NEW YORK STATE COASTAL MANAGEMENT PROGRAM

309 ASSESSMENT AND STRATEGIES

July 1, 2016 through June 30, 2020

New York State
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New York State
Section 309 Assessment and Strategy
2016 – 2020

Introduction

New York State's coastal resources, including natural, recreational and economic, are some of the State's greatest assets. At over 3,200 miles, our coasts offer a diversity of marine and freshwater regimes that fall into four distinct regions: Long Island, a glacially formed island with Long Island Sound to the north and the Atlantic Ocean off its southern shore; New York city, a major international city and port where the coast is highly developed and competition for limited resources is intense; the Hudson River valley, an ecologically and historically important corridor which extends from the federal dam in Troy to New York Harbor; and the Great Lakes - St. Lawrence river region, a vast freshwater, non-tidal coastal system which offers a varied landscape of agriculture, dramatic shorelines, large ports and small harbors.

New York's coastal area is unique as it contains a variety of natural, recreational, industrial, commercial, cultural, aesthetic, and energy resources of local, statewide, regional and national significance. Due to this diversity of resources, the coast is threatened by competing demands. More than 16 million people - 85% of the State's population – live and work in the State's coastal counties, which account for only 12% of the State's land mass. The resources of the State's coastal area are increasingly subject to pressure from population growth and inappropriate or poorly sited development, including demands for industrial, commercial, housing, recreational and energy production. These demands result in the loss of coastal and marine resources, increased risk to human life and property, diminution of open space areas, increased shoreline erosion, permanent adverse changes to ecological systems, and a loss of economic opportunities.

New York's 2016-2020 Section 309 Assessment and Strategy examines issues and opportunities through its evaluation of nine coastal enhancement areas: wetlands, coastal hazards, public access, marine debris, cumulative and secondary impacts, special area management plans (SAMPs), ocean and Great Lakes resources, energy and government facility siting, and aquaculture.

The 2016-2020 Section 309 Assessment and Strategy builds on previous 309 coastal enhancement strategies and reflects changes to coastal counties and communities that have occurred since 2010. Previous New York State 309 strategies placed a high priority on protecting ocean and Great Lakes resources and addressing cumulative and secondary impacts through development of new SAMPs to address regional issues affecting our Great Lakes and the south shore of Long Island. In this 2016-2020 Assessment and Strategy, New York will continue its efforts to expand the focus of SAMPs to address a variety of critical coastal issues, including protection and restoration of natural areas and helping our coastal communities become more resilient to changing climatic conditions and coastal hazards.

This 2016-2020 309 Assessment and Strategy summarizes achievements since 2010 and lays out a path for the next five years. The assessment describes the current status and associated accomplishments of each of the nine Enhancement Areas as it pertains to New York's coastal and ocean resources. The strategy section identifies ways the coastal program will improve processes and carry our projects to better a number of enhancement areas over the next five years. The format and content of this assessment and strategy were established by the Section 309 Program Guidance prepared by the Office of Coastal Resource Management (OCM). The overall assessment and strategy development effort was overseen by two supervisory staff members.

As guided by OCM, the assessment is comprised of two phases, phase I is a high-level assessment of all nine enhancement areas and designed to inform the phase II assessments, which are carried out for those enhancement areas that received a "High" priority ranking during the phase I process. New York's phase I assessment was developed by nine teams of specialists from the Department of State's Office of Planning and Development (OPD) for each of the nine enhancement areas. Enhancement area team members were assigned to a team based on the relevance of their background, experience and current roles and responsibilities in OPD. Assessment teams were reconfigured at the completion of phase I assessment to assist in concentrating effort on the five enhancement areas that received a "high" priority ranking.

Strategies for guiding OPD goals and potential future 309 projects of special merit for the next five-year period were developed concurrently with the phase II assessments. Draft assessments and strategies were reviewed by senior staff and revised accordingly.

Summary of Recent Section 309 Achievements Completed During the 2011-2015 Grant Period

DOS has had to modify the 309 strategies and deliverables throughout the grant period. During the 309 grant period (2011 – 2015), New York State experienced multiple extreme weather events that required resources be redirected to recovery efforts. Hurricane Irene and Tropical Storm Lee hit downstate and upstate in the late summer and early fall 2011, soon after the commencement of this grant period. A little over a year later on October 29, 2012 Superstorm Sandy slammed into New York City and Long Island wreaking havoc on coastal communities in that area. Soon after, a series of extreme precipitation events in June 2013 caused major flooding in five upstate counties that are served by this Office. Finally, last summer a record shattering rainfall event drowned several Long Island communities. As a result of these events, OPD efforts have been directed to recovery efforts including development of community and county-wide reconstruction plans.

Significant Coastal Fish and Wildlife Habitats

In 2012, DOS, in collaboration with the NYS Department of Environmental Conservation (DEC), completed revisions to the Significant Coastal Fish & Wildlife Habitats (SCFWH) narratives and boundaries for the Hudson River region. The revisions included: updates of written content (narratives) for 35 previously designated SCFWHs; combining four originally designated habitats into two habitats; modifying 13 habitat boundaries, and; adding seven new habitats for a total of 40 proposed and/or re-designated habitats along or in the Hudson River. All habitat narratives contain updated information and data, and the impact assessment language has been updated to reflect the current direction in NY's coastal management program. Updated biological information and revised impact assessment language refine Policy 7 of the NYS Coastal Management Program (CMP) and improve OPD's ability to implement that policy. These revisions and updates have resulted in expanded protection of Hudson River habitat areas through federal consistency review and proactive planning with local governments and other state agencies.

Enhancement Area Assessments

Wetlands

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

Note: For the purposes of the Wetlands Assessment, wetlands are "those areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." [33 CFR 328.3(b)]. See also pg. 17 of the CZMA Performance Measurement Guidance[1] for a more in-depth discussion of what should be considered a wetland.

PHASE I (HIGH-LEVEL) ASSESSMENT:

Resource Characterization:

1. Using provided reports from NOAA's Land Cover Atlas[2] or high-resolution C-CAP data[3] (Pacific and Caribbean Islands only), please indicate the extent, status, and trends of wetlands in the state's coastal counties. You can provide additional or alternative information or use graphs or other visuals to help illustrate or replace the table entirely if better data are available. Note that the data available for the islands may be for a different time frame than the time periods reflected below. In that case, please specify the time period the data represents. 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.

Coastal Wetlands Status and Trends		
Current state of wetlands in 2011 (acres)	**1,256,542 acres**	
Percent net change in total wetlands (% gained or lost)*	from 1996-2011 **-0.024% (1996-2010)**	from 2006-2011 **-0.023% (2006-2010)**
Percent net change in freshwater (palustrine wetlands) (% gained or lost)*	from 1996-2011 **0.075% (1996-2010)**	from 2006-2011 **-0.028% (1996-2010)**
Percent net change in saltwater (estuarine) wetlands (% gained or lost)*	from 1996-2011 **-2.34% (1996-2010)**	from 2006-2011 **-0.098% (1996-2010)**

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

How Wetlands Are Changing*		
Land Cover Type	**Area of Wetlands Transformed to Another Type of Land Cover between 1996-2011 (Sq. Miles)**	**Area of Wetlands Transformed to Another Type of Land Cover between 2006-2011 (Sq. Miles)**
Development	7.2	2.9
Agriculture	1.7	0.8
Barren Land	0.5	0.2
Water	3.1	2.7

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

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

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	Y
Wetlands programs (e.g., regulatory, mitigation, restoration, acquisition)	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:

<u>Statutes, regulations, policies or case law:</u>

- Significant Coastal Fish and Wildlife Habitats
  a. Article 42 Executive Law Waterfront Revitalization of Coastal Areas and Inland Waterways 19NYCRR Part 600. Revisions to the SCFWHs along the Hudson River were completed in 2012. The revisions included: updates of narratives for 35 previously designated SCFWHs; combining four originally designated habitats into two habitats; modifying 13 habitat boundaries, and; adding seven new habitats for a total of 40 proposed and/or re-designated habitats along or in the Hudson River. All habitat narratives contain updated information and data, and the impact assessment language has been updated to reflect the current direction in NY's coastal management program.

b. Revisions were completed as part of a 309 Routine Program Change.

c. Updated biological information and revised impact assessment language refine Policy 7 of the NYS Coastal Management Program (CMP) and improve OPD's ability to implement that policy. These revisions and updates have resulted in expanded protection of Hudson River habitat areas through federal consistency review and proactive planning with local governments and other state agencies.

Wetlands programs (e.g., regulatory, mitigation, restoration, acquisition)

- 2014 Open Space Conservation Plan
  a. The New York State Open Space Conservation Plan (OSCP) was revised and updated in 2014. The OSCP is the primary tool used to set goals and recommendations for preserving and enhancing open space protection and statewide recreation. The fundamental purpose of the OSCP is to urge increased protection of our state's significant natural, scenic, recreational, historic and cultural resources. The revised OSCP makes recommendations to our state, federal, and local governments, non-profits, philanthropists, and state citizens on programs and partnerships, education and outreach, policies and regulations, research and funding. The OSCP lists priority conservation projects, publicly identified and reviewed, which are eligible for acquisition under the State Environmental Protection Fund and other state, federal and local sources. DEC, DOS, Office of Parks Recreation and Historic Preservation (OPRHP) and other State agencies collaborate on development of the OSCP.

  b. This plan was not a 309 driven change. However, DOS does participate in providing assistance in the revision of the plan.

  c. The new plan contains 10 programmatic goals that are framed by three overarching initiatives:
     1. Enhance and Revitalize the State Outdoor Recreation System
     2. Improve Connections between Recreation, Economics, Sustainability, and Healthy Lifestyles
     3. Strengthen the Link between People, Nature, Recreation, and Resources Stewardship

     These 10 goals focus on protection of open space areas and also include a description of the environmental benefits that will result from following the recommendations, relative to: riparian areas; coastal and flood plain areas; forests; wetlands, and; other important areas. The new OSCP also contains goals and recommendations to address climate change, foster green communities, and connect people to nature and recreation.

- Hudson River Estuary Habitat Restoration Plan
  a. Developed jointly by DEC's Hudson River Estuary Program and the Hudson River National Estuarine Research Reserve (HRNERR), this plan provides a roadmap to achieve the HRNERR's aquatic habitat management goal by restoring tidal shorelines and shallows, and taking action to facilitate fish passage up Hudson River tributaries.

  b. This plan was not a 309 driven change.

  c. This plan identifies priority habitats vital to the health and resiliency of the estuary and actions for restoring them. The identification of priority habitats and restoration actions will help to focus funding, projects, and overall management decision making.

