implementation through inclusion in comprehensive plans and development of local ordinances, as well as to guide the LMCP grants program. The LMCP conducted this work at scale and collected a variety of information that could be used by local communities to reduce their program development costs. However, to date, most of these planning tools and model ordinances have "sat on the shelf". The TAPP training program to be implemented by Coastal Staff has not yet been fully developed to integrate the existing planning tools into a holistic approach to coastal community planning needs. The Coastal Area needs a strong, consistent local outreach component to address the needs and provide technical assistance and training to coastal communities on the benefits of natural resource planning and protection. This is a significant need and a gap that can most appropriately be filled by the LMCP.

Many of the tools which have been developed by the LMCP could lead to the creation of ordinances and/or enforceable policies in coastal communities. For example, the Coastal Hazards project has created some model ordinances for setbacks from the Lake Michigan lakefront. These model ordinances could aid the lakefront communities in not only making sure that public space along the lakefront is protected from encroachment, but also that some coastal hazards such as structures are eliminated. The Eppley Institute's study of public access in the coastal region could help coastal communities to prioritize their efforts by giving them an understanding of where the need is greatest, and where there are significant gaps in their communities. This could potentially lead to revised local land acquisition programs.

The proposed additional strategies for development of Wetlands and Flooding model ordinances would complete the Coastal Planning Tool Kit.

IV. Benefits to Coastal Management

Discuss the anticipated effect of the strategy, including the scope and value of the strategy, in advancing improvements in the CMP and coastal management, in general.

In Indiana's Lake Michigan coastal region, the effect of this strategy would potentially be enormous. To date, there has not been an organized, well-thought-out, or well-informed approach to the education and outreach efforts which the program could be making. Staff members have been largely responsible for their own outreach efforts as relates to their own program areas. Creating a comprehensive framework would result in a unified effort to ensure that our stakeholders are well aware of all of the things the LMCP can offer, as opposed to the piecemeal approach that has been taken up until now.

Increased awareness of existing LMCP services and tools could reduce the likelihood of duplication of efforts. Coastal communities could allocate their resources in other directions by leveraging the existing resources and not having to "reinvent the wheel. " Coastal communities would have more guidance in regards to prioritizing their own planning and projects, which would thereby implement the strategies and accomplish the goals of the LMCP.

V. Likelihood of Success

Discuss the likelihood of attaining the strategy goal and program change (if not part of the strategy goal) during the five-year assessment cycle or at a later date. Address the nature and degree of support for pursuing the strategy and the proposed program change and the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

The need for more efficient, organized, and focused education and outreach efforts has been identified by many LMCP partners and stakeholders. In the past, the LMCP has not focused very much time or effort on education and outreach for the technical assistance the program offers. The LMCP has many resources to offer to planners, educators, land managers, and others in the coastal region of northwest Indiana, but it often seems that some of the stakeholders who could make the greatest use of these resources are not aware that they exist. This strategy could be very successful, as it not only cuts across all of the 309 Issue Areas, but it is also applicable in every way that the LMCP provides technical assistance.

It should be fairly simple to hire a consultant who is an expert in outreach, marketing, and communications, who would be able to develop this framework in one year or less. This framework will be the "road map" to be used by LMCP staff to direct their outreach and implementation efforts.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCRM recognizes that they may change somewhat over the course of the five-year

strategy unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.

Strategy Goal: Assess need and fully develop coastal Training Program that integrates LMCP data and technical assets.

Total Years: One – 2016
Total Budget: $70,000

Year: 2016
Description of activities: Develop training program for local government partners that draws from LMCP and NOAA resources.
Major Milestone(s):

- Completed Needs assessment for Training Program
- Collect and integrated data resources
- Development of customized training and outreach "road map"
- Create training materials – videos, PowerPoint presentations, etc.

Strategy Goal: Assess need and fully develop coastal atlas that consolidates GIS data on one platform

Total Years: Two – 2019 & 2020
Total Budget: $150,000

Year: 2019 - 2020
Description of activities: Coastal website tool development
Major Milestone(s):

- Completed needs assessment of online GIS resources
- Fully developed coastal atlas
- Integration into Training Program

VII. Fiscal and Technical Needs

A. Fiscal Needs: If 309 funding is not sufficient to carry out the proposed strategy, identify additional funding needs. Provide a brief description of what efforts the CMP has made, if any, to secure additional state funds from the legislature and/or from other sources to support this strategy.

309 Funding will be sufficient to carry out the proposed strategy.

B. Technical Needs: If the state does not possess the technical knowledge, skills, or equipment to carry out all or part of the proposed strategy, identify these needs. Provide a brief description of what efforts the CMP has made, if any, to obtain the trained personnel or equipment needed (for example, through agreements with other state agencies).

The LMCP staff shall serve as project manager for this strategy. The bulk of the work shall be conducted via contract with an outside entity.

VIII. Projects of Special Merit (Optional)

This strategy addresses several enhancement areas including Coastal Hazards. The LMCP may develop a PSM for the Coastal Hazard component. Potential project concepts entail full scale

development of a coastal atlas site with modeling add ins. The LMCP may partner with the Regional Planning Commission (NIRPC), Illinois Indiana Sea Grant, and or the Indiana Geological Survey to deploy a robust online coastal atlas platform.