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.

Wetlands play a critical role in New York State by providing wildlife habitat, flood attenuation, sediment control, water quality protection, recreation, research, and education. Wetlands in New York State are protected through various regulatory programs including Article 24 and 25 (Freshwater and Tidal Wetlands Act) administered by DEC; the Coastal Management Program and others.

Wetlands are unique habitats that are some of the most productive areas in New York State. Wetlands, both tidal and freshwater, provide a number of ecosystem services including wildlife habitat, sediment control, flood attenuation, human recreation, research and education. As mentioned above, these important resources are protected through various State regulatory programs, including the CMP.

Addressing coastal habitat in a changing environment continues to be a challenge. We are faced with increasing extreme weather, rising temperatures, and sea level rise, as a part of overall climate change. To address these issues the DOS continues to address community resiliency in the face of these changing environments. Through sound planning, communities can also protect and restore important habitats, including coastal wetlands, which will help them to be more resilient. Our ability to adapt and be more resilient must also be addressed in coastal policies related to wetlands and habitats.

Agency, academic and non-governmental organization stakeholders were surveyed and wetlands were identified as being among the top three priority enhancement areas. Loss of wetlands to development, as well as water level fluctuation due to climate change, highlight the importance of this enhancement area to stakeholders.

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Coastal Hazards

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

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

PHASE I (HIGH-LEVEL) ASSESSMENT:

Resource Characterization:

1. **Flooding:** Using data from *NOAA's State of the Coast* "Population in the Floodplain" viewer[4] and summarized by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[5] 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[6]	732,626	826,513	+12.8%
No. of people in coastal counties[7]	15,836,223	18,848,340	+19.0%
Percentage of people in coastal counties in coastal floodplain	4.6%	4.4%	- 4.35%

2. **Shoreline Erosion** (for all states other than Great Lakes and islands; for Great Lakes and islands, see Question 5): Using data from *NOAA's State of the Coast* "Coastal Vulnerability Index,"[8] indicate the vulnerability of the state's shoreline to erosion. You may use other information or graphs or other visuals to help illustrate or replace the table entirely if better data is available. *Note: For New York and Pennsylvania that have both Atlantic and Great Lakes shorelines, fill out the table below for the Atlantic shoreline only.*

[4] 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.
[5] www.csc.noaa.gov/digitalcoast/tools/snapshots
[6] 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.
[7] 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.
[8] http://stateofthecoast.noaa.gov/vulnerability/welcome.html (see specifically "Erosion Rate" drop-down on map). The State of the Coast visually displays the data from USGS's Coastal Vulnerability Index.

Vulnerability to Shoreline Erosion		
Vulnerability Ranking	**Miles of Shoreline Vulnerable**[11]	**Percent of Coastline**[9]
Very low (>2.0m/yr) accretion	52.27	6.9%
Low (1.0-2.0 m/yr) accretion)	0	0
Moderate (-1.0 to 1.0 m/yr) stable	439.08	58.2%
High (-1.1 to -2.0 m/yr) erosion	115.20	15.3%
Very high (<-2.0 m/yr) erosion	148.4	19.6%

3. **Sea Level Rise** (for all states other than Great Lakes and islands; for Great Lakes and islands, see Question 5): Using data from *NOAA's State of the Coast* "Coastal Vulnerability Index",[10] indicate the vulnerability of the state's shoreline to sea level rise. You may provide other information or use graphs or other visuals to help illustrate or replace table entirely if better data is available. *Note: For New York and Pennsylvania that have both Atlantic and Great Lakes shorelines, fill out the table below for your Atlantic shoreline only.*

Coastal Vulnerability to Historic Sea Level Rise		
Vulnerability Ranking	**Miles of Shoreline Vulnerable**[11]	**Percent of Coastline**
Very low	208.94	27.7%
Low	491.61	65.1%
Moderate	54.41	7.2%
High	0	0
Very high	0	0

[9] To obtain exact shoreline miles and percent of coastline, mouse over the colored bar for each level of risk or download the Excel data file.
[10] http://stateofthecoast.noaa.gov/vulnerability/welcome.html (see "Vulnerability Index Rating" drop-down on map). The State of the Coast visually displays the data from USGS's Coastal Vulnerability Index.
[11] 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*

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

Type of Hazard	General Level of Risk[12] (H, M, L)
Flooding (riverine, stormwater)	H
Coastal storms (including storm surge)[13]	H
Geological hazards (e.g., tsunamis, earthquakes)	L/M (moderate earthquake risk in NYC-Westchester)
Shoreline erosion[14]	H
Sea level rise[13,14,15]	H
Great Lake level change[14]	M
Land subsidence	L
Saltwater intrusion	H
Other (please specify)	

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

   a. The New York State Energy Research and Development Authority (NYSERDA) produced an updated climate report in October 2014 titled: Climate Change in New York State – Updating the 2011 Climate Risk Information Supplement to NYSERDA Report 11-18 (Responding to Climate Change in New York State). This brief report summarizes a re-examination of regionally downscaled climate models, with updated data sets. It contains revised projections of certain climate parameters. Findings include small increases in the upper end of the original 2011 projections for temperatures, extreme precipitation events and sea level rise. There are also recommendations for additional studies to refine uncertainties, to track progress in global greenhouse gas mitigation and climate modeling, and to produce better forecasts for regional microclimate areas.

   b. Following Superstorm Sandy, Governor Andrew Cuomo convened three commissions to examine existing public sector systems and present a comprehensive blueprint on emergency preparedness and response. Each Commission issued a report with recommendations. The NYS Respond Commission addressed ways to improve the emergency response capacity of the state for future emergencies. The NYS Ready Commission examined ways to ensure critical systems and services are prepared in advance for future natural disasters and other emergencies. The NYS 2100 Commission, which is of most interest for this report, was tasked with finding ways to improve the resilience and

[12] 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*

[13] 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/.

[14] 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.

strength of the state's infrastructure to future natural disasters and other emergencies. The NYS 2100 Commission recommended a series of actions to address vulnerabilities, including protecting and upgrading existing systems, sharing resources, smarter rebuilding, encouraging the use of green and natural infrastructure, integrated planning and criteria for integrated decisions for capital investments, institutional coordination, improved data and communication systems, incentives to encourage resilient behaviors, and expanded education and workforce development.

c. Also following Superstorm Sandy, Governor Cuomo initiated the New York Rising Community Reconstruction (NYRCR) Program and formed The Governor's Office for Storm Recovery (GOSR). Among documents issued by GOSR to aid recovery was Guidance for New York Rising Community Reconstruction Plans, a document substantively developed by DOS which, in addition to guidance for communities engaging in recovery planning, included a Risk Assessment tool (coastal and riverine) developed by DOS and Risk Area Maps (coastal and lower Hudson) conceptualized by DOS and created with assistance from the NOAA Coastal Services Center. The streamlined planning process in the Guidance document, along with the Risk Assessment Tool and Maps, was used to guide development of recovery plans in the communities most seriously affected by Hurricanes Irene and Sandy and Tropical Storm Lee. Priority recovery projects in approximately 104 communities were identified in the first round of planning, and updated guidance is currently in use for a second round of 22 communities. These resources can be found at the Resources page of the GOSR website at http://stormrecovery.ny.gov/community-reconstruction-program.

d. The NYS DEC issued a Climate Smart Communities Certification Manual. This checklist of community actions to address climate change includes a scoring procedure similar to the LEED certification for Neighborhood Development rating system and modified to be specific to New York communities. An explanation and program documents can be found at: http://www.dec.ny.gov/energy/96511.html.

e. In 2011 the New York Panel on Climate Change completed a report with supporting data and appendices titled Climate Change Adaptation in New York City: Building a Risk Management Response. Supporting material includes three workbooks: Climate Risk Information with trends and projections, an Adaptation Assessment Guidebook with guidance for preparing local plans, and a Climate Protection Levels Workbook that "…evaluates some of the policies, rules, and regulations that govern infrastructure in New York City to determine how they could be affected by climate change (Appendix C)." (From Ann. N.Y. Acad. Sci. 1196 (2010) 7–11, Executive Summary of the titled work, ©2010 New York Academy of Sciences.)

f. In 2013 the City of New York completed the report A Stronger, More Resilient New York, designed to identify priority actions for infrastructure and neighborhoods in most of the boroughs. This review of storm vulnerability includes recommendations for resilience. New York City explicitly seeks to maintain waterfront land uses, stating on page 7 of the report that "We can fight for and rebuild what was lost, fortify the shoreline, and develop waterfront areas for the benefit of all New Yorkers. The city cannot, and will not, retreat."

Management Characterization:

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

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these that address:			
elimination of development/redevelopment in high-hazard areas[15]	Y (Coastal Erosion Hazard Areas - CEHA)	Y	N
management of development/redevelopment in other hazard areas	Y (Wetlands regs, Building Code)	Y	Y
climate change impacts, including sea level rise or Great Lake level change	Y (Community Risk & Resilience Act, Smart Growth Infrastructure Act)	Y	Y
Hazards planning programs or initiatives that address:			
hazard mitigation	Y (GOSR – New York Rising Program)	Y	Y
climate change impacts, including sea level rise or Great Lake level change	Y (GOSR/NY Rising)	Y	Y
Hazards mapping or modeling programs or initiatives for:			
sea level rise or Great Lake level change	Y (NY Rising & DOS Risk Area Maps)	Y	Y
other hazards	Y (Dept. Of Homeland	N	Y (Updated SLOSH maps)

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

	Security – State Multi-Hazard Mitigation Plan)		

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

   For the purposes of the Coastal Erosion Hazard Area regulations (Chapter 6, New York Codes, Rules and Regulations (NYCRR), Part 505) development (or redevelopment in the event of 50% or greater damage from storms or erosion) is prohibited from mapped coastal erosion hazard areas as follows:

   Dunes: 25-feet landward of the landward toe of the dune.

   Bluffs: 25-feet landward of the receding edge of the top of the bluff.

   Beaches: 100-feet landward of the place where there is a marked change in material or physiographic form, or from the line of permanent vegetation, whichever is most seaward.

   An additional area designation "**Structure Hazard Areas**" would be characterized as "High" erosion areas: Where the long-term average annual erosion rate is 1 foot per year or greater, the extent of these areas begins at the edge of the bluff or landward most point of active erosion and extends landward 40 times the average annual erosion rate.

   For the purposes of the NYRCR Program, DOS Risk Area Maps, the flood hazard areas are characterized as "**Extreme", "High" and "Moderate**", in descending order of flood risk. The **"**Extreme" flood hazard area is comprised of those areas that are within the "V" zone of the National Flood Insurance Program (NFIP), or subject to Shallow Coastal Flooding per the advisory thresholds identified by the NOAA National Weather Service, or are coastal erosion hazard areas as identified by the state Coastal Erosion Hazard Area regulations (above) as interpreted by DOS, or are within any area of elevation equal to or less than the elevation of the local Mean Higher High Water plus 3-feet.

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

For "Statutes, Regulations Policies or Case Law; Management of development/redevelopment in other hazard areas":

a. Several modifications to the state Residential Code (one and two family dwellings) and Building Code (multi-family and non-residential construction) have been implemented since the previous 309 assessment.
   i. 19 NYCRR Part 1220, item (7) [see http://www.dos.ny.gov/DCEA/pdf/Part1220.pdf], was revised at the end of 2010 to clarify that in flood hazard areas, repairs, relocated buildings, change of occupancy, and alterations that constitute substantial improvement shall require that the building comply with Section R324 of the Residential Code, and also additions and foundations in flood hazard areas have certain requirements. For instance, those that constitute substantial improvement need to comply with R324, and additions need to comply if structurally independent. Section 324 is the section in the Residential code that presents requirements, for new construction, for flood resistant construction - including a 2-feet freeboard, use of flood resistant materials, consideration of flood forces, etc.

   ii. In the spring of 2014 the Codes Division at the DOS published a technical bulletin to clarify how to determine if an extra story is created by flood resistant construction, which may increase dwelling elevation to keep specified components 2-feet above the design flood. While the bulletin is not limited to

flood prone areas, it does have an impact there. The technical bulletin is presented here: http://www.dos.ny.gov/DCEA/pdf/TB_DetermineStoriesAboveGrade2013.pdf. The increase in story is important because in the Residential Code, a three story dwelling needs a fire sprinkler suppression system, while a two story one does not. Also, a four story dwelling would need to be constructed under the Building Code (as opposed to the Residential Code), with some more costly provisions.

iii. In October 2011 the Codes Division of the DOS published technical guidance regarding electrical systems and equipment in flood damaged structures. http://www.dos.ny.gov/DCEA/pdf/TBfloodelectrical.pdf.

b. The new regulations were not developed using 309 funds but they were supported by the CZM program.

c. Over the course of time the floor elevations of homes and buildings will be elevated two feet above the estimated level of the 100 year flood (1% annual risk flood) and electrical systems and equipment will be secured against potential flood damage. New development will meet these standards and existing development will be brought up to the standards when significantly damaged by flooding or remodeled. If the regulatory flood elevation of the NFIP increases in the future (due to changes in storm water discharge, local water levels or sea level), the building code regulatory standard will automatically increase with the NFIP change. This new standard enables resilient adaptation over time without sacrificing existing investments.

For "Statutes, Regulations Policies or Case Law; Climate change impacts, including sea level rise or Great Lake level change":

a. In September of 2014 the Governor signed new legislation known as the Community Risk and Resiliency Act. The Act requires various state agency decisions to "CONSIDER FUTURE PHYSICAL CLIMATE RISK DUE TO SEA LEVEL RISE, AND/OR STORM SURGES AND/OR FLOODING, BASED ON AVAILABLE DATA PREDICTING THE LIKELIHOOD OF FUTURE EXTREME WEATHER EVENTS, INCLUDING HAZARD RISK ANALYSIS DATA IF APPLICABLE." Although the conditions only apply to certain specifically identified agency activities, the Act is significant because it is the first legal standard requiring consideration of future risks due to climate change. The DOS is explicitly charged with formulating model local laws to enable similar considerations, and with preparing guidance in cooperation with the DEC on implementation of the Act and on the "…use of resiliency measures that utilize natural resources and natural processes to reduce risk."

b. The new Act was not a 309 driven change.

c. A panel will be set up to review projections of sea level rise that will become the official state standard for certain siting, design and approval decisions. By reference to the State Smart Growth Infrastructure Act the new Community Risk and Resiliency Act will extend standards for incorporating climate change projections to state infrastructure and facility siting and design. The DOS will prepare a model law that can be adopted by local governments to extend similar standards to local departments and agencies. In coordination with the DEC, the DOS will develop guidance on the use of natural resources and natural processes to reduce risk. As it takes effect over the course of the next few years (each section of the Act has a separate implementation deadline) it is likely that agencies, organizations and public authorities not specifically addressed in the Act will adopt comparable standards in order to minimize non-alignment with common practices in the agency functions that are directly named. The Act is likely to lead to:
    i. Increased awareness of climate change impacts among agencies and local governments.
    ii. Increased resilience provisions in the siting and design of facilities and infrastructure.
    iii. Increased awareness of the environmental services of natural protective features with regard to climate change and storm impacts.
    iv. Incorporation of climate change and storm impact considerations into state and local review and approval standards.

For "Hazards Planning Programs or Initiatives; Hazard Mitigation" and "Climate Change Impacts":

a. In March 2013, New York State filed an Action Plan for Community Development Block Grant Program Disaster Recovery (Federal Register Docket No. FR-5696-N-01) outlining a state approach to community recovery planning. The initiative and DOS staff participation was funded largely by HUD. Under the strategy initiated in the Action Plan, the state organized a program for the communities most severely affected by Hurricanes Irene and Sandy and Tropical Storm Lee to prepare plans and identify priority implementation actions for post-storm recovery. This program became known as the New York Rising Community Reconstruction (NYRCR) Program. DOS staff helped formulate the program guidance document under which plans for 50 communities were completed by May 2014. DOS participated in procurement of supporting consulting services for the plans (contracts by the state Office of Homes and Community Renewal), oversight and training of the consulting firms, development of program guidance, and plan development in the communities. Going forward, DOS will utilize this experience to develop coastal resilience planning initiatives and support products.

b. This was not a 309 driven change. The NYRCR Program was initiated by Governor Cuomo, whose office reached out to DOS because of our familiarity with coastal hazards and resilience planning, our existing draft guidance for post-storm redevelopment, our background with plan development and our familiarity and established working relationships with communities involved.

c. The state will utilize the plans developed for the first 104 communities to prioritize Community Development Block Grant – Disaster Recovery funds for project implementation. GOSR is using the original planning guidance, inventory and risk assessment process and project cost-benefit analysis, with modifications based on experience, in additional storm recovery planning going forward. DOS is in the process of formulating community resilience planning tools that can be advanced with the many communities who were not severely affected by Hurricanes Irene and Sandy and Tropical Storm Lee.

For “Hazards Mapping or Modelling Programs; Sea Level Rise or Great Lakes level change”:

a. The NYRCR community planning initiative utilized a community risk assessment tool developed by DOS. This tool requires delineation of flood-prone geographic areas according to the likelihood of flooding. In partnership with the NOAA Coastal Services Center, DOS identified a series of data sets that were composited to form a single interpretive map layer for the marine coastal area of New York (New York City, Long Island and the lower Hudson River region). The cumulative flood potential described in the combined source data sets, with the addition of a factor representing future sea level rise potential, was segregated into three zones of flood likelihood. This proved a very helpful tool in describing a range of flood risk to community members and in determining which community assets are in the highest risk locations. In addition, this base mapping information helps inform the semi-quantitative risk assessment method developed by DOS. This method evaluates risk to community assets and contributes to cost-benefit evaluation of proposed management measures.

b. This was not a 309 driven change. The risk area maps and risk assessment process were a further development of concepts advanced with the assistance of a NOAA Coastal Fellow.

c. The risk area maps formed a core planning tool for the NYRCR Program. DOS will continue to refine the mapping methodology over time. Current efforts are centered on developing an analogous methodology for use in Great Lakes and upstate riverine communities.

For “Hazards Mapping or Modelling Programs; Other Hazards:

a. In 2012 the New York State Department of Homeland Security, Office of Emergency Management (DHSES-OEM), completed updated mapping for Sea, Lake Overland Surge from Hurricanes (SLOSH) in cooperation with the U.S. Army Corps of Engineers (USACE). This mapping describes the modeled maximum extent of storm surge from potential hurricanes, ranked by hurricane intensity (Saffir-Simpson scale).

b. The updated SLOSH maps were produced DHSES-OEM and USACE, independently of DOS CZM program.

c. The updated SLOSH map data was incorporated as one of the data sets used by DOS and NOAA/CSC to develop risk area mapping for the New York Rising Program. DOS will continue to use this and other available data sources to estimate flood potential for planning purposes.

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.

Superstorm Sandy demonstrated the extensive vulnerability of New York and the region to coastal storms. Considering Superstorm Sandy alone, the Governor's office estimates that 305,000 homes have been destroyed primarily from storm surges. (2014 NYS Hazard Mitigation Plan, 3.12- 12)

Destruction among many communities, particularly those found near New York's southern shores, was widespread after Superstorm Sandy made landfall, affecting residences, businesses, vehicles, and other property. The fishing industry suffered severe losses with damage to docks, marinas, processing and marine services. Sandy destroyed more than 65,000 boats and caused about $650 million in marine-related damages to New York, New Jersey, and Connecticut. (2014 NYS Hazard Mitigation Plan, 3.12- 27-28)

There were 53 deaths related directly to Superstorm Sandy in New York (cdc.gov Morbidity and Mortality Weekly Report, May 24, 2013, Vol. 62 No. 20. See pdf http://www.cdc.gov/mmwr/pdf/wk/mm6220.pdf)

The Governor's New York State 2100 Commission report indicates that 2.1 million residents and businesses throughout the state were left without power in the wake of Superstorm Sandy. Power was not restored in certain regions of the state until two weeks later, or more. The report notes the expectation for increases in sea level of as much as 6-feet under certain scenarios by 2100. This could have devastating effects on many coastal homes, businesses, infrastructure and land uses. (The NYS 2100 Commission. 2012. Building Resilience in New York. http://www.rockefellerfoundation.org/media/download/7c012997-176f-4e80-bf9c-b473ae9bbbf3)

GOSR reported over 2,000 miles of roads were damaged or closed. (From New York Rising: 2012-2014 Housing, Small Business, Community Reconstruction Plans, Infrastructure Report from GOSR http://stormrecovery.ny.gov/sites/default/files/uploads/gosr_report_letter_full_high.pdf)

These figures do not reflect damages from other recent storms, such as Hurricane Irene and Tropical Storm Lee in 2011. Other areas of the state are also at risk from coastal storms and riverine flooding, including significant risks in the Great Lakes, the Hudson River valley and along the shores of Long Island Sound.