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
Training Program Development	$70,000					$70,000
Website Tools Update				$75,000	$75,000	$150,000
Total Funding	$70,000			$75,000	$75,000	$220,000

Summary of Stakeholder and Public Comment

The Indiana Lake Michigan Coastal Program conducted a 309 Enhancement Area priority stakeholder input meeting at its October 2013 Coastal Advisory Board meeting which is open to the public. In addition, LMCP developed a survey listing the 9 enhancement areas and asking stakeholders for their 3 top priorities, their concern regarding those areas, and possible strategies for addressing their concerns. The 309 survey link was emailed to local watershed groups, municipal MS4 groups, the Coastal Advisory Board notification list, the Grand Calumet River AOC notification list, and the regional Environmental Policy Management Group (EMPC) notification list. Thirty survey responses were received and comments collated. In addition LMCP staff explained the 309 Assessment process at the Northwestern Indiana Regional Planning Commission EMPC meeting of November 2014 and the Coastal Advisory Board Meeting of December 2014. LMCP also consulted with agency and NGO partners regarding strategy development for the top priority areas selected.

Through stakeholder and partner consultation, the three top Enhancement Areas priorities are

#1 – Wetlands
#2 – Coastal Hazards
#3 – Public Access

The LMCP opened a thirty day public comment period for the draft plan on or about February 2, 2015. The LMCP received one set of comments from Agency staff regarding technical and typographical corrections. The issues are addressed and included in the final plan.

Comments:
Stakeholder comments received during the survey portion of the input process focused on developing a more comprehensive and holistic, approach to planning for natural resource protection and community development in the Coastal Region. Several responses suggested incorporating wetland planning and protection with flood/storm water management and use of green infrastructure. Local municipalities and development interests need more information on the special characteristics, unique coastal resources and hazards of the Coastal Area that may require development of special ordinances and mapping overlays. (especially wetlands).

Develop up to date wetlands map for Coastal Region for prioritization and acquisition planning.

The coastal water system is not defined by municipal or county boundaries. The watershed approach is a means for localities to understand the context of the waterways they share with neighboring entities. Efforts should be made to educate local officials on watershed planning effort and recommend adoption by municipalities and counties.

Generally, public access was not seen to be sufficient across the region, particularly for fishing sites, and in-water kayak and canoeing.

Education on all issues was deemed to be of continuing importance.

Connections/ partnerships with municipalities and local agencies and organizations continue to be important for establishing role of Coastal Program and achieving vision and goals of local plans.

Stakeholder Prioritization Comments

Enhancement Area (Rank)

Wetlands (1)

- Wetland mitigation is happening at banks or in areas that are questionably outside the watershed. We need to keep mitigation within the subwatershed where wetland is being altered, and communicate more with watershed groups as to where mitigation should take place.

- Simply put we're losing too many wetlands and increasing storm water flows (the state's wetland mitigation program doesn't benefit the areas losing the wetlands)

- Wetlands are habitat-increase habitat!

- Wetlands: fragmentation and invasive species. Also maintaining restorations already completed on this resource.

- Invasive species in wetlands leading to degradation and biodiversity loss. Wetlands in agricultural areas not being adequately protected, ineffective mitigation programs

- Lack of sustained interest in looking at coastal planning and development, especially in an era of climate change.

- Invasive species

- More wetlands should be protected, especially riparian wetlands along the tributaries.

- Loss of potential flood storage area

- Protecting wetland, riparian zones, flood areas from future development. Post development considerations are a chronic afterthought.

- Protection and restoration of coastal wetlands will become more difficult as effects of climate change become more evident.

- More stringent rules on how mitigation of wetlands is conducted (must be done in same watershed if not required already)

- Wetlands: Need a rapid response team to address new invasive species.

- Wetlands Reserve Program and other Farm-bill programs, local cost-shares

- Stricter enforcement and education in order to promote avoidance; more adherence to following overall watershed plans

- Buy and protect more riparian wetlands.

- Study or research whether impacts of new or existing development, including well drilling along the coast, may contribute to coastal wetland degradation that climate change could exacerbate.

Coastal Hazards (2)

- Local governments not having enough information concerning coastal storms/climate issues and therefore their planning efforts are lacking in this area - also not planning far enough into the future and results tend to be reactionary vs. thoughtfully planned out for longer time period

- Flood hazard; especially based on PMP (Probable Maximum Precipitation) rather than BFE (Base Flood Elevation)

- Planning for Climate Change related Coastal Hazards in industrial areas with strong denial. Some private seawalls and revetments may be nearing useful life expectancy, so there is an opportunity.

- de minimus fill

- Identifying and finding the resources necessary to effectuate the needed protection

- Coastal Hazards: how many 100-year storms can we have before people realize that these kinds of events are becoming more frequent. Where would the impacts be if Coastal hazards were assessed considering a rise in lake levels.

- hazards to boaters

- Buy out programs, incentives to stay out of high hazard areas, incentives to revert developed areas to natural conditions

- We could be better prepared and more resilient if we developed this; communities are likely willing to cooperate due to recent storms.