Out of the stakeholders that were surveyed as to their top three priority enhancement areas, nearly all respondents placed coastal hazards in the top three priorities. Stakeholders indicate that the changing climate and increasing high-

intensity storms require the New York CMP to take a closer look at this enhancement area and how to make coastal communities more resilient.

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[16] and summarized by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[17] indicate how many people at potentially elevated risk were located within the state's coastal floodplain as of 2010. These data only reflect two types of vulnerable populations. You can provide additional or alternative information or use graphs or other visuals to help illustrate or replace the table entirely if better data are available. *Note: National data are not available for territories. Territories can omit this question unless they have similar alternative data or include a brief qualitative narrative description as a substitute.*

2010 Populations in Coastal Counties at Potentially Elevated Risk to Coastal Flooding[18]				
	Under 5 and Over 65 years old		**In Poverty**	
	# of people	**% Under 5/Over 65**	**# of people**	**% in Poverty**
Inside Floodplain	159,591	20.5%	97,405	12.5%
Outside Floodplain	2,843,823	19.2%	2,154,399	14.5%

1b. **Flooding In-depth** (for all states besides territories): Using summary data provided for critical facilities, derived from FEMA's HAZUS[19] and displayed by coastal county through NOAA's Coastal County Snapshots for Flood Exposure,[20] indicate how many different establishments (businesses or employers) and critical facilities are located in the FEMA floodplain. You can provide more information or use graphs or other visuals to help illustrate or replace the table entirely if better information is available.

Critical Facilities in the FEMA Floodplain[44]						
	Schools	**Police Stations**	**Fire Stations**	**Emergency Centers**	**Medical Facilities**	**Communication Towers**
Inside Floodplain	138	22	36	1	7	9
Coastal Counties	5882	701	1244	30	230	411

[16] http://stateofthecoast.noaa.gov/pop100yr/welcome.html
[17] http://www.csc.noaa.gov/digitalcoast/tools/snapshots
[18] To obtain exact population numbers for the coastal floodplain, download the excel data file from the State of the Coast's "Population in Floodplain" viewer.
[19] 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.
[20] http://www.csc.noaa.gov/digitalcoast/tools/snapshots

2. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards[21] 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	Coastal Storm Flooding	New York City ocean, harbor and bay shore areas, Long Island Sound and ocean shore areas including Bronx, Nassau, Suffolk and Westchester Counties, Great Lakes shore areas including Chatauqua, Erie, Niagara, Orleans, Monroe, Wayne, Cayuga, Oswego and Jefferson Counties.
Hazard 2	Coastal Erosion	New York City ocean boroughs (Richmond, Kings and Queens), Nassau and Suffolk Counties, and in the Great Lakes Chautauqua, Erie, Niagara, Orleans, Monroe, Wayne, Cayuga, Oswego and Jefferson Counties.
Hazard 3	Extreme Precipitation Flooding	Shallow coastal flood plains, tributaries and adjacent areas throughout the coastal area.

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.

As documented in the phase 1 assessment, impacts of recent storms in New York have been severe. Many coastal areas not severely impacted by Hurricane Irene (2011) and Superstorm Sandy (2012) remain at risk of natural hazards such as storms and extreme precipitation. For example, on August 12-13, 2014, a 24 hour precipitation record for New York State was set at Islip, NY with 13.57" of rain (1.08" fell in 9 minutes). In 2013 the Urban Land Institute (ULI) produced a report titled *Risk and Resilience in Coastal Communities*, which estimated the insured value of New York State properties exposed to potential coastal hurricane damage at $2,675,500,000,000. ULI reported that this represents 61% of the total insurable value in New York State of structures, contents, living expenses and business interruption. (http://www.uli.org/wp-content/uploads/ULI-Documents/CoastalRegions.pdf). At the present time low water levels in the Great Lakes have reduced the potential for storm damages. However, these water levels vary cyclically with supplies from the upper lakes and tributaries and there is significant risk of storm damage to infrastructure, homes and natural resources when higher levels return. The Hazard Assessment area has been identified as the highest priority by stakeholders surveyed for this assessment. Survey responses indicate that climate change and extreme weather events, such as Superstorm Sandy, elevate the importance of making coastal communities more resilient.

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

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
Water level variation on Lake Ontario and the upper St. Lawrence, including natural variation, revised International Joint Commission (IJC) regulations and climate change effects; potential risks and impairments due to those variations; and concerns of regional communities as well as their understanding of the relative magnitude of these issues and practical management options.	Revised FEMA flood risk areas; updated LiDAR (Light Detection and Ranging)-based topography including bay shore areas; projected supply cycles and water levels; effects of climate change on supplies and levels; effects of high water levels on risks and low water levels on uses; levels variation ties to ecosystem health and environmental services; natural feature and processes restoration options; "living shorelines" options; effective communication techniques, navigation maintenance needs with respect to water level variation.
Risk exposure of development in former wetlands and floodplains; cumulative and location specific effects of shoreline armoring; effects of climate change on community resilience, ecosystem health and environmental values, coordination with wide-spread Army Corps shoreline engineering projects.	Cumulative and basin-specific effects of shoreline armoring; resilient adaptation techniques; comparative values of natural protective features and natural processes for improving resilience, basin-specific effects of coastal barrier breaches.

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	Y	Y	N
Rolling easements	N	N	N
Repair/rebuilding restrictions	Y	Y	N

Hard shoreline protection structure restrictions	Y	N	N
Promotion of alternative shoreline stabilization methodologies (i.e., living shorelines/green infrastructure)	Y	Y	Y
Repair/replacement of shore protection structure restrictions	N	N	N
Inlet management	Y	Y	N
Protection of important natural resources for hazard mitigation benefits (e.g., dunes, wetlands, barrier islands, coral reefs) (other than setbacks/no build areas)	Y	Y	N
Repetitive flood loss policies (e.g., relocation, buyouts)	Y	N (but we support GOSR's buyout program with geospatial analysis)	Y
Freeboard requirements	Y	N	Y
Real estate sales disclosure requirements	N	N	N
Restrictions on publicly funded infrastructure	Y	Y	Y
Infrastructure protection (e.g., considering hazards in siting and design)	Y	Y	Y
Other (please specify)			
Management Planning Programs or Initiatives:			
Hazard mitigation plans	Y	N	N
Sea level rise/Great Lake level change or climate change adaptation plans	Y	Y	Y
Statewide requirement for local post-disaster recovery planning	N	Y	N
Sediment management plans	N	Y	N
Beach nourishment plans	Y	N	N
Special Area Management Plans (that address hazards issues)	N	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	Y	Y	Y
Hazards monitoring (e.g., erosion rate, shoreline change, high-water marks)	N	Y	N
Hazards education and outreach	Y	Y	N
Other (please specify)			

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

   One measure of effectiveness in addressing coastal hazards is the utilization of DOS risk assessment tools in the NYRCR program. The NYRCR program, overseen by the GOSR, utilized DOS tools, guidance and technical assistance to prepare community recovery plans in response to damages from Hurricanes Irene and Sandy and Tropical Storm Lee. The community plans are utilizing HUD recovery funds to implement resilience and recovery actions. DOS risk area maps, written guidance and the coastal and riverine risk assessment tool, were employed to identify the general location and level of flooding risk for the NYRCR Program planning process (See Phase I assessment for more details). As a result, communities identified vulnerable assets and developed project plans to reduce the level of risk identified through the risk assessment tool. As of December 2014, over $728 million of HUD Community Development Block Grant- Disaster Recovery (CDBG-DR) funds are forecast to be disbursed to over 100 projects throughout Long Island, New York City, and Upstate New York. The identification of hazardous areas and level of risk for community assets using the DOS tools played an integral role in the development of these CDBG eligible projects.

Identification of Priorities:

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

   Management Priority 1: Revise New York State's coastal federal and state policies to encompass new requirements for flood resilience, including projected water level changes due to sea level rise, in conformance with new statutory requirements**.**

   Description: This change will be applicable to decisions by DOS and other state and federal agencies on actions that impact New York State's coastal zone. Coastal Policy revisions will demonstrate a commitment to addressing resilience, and application of the revised policies to decision making over time will gradually reduce at-risk development in flood-prone coastal zone areas.

   Management Priority 2: Develop guidance on the use of natural resources, natural processes and nature-based shoreline treatments to reduce natural hazard risks.

   Description: This action will help improve resilience through incorporation of natural resources and natural processes in decision making and planning. The guidance will also support application of revised coastal policies (see

Management Priority 1) by integrating community resilience with management of natural protective features into coastal planning and decision making.

Management Priority 3: Advance regional planning initiatives incorporating the revised policy approach and guidance on use of natural resources and natural processes identified in Management Priorities 1 and 2 to help reduce risks to coastal communities from natural hazards.

Description: This initiative will advance the planning framework developed in response to Hurricane Irene, Superstorm Sandy, and Tropical Storm Lee to prepare plans and identify strategic actions that will help improve community resilience. It will utilize DOS' existing LWRP authority to extend the planning program to communities that were not identified as priority areas during the first phase of disaster recovery, or where the first phase planning did not provide a long-term adaptation and resilience framework. It will initiate a program of continuous improvement for community natural hazard resilience planning.

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		
Mapping/GIS/modeling	Y	Risk assessment mapping to support planning for Great Lakes region and streams/rivers/tributaries. Shoreline geo-morphology reach characterization for all of New York's shoreline. Shoreline conditions/structures inventory, particularly south shore of NYC, Nassau and Suffolk Counties and Great Lakes region.
Data and information management	Y	Regional storm risk frequency/geographic impacts distribution; regional down-scaled climate change projections
Training/Capacity building	Y	DOS staff training in: resilience science; climate change projections for resilience planning; increased local government and stakeholder capacity building; model resilience codes for local governments; best management practices for resilience
Decision-support tools	Y	DOS risk assessment tool modified for application in Great Lakes and riverine conditions; community resilience assessment tools; guidance on natural resources and natural processes for resilience; guidance on climate change vulnerability assessments for planning purposes
Communication and	Y	Adaptive and resilient measures options and/or success stories;

outreach		
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.

In response to impacts from natural hazards, recent storms, other climate stressors and existing management measures, DOS is developing planning frameworks and programs to help reduce negative impacts. This includes coastal program changes, coordination with other state agencies, and supporting local government efforts to plan and implement actions to increase resilience to natural hazards and climate events. In addition, the newly adopted state Community Risk and Resiliency Act requires DOS to develop model local laws facilitating storm and climate resilience; to prepare guidance on the use of natural features and processes to improve resilience; and to help incorporate resilience considerations into capital investment decisions by other state agencies. In response to these mandates, DOS will:

Advance program changes and modifications such as incorporation of resilience into coastal policies and LWRPs or program components and grants.

a. Prepare guidance on the use of natural resources and natural processes to improve resilience;
b. Provide shore area data assessment tools to support regional and local planning;
c. Prepare model laws that can be voluntarily adopted by local governments to improve resilience to storms and climate change stressors.

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Public Access

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

PHASE I (HIGH-LEVEL) ASSESSMENT:

Resource Characterization:

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

   New York is the only state with both marine and Great Lakes coastlines[22], including:

   - 1,628 miles of freshwater shoreline on Lake Erie, Lake Ontario, and the St. Lawrence River;
   - 462 miles of tidal water shoreline on the Hudson River; and
   - 2,741 miles of marine shoreline at the mouth of Hudson River and on the Atlantic Ocean (in Westchester County, Long Island, Bronx, Manhattan, and Richmond County/Staten Island).

Public Access Status and Trends			
Type of Access	**Current number**	**Changes or Trends Since Last Assessment[23]** (↑, ↓, –, unkwn)	**Cite data source**
Beach access sites	371	↑	New York State Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2014
Shoreline (other than beach) access sites	1,765	unkwn	SCORP 2014
Recreational boat (power or nonmotorized) access sites	1,447	↑ [prev 777 public and commercial; NYSDEC owns 67 boat launches]	SCORP 2014
Number of designated scenic vistas or overlook points	159	unknown [prev Hudson River SASS (15) with 195 subunits representing scenic vistas; and East Hampton LI SASS (9) with 29 subunits representing scenic vistas]	SCORP 2014
Number of fishing access points (i.e. piers, jetties)	585	↑ [prev 203 sites]	SCORP 2014

[22] Natural Resources Defense Council, Testing the Waters 2014: A Guide to Water Quality at Vacation Beaches http://www.nrdc.org/water/oceans/ttw/ny.asp

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

Public Access Status and Trends			
Coastal trails/ boardwalks	No. of Trails/ boardwalks 431	↑ prev 213 trails/boardwalks	SCORP 2014
Number of acres parkland/open space	283,287 acres	↑ prev 174,890 acres	SCORP 2014
Other (please specify)			

The demand for public access increases annually. To put this in perspective, it is important to note that visitors to Niagara Falls and New York City skew our assessment of demand for coastal access with extraordinary visitor numbers. Best estimates for Niagara Falls State Park, based on paid attendance, parking lot usage, and patron counts at the Niagara Falls Visitor Center, show 8.7 million park users visited in each of the past two years. NYC had a population of 8.2 million residents in 2010 and the city hosted 50.9 million domestic and international non-business visitors that year. By 2013 this increased to 54.3 million non-business visitors, creating a crushing demand for public access in Manhattan, Brooklyn, Queens, and the Bronx.

DOS does not currently possess comprehensive statewide data which characterizes trends in land use for New York's coastal area, nor is such data currently available from other state agencies. However, we can show that population is increasing in the coastal counties *(projected population increase through the year 2020 for New York's coastal counties is five percent).* This is consistent with historical population increase of six percent for the period from 1970 – 2010.

OPRHP and DEC are the state entities responsible for outdoor recreation and conservation in the State. DEC's primary coastal focus is on fishing and natural resources, while OPRHP directs its efforts to the full range of cultural resources, recreational boating, and water recreation. The lands, facilities and programs administered by the Canal Corporation, Department of Transportation (DOT), Office of General Services (OGS) and other New York State agencies also contribute to the State's outdoor recreation system. The role of the State in providing natural, cultural and recreational opportunities also includes EPF LWRP grants to municipalities from DOS for improvements to local access and recreation. In addition, there are hundreds of coastal access sites maintained by counties, towns and park districts for a variety of recreation activities.

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.

The SCORP is the principal tool used in determining outdoor recreation trends in New York State. The plan assesses existing and future recreation demands, evaluates the current recreational opportunities relative to the population trends, and estimates future needs. SCORP is updated every five years by OPRHP. The DEC, the DOS, and other

State agencies assist in the preparation of SCORP updates. The most recent SCORP update was made available in 2014, and serves as a status report and as a 2014-2019 guide for statewide recreation resources preservation, planning and development in New York.

The New York State's Open Space Conservation Plan[24], released in draft format in October 2014, indicates that, between 2011 and 2040, New York State's overall population is expected to grow by 12.5%, from 19.6 million residents to 22 million. Within the population itself are significant structural changes, such as the continuing trend of urbanization, the growth of suburban poverty, and the continuing needs of those living below the poverty level, as well as an aging population. The senior segment (65+) of the population is forecast to grow by 75% in the next 30 years in New York State due to an increase in life expectancy. By 2040, 1 in 5 New York State residents (20.9%) will be above the age of 65. New York is the third most populous state in the nation, with 87.5% of the population living in "urban" areas.

Based on the demographic trends described above for the entire state, and the fact that the major urban areas are located within coastal counties, it would be safe to estimate that *the population within the state's coastal shoreline counties is projected to also increase by approximately 12.5% between 2011 and 2040*, and present the same trends as the projections for the state's overall population. It's possible that with an aging population retiring to coastal counties that the rate of increase may even exceed the anticipated statewide growth.

Based on these demographic trends, SCORP[25] concludes that the quantity and types of outdoor recreation taking place within New York State will accommodate the aging population. The same report estimates that the needs for passive recreation facilities will change, and the anticipated increase in attendance and use of trails, fishing areas, scenic areas, and parks facilities will cause increased impacts on the environment and the recreation facility infrastructure. It also estimates that all recreation areas will require greater adherence to the Americans with Disabilities Act (ADA) standards in order to provide further enjoyment and adequate services.

In addition to the statewide recreation trends that also impact the State's coastal area, the two most visited areas of the State's coastal area, Niagara Falls and New York City skew the demand for coastal access with extraordinary visitor numbers. Best estimates for Niagara Falls State Park (based on paid attendance, parking lot usage, and patron counts at the Niagara Falls Visitor Center) show that 8.7 million park users visited in each of the past two years. The Western New York Regional Economic Development Council, in its 2014 Strategic Plan[26], is proposing the improvement of the Niagara Falls Parks Programming to increase the number of visitors and boost the tourism economy and extending the stays of vacationers. This in turn will trigger improvement of the capacity and services offered by the Niagara Falls Park and adjacent waterfront parks.

Most of New York City's outdoor recreation facilities are located along its waterfront, and each one of the 8,405,837[27] residents is a potential user of the local waterfront. In 2011, the number of domestic and international non-business visitors hosted by the City was 50.9 million[28]. Only two years later, in 2013, the number of non-business visitors to New York City had increased to 54.3 million, creating a crushing demand for coastal access in Manhattan and Brooklyn. New York City's current agenda of increasing tourism facilities and local jobs is strongly complemented by state-supported efforts to increase existing city-wide open space and parks.

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[24] New York State's Open Space Conservation Plan, http://www.dec.ny.gov/docs/lands_forests_pdf/osp14draftplan.pdf
[25] 2014 New York State Statewide Comprehensive Outdoor Recreation Plan (SCORP), http://www.recpro.org/assets/Library/SCORPs/ny_scorp_2014.pdf
[26] 2014 Western New York Regional Economic Development Council Strategic Plan, http://regionalcouncils.ny.gov/themes/nyopenrc/rc-files/westernny/WNYREDC-2014PR2.pdf
[27] New York City Department of Planning, Current Population Estimates, http://www.nyc.gov/html/dcp/html/census/popcur.shtml
[28] NYC Statistics, http://www.nycgo.com/articles/nyc-statistics-page

Overall, the demand for public access to the coastal area of the State will continue to increase. The existing public access sites will need to be expanded and enhanced to accommodate an increased number of users and activities tailored for the predominant demographic segments.

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.

Community Health and Outdoor Activities

The latest *Renewable Resources Planning Act Assessment* produced by the Forest Service of the U.S. Department of Agriculture, a national assessment of trends in outdoor recreation participation across the United States, found that the youth outdoor physical activity with the second highest participation encompasses biking, jogging, walking, skate boarding, or similar activity.

New York's natural and cultural resources support a tremendous diversity of land, water, and mixed-use trails, connecting inland and/with coastal areas, such as the 90-mile-long Genesee Valley Greenway[29], the 40-mile-long continuous pedestrian and cyclist Brooklyn-Queens Greenway[30], the 200-mile-long Long Island[31] network of biking and hiking trails, the 46-mile-long Harlem Valley Rail-to-Trail multi-use paved pathway, and the 271-mile-long riverside trail within the Hudson River Valley Greenway.

The *2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*[32] found that 5.5 million New Yorkers, residents and nonresidents, 16 years old and older fished, hunted, or wildlife watched in New York. Of the total number of participants in this survey, 1.9 million fished and 4.2 million participated in wildlife-watching activities, which includes observing, feeding, and photographing wildlife.

DEC's 2014 Great Lakes: Interim Action Agenda[33] iterated a goal to enhance recreation and tourism opportunities that capitalize on the rivers and lakes, scenic beauty, and natural and cultural resources that define the character of the Great Lakes-St. Lawrence region.

Environmental Justice

The *Demographic Summary of Aggregated Coastal Shoreline Counties* presented in the *NOAA's National Coastal Population Report*[34] for population trends from 1970 to 2020, shows that 14% of the New York State coastal population lived in poverty in 2010. The 2014 SCORP mentions that the *economic gap between the affluent and the poor continues to increase and environmental justice must be an overarching goal in providing recreational facilities and services* responding to the needs of underserved communities. In the urban areas of the state, the remaining coastal developable lands are mostly brownfields located in low-income waterfront communities.