- the partnerships (including insurance companies or associations, FEMA, etc.) again as well as the new and innovative technologies that are available to help people visualize how their development may be impacted by say a storm surge.

- Coastal Hazards: Are current construction requirements realistic for building on the lakefront? Study or research whether impacts of new or existing development, including well drilling along the coast, may contribute to coastal wetland degradation that climate change could exacerbate.

Public Access (3)

- Public access is under assault along the lake. In addition, more should be done to protect and enhance tributary access

- Lack of ADA Access for paddlers
- lack of ability to fish in lake Michigan
- Access - People should have access to natural areas, but be educated on the best way to access.
- Private property encroachment, lack of definition on Trail Creek regarding public access
- Open Buffington Harbor to public access and fishing.
- Or maybe someone with understanding of Homeland Security, OSHA, and other barriers to public access.
- Opening up NWI Streams and increasing public access - Deep River, Little Calumet River East Branch
- Coordinate the tourism bureaus and help them let go of some of the "ownership" that comes with promoting the area's assets.

Special Management Plans (4)

- Achieving Public Access to Industrial Lakefronts - addressing Homeland Security and Liability concerns.
- Getting all stakeholders within the definition of SAMP to work together.
- Special management planning has been discussed by LMCP but to my knowledge no such area has yet been proposed. LMCP might include this topic in one of its priority setting meetings.
- same as above
- Right now many plans sit on shelves and are not being implemented. Or, something such as a feasibility study stands in the way of breaking ground. Special projects come up all of the time that are worth implementing, but need cultivating to bring to the implementation phase. Assistance here would go far.
- Getting all stakeholders within the definition of SAMP to work together.
- I'm hoping this planning can get developers/communities onboard to drive increased natural resource protection
- Coastal Resources NW IN does not have a solid plan for protecting natural resources and coastal-dependent economic growth.
- Maybe fulfill the planner role with someone with a background in industrial or infrastructure planning

- Fund feasibility studies and hold these groups accountable for implementation (with guidance through the process, of course). Make plans a reality.

- there may be opportunities to revisit some of the projects that were funded by the program and see if there are ways to 'retrofit' them for future environmental/economic changes - so, looking at previously funded projects and maybe taking an integrated approach to planning

- Use of public trust principles for decision making along the shoreline/beach along Indiana's Lake Michigan land could constitute a special area management p(l)an (sp.)

- A SAMP will provide clear direction for the use of the entire area.

- Restoration of sub-ecosystems that together make the whole.

- Developers will take into consideration open space and resource protection. More buy-in of LID and sustainability.

Cumulative Impacts (5)

- communities are seeking economic growth for their communities and not reflecting on the possible consequences that say building in front of a primary dune may have on the ecosystem as well as the human costs

- Degradation of rivers and streams do (due) to the overabundance of woody debris

- Don't let people build houses where they shouldn't be building!

- Lack of local expertise

- Development not in harmony with the fragile coastal ecosystems is happening regularly in local dunes communities and should be corrected.

- The greatest opportunities that the program has are the partnerships that have developed over time plus they are a recognized source of unbiased information. Other than that they can provide funding to communities to further develop plans that support the program and the community efforts.

- local zoning

- there may be opportunities to revisit some of the projects that were funded by the program and see if there are ways to 'retrofit' them for future environmental/economic changes - so, looking at previously funded projects and maybe taking an integrated approach to planning

- More adherence by local planners and state officials to adhere to watershed plans and better protect open/natural areas

- Decrease the economic burden and lessen resource impacts over the long term post-

development.

- Prevent greenfield development with incentives to redevelop brownfields, especially in northern Lake County.

Ocean and Great Lakes Resources (6)

- Lack of ordinances and smart planning. Impervious surfaces increasing temperature of run-off into salmonid streams

- Degradation of rivers and streams due to the overabundance of woody debris

- Fund invasive species removal including tributaries that introduce seedbank

- Too much land developed from 'greenfields'. Need more reuse of brownfields.

- Buy more land along the tributaries while it is available. Use CELCP money for good land, not Moon Valley.

- There will always be pressure for more development along Indiana's Lake Michigan shore. Industrial expansion is being proposed by Carmeuse Lime, is having adverse effects on both air and water around the plant. No such intensive interest in the company's expansion nor its harmful effects has been shown by our state agencies, including DNR. The public trust doctrine would seem to be applicable here and elsewhere along the coastal zone to protect a precious Indiana resource from more damage from inappropriate uses.

Marine Debris (7)

- Marine Debris: Educating boaters and fisherman about marine debris impacts. Also, understanding impacts on water quality since a great deal of marine debris is plastic that is not removed during water filtration.

- Marine Debris: Educate communities and park systems on the fact that there IS an issue and they can be part of the solution. Help them make the connection to Lake Michigan and how trash goes there.

Aquaculture (8)

- Build local capacity for aquaculture

Energy Facility Siting (9)

- No comments submitted

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Special Thanks

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Survey Participants

Many thanks to the individuals that contributed input via the online survey referenced on pages 85-90 of this document.