Through funding and technical assistance, DOS is actively supporting the planning for cleaning and redevelopment of brownfields to create development opportunities and increase the open space and recreation areas available to the low-income neighborhoods. Also in 2014, as part of the "Helping People Enjoy, Protect and Revitalize the River and its

[29] Genesee Valley Greenway, http://nysparks.com/parks/189/details.aspx
[30] Brooklyn-Queens Greenway, https://www.nycgovparks.org/sub_things_to_do/facilities/images/Brooklyn_Queens_GreenwayGuide.pdf
[31] Long Island Greenbelt Trail Conference, http://www.ligreenbelt.org/index.php?option=com_content&view=featured&Itemid=71
[32] 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, http://www.census.gov/prod/2013pubs/fhw11-ny.pdf
[33] 2014 The New York's Great Lakes Basin: Interim Action Agenda, http://www.dec.ny.gov/docs/regions_pdf/glaai.pdf
[34] See NOAA's Coastal Population Report: 1970-2020 (Table 5, pg. 9): http://stateofthecoast.noaa.gov/coastal-population-report.pdf

Valley" initiative, the Hudson River Estuary Management Advisory Committee[35] reports that NYSDEC, in partnership with New England Interstate Water Pollution Control Commission (NEIWPCC), awarded four grants to help provide access to the river and its tributaries for underserved communities in the cities of Albany, Kingston, New York City, and Yonkers.

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

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

    a. **Describe the significance of the changes;**

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

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

    There have been no significant changes since the last assessment.

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 or N)	Y	Y	Y
Web address (if applicable)	New York Camping Guide, http://www.nxtbook.com/nxtbooks/nysparks/ny_campingguide2014/#/34 Places To Go: Finding State Recreation Lands http://www.dec.ny.gov/outdoor/82098.html	http://www.iloveny.com/ State Lands Interactive Mapper[36], http://www.spatialwebhost.com/slimflex/index.html# Accessible Recreation Destinations, https://maps.google.com/ma	Official NYS Fish and Wildlife app http://www.dec.ny.gov/outdoor/96470.html Oh, Ranger! NY State Parks mobile application http://itunes.apple.com/us/app/oh-ranger!-ny-

[35] Hudson River Estuary Program, 2013 Annual Report, http://www.dec.ny.gov/docs/remediation_hudson_pdf/hrepreptnew.pdf
[36] http://www.dec.ny.gov/outdoor/45478.html

Public Access Guide	Printed	Online	Mobile App
	OPRHP site system http://parks.ny.gov/regions/default.aspx	ps?q=http://www.dec.ny.gov/maps/gmaccrec.kmz&output=classic&dg=feature Bird Conservation Areas, https://maps.google.com/maps?q=http://www.dec.ny.gov/maps/gmbca.kmz&output=classic&dg=feature Watchable Wildlife Sites, https://maps.google.com/maps?q=http://www.dec.ny.gov/maps/wwgmaps.kmz&output=classic&dg=feature Boat Launch Sites, https://maps.google.com/maps?q=http://www.dec.ny.gov/maps/gmboatlaunch2.kmz&output=classic&dg=feature NYS Campgrounds, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/2014campguide3.pdf Public Fishing Lakes and Ponds, https://maps.google.com/maps?q=http://www.dec.ny.gov/maps/gmfishinglakes.kmz&output=classic&dg=feature I Love NYS, New York Trip Planner http://www.iloveny.com/trip-builder/#.VGz6i7ctA3F	state-parks/id548664594?mt=8#sthash.v6TND1SJ.dpuf I Love NY mobile application https://itunes.apple.com/us/app/i-love-ny/id712337013?mt=8
Date of last update	2014	2014	2012/2013
Frequency of update	NA	NA	NA

The *Official NYS Fish and Wildlife app*[37] *for DEC* provides information on fishing, hunting, and wildlife watching and serve as an interactive outdoor app. It is available to download from the Apple App Store or Google Play store, or by going to the Pocket Ranger website.

The *Oh, Ranger!* NY State Parks mobile application[38] was developed by OPRHP in partnership with the American Park Network. This is a free iPhone application (app) that gives visitors the ability to access valuable information about 200 state parks, historic sites, golf courses, campgrounds and nature centers with amenities, directions and links to important numbers and services.

[37] http://www.dec.ny.gov/outdoor/96470.html
[38] Press release, http://parks.ny.gov/newsroom/press-releases/release.aspx?r=972

The State Lands Interactive Mapper[39] (SLIM) is an internet mapping tool that allows users to discover recreational features such as roads, trails, and parking lots on DEC owned lands, print maps, and obtain supported information on the use of state owned forest lands. In addition to general mapping of recreational features, SLIM provides for limited spatial data analysis. Supporting these functions SLIM is a dynamic map interface that the user can manipulate with common mapping tools such as: zoom, pan, identify, print, search, and more.

Also, to help people use the state's lands and waters safely and enjoyably, DEC provides maps of many publicly-accessible areas. This link http://www.dec.ny.gov/pubs/4735.html will open a webpage containing links to all of the maps available on DEC's website.

Additionally, the New York Department of Economic Development's Division of Tourism raises consumer awareness and appreciation of travel and vacation opportunities. Travel guides are available for individual communities, counties and regions. Information presented on websites and in printed materials is updated as warranted, or on an annual basis. For more information, go to http://www.iloveny.com/.

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.**

Public access to the coast for recreational, historical, aesthetic, ecological, or cultural value continues to be an important facet for the State's CMP. Although not necessarily the highest priority, some stakeholders found public access to be a particularly important issue in regards to the State's long term vision of allowing non-waterfront as well as waterfront property owner's access to the water for both passive and in-water recreation.

New York is making significant progress through LWRPs, SAMPs, and projects funded through the Environmental Protection Fund. These programs provide local governments with tools and resources needed to effectively plan and implement public access improvements in their communities.

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[39] http://www.dec.ny.gov/outdoor/45478.html

Marine Debris

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

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

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

Resource Characterization:

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

Source of Marine Debris	Existing Status and Trends of Marine Debris in Coastal Zone		
	Significance of Source (H, M, L, unkwn)	**Type of Impact**[40] (aesthetic, resource damage, user conflicts, other)	**Change Since Last Assessment** (↑, ↓, –, unkwn)
Land-based			
Beach/shore litter	Unkwn – estimated M-H	Resource damage (entanglement/ ingestion hazard for marine life, birds, and other wildlife; habitat impairment); Water quality impairment and aesthetic impairment and their associated impacts (such as conflicts with other coastal uses, recreation, economic); other impacts (human safety; economic – cost of cleanup, etc.)	<based on ALS reporting, 2011-2013> Volunteer attendance (decreasing); Miles cleaned (decreasing) Lbs. of debris (decreasing)
Dumping	Unkwn	"	Unkwn

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

Storm drains and runoff	Unkwn – estimated H, likely biggest contribution from this source due to largest area (this is a drainage basin scale source)	"	Unkwn
Fishing (e.g., fishing line, gear)	Unkwn – estimated M	"	Unkwn
Other (please specify)			
Ocean or Great Lake-based			
Fishing (e.g., derelict fishing gear)	Unkwn	"	Unkwn
Derelict vessels	Unkwn	"; add navigational hazard and human health & safety; additional potential water quality impairments	Unkwn
Vessel-based (e.g., cruise ship, cargo ship, general vessel)	Unkwn	"	Unkwn
Hurricane/Storm	Unkwn, estimated H	"; add navigational hazard and human health & safety; additional potential water quality impairments	Increased, due to Superstorm Sandy (2012)
Tsunami	n/a	n/a	n/a
Other (please specify)			

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

   Not Available

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	No – Not specifically marine debris	n/a	No
	Related, yes – 2009 legislation – Title 27, ECL – NYS Plastic Bag Reduction, Re-use, and Recycling Act; and amendment to the "Bottle Bill" or NYS Returnable Containers Act (to include bottled waters)	No	No
Marine debris removal programs	1) Jamaica Bay Clean Sweep/ Floyd Bennett Field (American Littoral Society w/NOAA and other federal and local partners)	No	Yes – no similar undertakings are noted prior to Sandy
	2) NYS OPRHP/ NOAA removal of large debris from Sandy at 10 Long Island sites	No	Yes – no similar undertakings are noted prior to Sandy

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. Large debris removal projects have been as a direct result of Sandy impacts. This is a relatively new category of recognized marine debris and appears to be receiving more immediate attention compared to the various other sources. There is a greater sense of urgency with this type of debris.

b. These were not CZM driven changes, but rather are driven by the availability of federal funding for the type of project since Sandy. The changes are largely driven by the federal Disaster Relief Appropriations Act, 2013 and the federal Sandy Recovery Improvement Act SRIA), 2013 as well as FEMA hazard mitigation planning. The efforts have integrated assistance from non-profit organizations, volunteers, and local partners.

c. The large debris removal projects may raise awareness of marine debris in general. It is likely that future funding would be available for similar projects in response to future disasters.

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.

   Marine debris has long been recognized as a societal problem with broad implications for ocean and human health. The scope of impacts resulting from marine debris is largely unknown, but at a start it encompasses direct and cumulative impacts for coastal communities, potential for harm to wildlife, impairments to water quality, navigation, and scenic and recreational resources, and includes economic impacts felt at the local and state levels. Marine debris offers an opportunity to engage the public in coastal stewardship and will be encouraged to be addressed at the local level. Despite the effects marine debris has on our coastal systems, this enhancement area was not identified as a high priority by the stakeholders interviewed.

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Cumulative and Secondary Impacts

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

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

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

Resource Characterization:

1. Using National Ocean Economics Program Data on population and housing, please indicate the change in population and housing units in the state's coastal counties between 2012 and 2007. You may wish to add additional trend comparisons to look at longer time horizons as well (data available back to 1970), but at a minimum, please show change over the most recent five year period (2012-2007) to approximate current assessment period.

Trends in Coastal Population and Housing Units				
Year	**Population**		**Housing**	
	Total (# of people)	% Change (compared to 2007)	Total (# of housing units)	% Change (compared to 2007)
2007	16,404,045	1.38%	6,592,238	2.20%
2012	16,631,225		6,737,446	

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

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	202103.0000	7002
Developed, Low Intensity	593024.0000	16953

Distribution of Land Cover Types in Coastal Counties		
Land Cover Type	**Land Area Coverage in 2011 (Acres)**	**Gain/Loss Since 2006 (Acres)**
Developed, Open Space	407415.0000	5277
Grassland	120769.0000	813
Scrub/Shrub	329742.0000	12534
Barren Land	42464.7000	-4559.10000000001
Open Water	1995380.0000	0
Agriculture	2772320	-14980
Forested	6099747	-34343
Woody Wetland	1057495.549	-1974.85063
Emergent Wetland	199046.081	1689.21100000001

3. Using provided reports from NOAA's Land Cover Atlas or high-resolution C-CAP data (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**
Percent land area developed	9.1647%	9.414%	2.7202%
Percent impervious surface area	3.83%	3.95%	3.1331%

How Land Use Is Changing in Coastal Counties	
Land Cover Type	**Areas Lost to Development Between 2006-2011** (Acres)
Barren Land	5886.76
Emergent Wetland	692.08919
Woody Wetland	1369.946902
Open Water	537.7485
Agriculture	18063.732
Scrub/Shrub	1168.9032
Grassland	1211.8259
Forested	12242.7876

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

Shoreline Types	
Surveyed Shoreline Type	**Percent of Shoreline**
Armored	24
Beaches	18
Flats	29
Rocky	2
Vegetated	26

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.

Not available.

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	Y	Y	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:
    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.

Regulations

Shoreline and Riparian Protection Program – As noted in past assessments, there is a collection of State regulations that taken together help manage and protect the coastal area from cumulative and secondary impacts resulting from existing land use practices, growth, and development.

a. These include: Protection of Waters (ECL Article 15, Title 5); Freshwater Wetlands (ECL Article 24); Tidal Wetlands (ECL Article 25); Stormwater SPDES; Coastal Erosion Hazard Area (ECL Article 34); Wild, Scenic and Recreational Rivers System (ECL Article 15, Title 27); Flood Control (ECL Article 16); and Participation in Flood Insurance Programs (ECL Article 36).
b. These are not 309 or CZM driven changes.
c. These regulations will enable the State to better protect the natural and community resources within the coastal area.

Smart Growth Public Infrastructure Policy Act. This act, while not yet incorporated into the CMP, provides direction to the DOS in carrying out its functions.

a. The Act requires most state agencies and all state authorities, prior to approving or funding any public infrastructure project, to prepare and file a Smart Growth Impact Statement finding that the project is consistent with ten Smart Growth Criteria or justifying why it is not practicable to do so.
b. This is not a 309 driven change.
c. While smart growth principles are generally woven through the current CMP, development of improved coastal policies based on this new statutory authority will allow better management and control of secondary and cumulative impacts.

Climate Risk and Resiliency Act.

a. The act requires state agencies to consider future physical climate risks caused by storm surges, sea level rise, or flooding in certain permitting, funding, and regulatory decisions. It requires advance planning to ensure that the siting and investment in critical infrastructure is undertaken in a manner that reflects an awareness of the likely effects of climate change and resulting from major storms. The act further directs the DEC to adopt official projections for sea level rise by January 1, 2016, and to update the projections every five years thereafter. The DEC and DOS are also directed to prepare model local laws to help communities incorporate measures related to physical climate risks into local laws, as well as provide guidance on the implementation of the act, and the use of resiliency measures that utilize natural resources and natural processes to reduce risk.
b. This is not a 309 driven change.
c. This act will help the State better prepare for climate change and impending future extreme weather events.

Policies

New York State Coastal Policies.

a. While new policy language has not yet been finalized, all policies are being reviewed for potential improvements. The revision draws heavily on the Department's experience with coastal impacts on development and natural resources as a consequence of Hurricane Sandy.
b. This is a 309 and CZM driven change.
c. Strengthening the policies that implement the State's CMP will result in improved management of cumulative and secondary impacts associated with coastal uses.

Guidance

Urban Waterfront Adaptive Strategies.

a. DOS staff provided technical assistance and policy guidance to New York City Department of City Planning in completing the *Urban Waterfront Adaptive Strategies*, a resource to help guide planners and policy makers in New York City and beyond in identifying and evaluating potential coastal protection strategies. As evidenced by Superstorm Sandy, urban waterfronts face risks from coastal hazards today, and these risks will only increase with future sea level rise. The City and region's coastal zone is vast and diverse, and different areas face different hazards and risks and require different approaches.
b. This was a CZM-driven change.
c. The report identifies a range of potential adaptive strategies, including interventions inland, at the shoreline, and in the water, and analyzes each for its ability to protect waterfront communities by reducing flooding from storm surge and high tides or absorbing destructive wave forces. Potential costs and benefits associated with each strategy are examined, in terms of risk reduction and financial costs as well as the impact on, or benefit to, the city's livability and sustainability. The report also lays out a framework by which communities can narrow the list of strategies to consider for a given geography and identify which strategies provide the greatest range of benefits with respect to direct and indirect costs. This information is intended to provide guidance for the challenging decisions coastal communities face about how to foster resilient communities that can withstand and recover from climate hazards with minimal harm, while retaining a vibrant economy and a high quality of life for their residents

Special Area Management Plans

Local Waterfront Revitalization Programs and Special Area Management Plans:

a. As planning documents, LWRPs are locally prepared land and water use plans for the developed, natural, public, and working waterfronts. LWRPs provide a comprehensive framework within which communities can develop a vision for the waterfront and in-water areas. Traditionally, the DOS has worked with coastal communities to address cumulative and secondary impacts through LWRPs and SAMPs as these planning processes enable communities to take stock of current conditions, assess development trends and pressures, and appropriately plan for development in a way that reduces cumulative and secondary impacts.

b. These LWRPs/SAMPS are CZM-driven changes.
c. Climate change, sea level rise, increased frequency and intensity of storms, and the resultant flooding from these weather related changes, challenge communities and impact services on which residents. The health of communities rests on their ability to reduce or avoid harm and bounce back from storm impacts when they occur. Communities can move forward successfully only when they are prepared to respond quickly and strategically to changing conditions. Building off of lessons learned during the NYRCR, DOS planners are working with communities to integrate resilience and adaptation to climate change into SAMPS and LWRPs.

Ocean/Great Lakes plans:

a. Since early 2010, the DOS's Ocean and Great Lakes Program has been engaging in an offshore Atlantic Ocean planning exercise to identify potentially suitable areas for offshore wind energy project siting and to identify areas important to New York's ocean industries, including important offshore habitats. Through these efforts, NYS has been able to take a comprehensive approach to identifying potential sites for offshore wind energy while also taking into account the potential cumulative effects of wind energy development.
b. This is not a 309 driven change.
c. The Ocean Study has had immediate utility in helping the State identify coastal uses and resources that may be affected by federal actions or federally licensed/permitted activities.

New York Rising Community Reconstruction Program:

a. In the aftermath of Superstorm Sandy, staff from the CMP was an integral part of the NYRCR Program. The NYRCR Program, announced by Governor Cuomo in April of 2013, is a more than $650 million planning and implementation process established to provide rebuilding and resiliency assistance to communities severely damaged by Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy. Drawing on lessons learned from past recovery efforts; the NYRCR Program was a unique combination of bottom-up community participation and State-provided technical expertise. This powerful combination recognizes not only that community members are best positioned to assess the needs and opportunities of the places where they live and work, but also that decisions are best made when they are grounded in rigorous analysis and informed by the latest innovative solutions.

   DOS CMP staff worked with 52 planning committees representing 102 communities affected by Hurricane Irene, Tropical Storm Lee or Superstorm Sandy to develop a NYRCR Plan. The NYRCR Plan is an important step toward rebuilding a more resilient community. Working with CMP planners and consultants, each NYRCR Planning Committee began the planning process by defining the scope of its planning area, assessing storm damage, and identifying critical issues. Next, the Planning Committee inventoried critical assets in the community and assessed the assets' exposure to risk. On the basis of this work, the Planning Committee described recovery and resiliency needs and identified opportunities. The Planning Committee then developed a series of comprehensive reconstruction and resiliency strategies, and identified projects and implementation actions to help fulfill those strategies. The next steps will be for GOSR to work with project partners to implement the NYRCR Plans and advance the identified projects.
b. This is not a 309 driven activity.
c. DOS is working with communities to advance projects and strategies in approved NYRCR Plans or NY Rising Countywide Resiliency Plans, to integrate their NYRCR Plans or NY Rising Countywide Resiliency Plans with existing LWRPs or components of LWRPs, or to prepare a resilience strategy consistent with the NYRCR Program.

Update of Significant Coastal Fish and Wildlife Habitat sites. **(**This is also covered under the Wetlands assessment.)

a. The availability of new data and new scientific understandings led to improved management strategies overall for Hudson River natural communities and the human uses supported by them. These improvements are embodied in updates and revisions to the habitat narratives and boundaries for the Hudson River sites, and identification of new habitat areas. The DOS received OCRM concurrence for the Routine Program Change submitted to incorporate the revisions and additions into the NYS Coastal Management Program.
b. This is a 309 driven change.

c. These refinements allow New York State and local governments to better manage the aquatic resources in these areas and to reduce cumulative and secondary impacts from proposed uses or development that would affect the habitat.

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.

As identified in the resource characterization above, the population of New York's coastal counties is increasing and many land cover types are being lost to development. New York's natural, scenic, recreational, and community resources are being impacted by a variety of causes, including non-point source pollution, shoreline hardening, sea-level rise, extreme weather events, and inappropriately sited and/or designed development. Each threat has its own resulting impact; however, when assessing the cumulative impacts of all of these threats combined, the potential impact to New York's coastal area is greatly amplified. Assessment of cumulative impacts is of particular importance in understanding effects of coastal infrastructure (especially shoreline stabilization structures) on natural resources coastal processes, public access, and other coastal policy issues, and in applying these understandings to improving coastal resilience through new planning and regulatory guidance and programs. By giving this enhancement area a high priority rating, DOS can take important steps towards developing a strategy that will identify, analyze, and address the variety of cumulative and secondary impacts in order to provide better protection to the State's coastal resources.

In-Depth Resource Characterization:

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

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

	Stressor/Threat	**Coastal Resource(s)/Use(s) Most Threatened**	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Stressor 1	Shoreline modification	Habitats, wetlands, beaches and dunes, public/recreational access	All coastal areas.
Stressor 2	Docks	Habitats, wetlands, beaches and dunes, public/recreational access	All coastal areas.
Stressor 3	Dredging/excavation	Habitats and wetlands.	All coastal areas.
Stressor 4	Dredge material disposal	Open water and benthc habitats	All coastal areas

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

Upon analysis of the types of projects for which DOS's consistency review unit conducted project reviews, it was determined that shoreline modification, docks, and dredging/excavation and related material disposal are the three most prevalent types of projects. On their own, these individual projects may not have a recognizable detrimental effect upon the State's coastal resources, however when there are 300-500 shoreline modification projects in any given year, their cumulative effects are considerable. Below is an explanation of why these types of projects are currently the most significant stressors in the coastal zone.

Shoreline Modification:

Beaches, dunes, barrier islands, bluffs, wetlands, and other natural protective features help safeguard coastal lands and property from damage by dissipating wave energy and providing flood storage capacity. Shoreline modifications can lead to the weakening or destruction of those landforms by interfering with sediment transport and reflecting wave energy which deprives these landforms of their natural regenerative powers. Tidal marshes and beaches in front of bulkheads and revetments are often lost due to the reflected wave action and an inability to retreat landward with rising sea levels. Bulkheads and revetments provide a sharp divide between upland and wetlands habitats where an integrated vegetative buffer would have provided a more gradual transition. Ultimately, these structures sever the connections between the aquatic and terrestrial habitats, preventing the movement of wildlife. In addition to the

physical changes, the loss of riparian buffer and wetlands can lead to degradations in water quality and fisheries habitat due to increased run off.

Sea level rise and extreme weather events associated with climate change introduce higher water levels and increase the frequency of storms which cause flooding and erosion of these lands. They also interfere with the ability of wetlands, beaches and dunes to migrate landward as may be necessary with rising seas. As growth and development within the coastal zone (particularly in close proximity to the shore) increase, shoreline modifications are proposed as a means to protect such development from flooding and erosion hazards: a trend which results in an increase in cumulative and secondary impacts associated with such structures.

Docks:

Based on a review of our consistency database, applications for new or expanded dock structures appear to be increasing in some parts of the State's coastal zone, and at least maintaining numbers in the remainder of the state. While coastal effects are difficult to establish for individual projects, research has demonstrated the effect on natural resources, public access and coastal process that docks have created generically and in the aggregate.

Residential docks have coastal effects related to public access infringement, occupation/privatization of public lands, fragmentation of wetlands systems, shading of low/high marsh and potential Submerged Aquatic Vegetation (SAV) areas, potential impacts to the littoral system (dependent upon construction design), encourages non water-dependent uses (decks, platforms, boathouses on top of docks), tend to be excessive in size and length and encourage the mooring of vessels that are inappropriate to a water-body. This then leads to an increase in requests for new dredging to accommodate larger vessels.

Dredging/Excavation:

Although there are fewer dredging projects which are reviewed every year (on average 175), these projects pose a considerable threat to coastal habitats. Increasing development and climate change impacts are likely to change or increase navigational dredging needs, with their attendant consequences. In addition, the dramatically increased need for beach renourishment supplies is spurring use and development of offshore sand resources, the consequences of which are not well understood.

Maintenance dredging of previously authorized and maintained navigation channels are typically consistent with coastal policy, however, there is concern, and difficulty, regarding the placement of that material. The removal of the material from the littoral system is a concern since much of the coastal area of New York is sand starved to begin with. Inlets and navigation channels tend to trap sediment that would normally pass by. If the material is compatible, it should be by-passed around an inlet and placed on the downdrift beach to preserve natural processes. A significant issue surrounding this type of activity is that much of the maintenance material is not beach compatible because it comes from upland sources and often contains contaminants. It has become increasingly difficult to locate upland locations for placement of this material and it cannot go back in the water. Agencies have struggled for decades to design programs that keep sediments and contaminants out of the waterways, but we are far from successful at eliminating it.

New dredging in areas that were previously undisturbed has significant coastal effects by removing or destroying habitat, changing bottom contours that can affect hydrology, can increase, or decrease sedimentation to adjacent areas, and can introduce new uses to an area that may not be able to support those new uses.

Dredge Material Disposal:

Open water and benthic habitat communities form the base of coastal ecosystems. Continuing open water disposal practices and increasing amounts of dredge material disposal will likely affect water quality and open water habitats that rely on that water quality. Dredge material smothers benthic communities and, in some cases exposes benthic organisms to hazardous/toxic material, organisms that may play a key role in coastal ecosystems.

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
"Off-shore" Dredging for beach nourishment.	Large volumes of sand have been increasingly sought out off of the Atlantic coast (within state waters) for beach nourishment. Sand source surveys and environmental analyses have not been completed to date to adequately satisfy concerns regarding these sources and what effects to natural processes and resources are occurring due to its removal.
Tracking of maintenance dredging for private applicants ("small dredgers"), as well as large navigation projects.	DOS has had no means to date, to track how much material is actually being removed, dredging frequency, and ultimate disposal or placement locations and volumes of material placed upland. There is an urgent need to develop a method for tracking how much is removed and where this material is placed or used to better aid in the management of dredged material.
Contradicting state regulations regarding the beneficial re-use of dredged material, such as the Long Island landfill law (ECL 27-0704), the Governor's Community Risk and Resiliency Act, DEC Solid Waste "360" regs., etc	There is a need to better manage how this dredged material is being used. An analysis and alignment of State and interstate regulations governing the use/re-use and placement options for this type of material is needed, as well as recommendations for how to achieve this alignment, perhaps on a regional or multistate level.
Water withdrawals	A determination of how much water is withdrawn is needed and the an assessment of the cumulative effects of individual withdrawals and overall carrying capacity of system to accommodate withdrawals is also needed.

In-Depth Management Characterization:

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

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

Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Methodologies for determining CSI impacts	N	N	N
CSI research, assessment, monitoring	N	N	N
CSI GIS mapping/database	Y	Y	Y
CSI technical assistance, education and outreach	N	N	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.

    CSI Mapping/database:

    a) Currently all Brownfield Opportunity Areas (BOA) and EPF grants, and consistency review projects are geocoded and mapped in order to record location information associated with these projects. Staff has been working on data clean up and quality control for all GIS records pertaining to OPD administered grants and contracts, as well as all BOA areas and grants. Grants are tracked through the use of excel spreadsheets which are routinely updated by program staff. In the past, GIS files were created annually (each grant cycle) and no mechanism was in place to update these files when updates were made to the spreadsheet. Python script language will enable the creation of a routinely updated GIS file which will pull relevant project information directly from the excel spreadsheet instead of a static shapefile.

    Since the last assessment, staff completed the improvements to the Consistency Review database being done in partnership with the Office of Information Technology Services. The upgrades created a more robust database which allows the unit to complete consistency reviews more efficiently and keep better track of data in order to improve our reporting capabilities.

b) The CSI mapping is a CZM driven change.

c) Specifically, the upgrades allow staff to code and track projects based on project categories or types. Combined with the geocoding capabilities of the software, staff can use this information to track types of activities along waterbodies or specific geographic areas in order to assess the cumulative level of threat from these activities and any cumulative impacts associated with individual projects in order to better manage cumulative and secondary impacts along our coast.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's or territory's management efforts in addressing cumulative and secondary impacts of development since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state and territory's management efforts?

Identification of Priorities:

1. Considering changes in cumulative and secondary impact threats and management since the last assessment and stakeholder input, identify and briefly describe the top one to three management priorities where there is the greatest opportunity for the CMP to improve the effectiveness of its management effort to better assess, consider, and control the most significant threats from cumulative and secondary impacts of coastal growth and development. *(Approximately 1-3 sentences per management priority.)*

Management Priority 1: Develop guidance on the use of natural resources, natural processes and nature-based shoreline treatments to reduce cumulative and secondary impacts from shoreline armoring and modification.

Description: This action will help improve resilience through incorporation of natural resources and natural processes in decision making and planning. The guidance will also support application of revised coastal policies by integrating community resilience with management of natural protective features into coastal planning and decision making.

Management Priority 2: Advance regional planning initiatives which take a reach by reach approach to coastal management to identify and help reduce cumulative and secondary impacts from coastal growth and development.

Description: This initiative will advance a reach by reach planning framework which groups sections of coast by common landscape forms and features, development patterns, sediment transport systems, watersheds, etc. in order to prepare plans and identify strategic actions most relevant to each reach. It will utilize DOS' existing LWRP authority to extend the planning program to communities, and make use of the information in the consistency review database to help characterize the predominant threats and stressors for each identified reach.

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 into the most effective measurable indicators for tracking cumulative and secondary impacts and levels of acceptable change.

Mapping/GIS	Y	Risk assessment mapping to support planning for Great Lakes region and streams/rivers/tributaries. Shoreline conditions/structures inventory, particularly south shore of NYC, Nassau and Suffolk Counties and Great Lakes region.
Data and information management	Y	Ability to identify, collect, and store natural resource baseline data (i.e. shoreline characterization, extent of tidal wetlands, eelgrass bed size, etc.) and ability to search stored records will enable tracking of changes.
Training/Capacity building	Y	Training is needed on identifying the best parameters/measurable indicators for tracking and assessing cumulative
Decision-support tools	Y	DOS risk assessment tool modified for application in Great Lakes and riverine conditions; community resilience assessment tools; guidance on natural resources and natural processes for resilience; guidance on climate change vulnerability assessments for planning purposes Identification of measurable indicators for tracking levels of acceptable change (benefits or impacts)
Communication and outreach	Y	More effective outreach and technical assistance needs to take place to ensure municipalities understand appropriate types of shorelines, their uses, and ways to achieve them through permit conditions.
Other (Specify)		

Enhancement Area Strategy Development:

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

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

A strategy will be developed that will address cumulative and secondary impacts in addition to other enhancement areas (hazards, SAMPs, and Oceans and Great Lakes). Given the extreme pressures (from development and climate) that are facing New York's shorelines, there is a need to establish a process for characterizing the current condition of coastal and Great Lakes shorelines, identifying vulnerabilities and identifying the best approaches to making respective shorelines more resilient to climatic changes and extreme weather events. This process will also identify a process for identifying, measuring and tracking changes to shorelines as they occur – whether changes occur as a result of development or impacts from extreme weather events.

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Special Area Management Planning

Section 309 Enhancement Objective

Preparing and implementing special area management plans for important coastal areas.

The Coastal Zone Management Act (CZMA) 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."

Resource Characterization

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

Geographic Area	Opportunities for New or Updated Special Area Management Plans Major Conflicts/Issues
Long Island Sound	Residential and commercial development along shorelines impacts ecosystems, limit public recreational access to the shoreline, and effects scenic resources.
	Development along the waterfront and in the watershed, have led to water quality issues - especially non-point pollution from stormwater runoff, and point sources such as storm sewer discharge, inadequate wastewater treatment systems outfalls.
	Open water disposal of dredge materials has yet to be appropriately addressed.
	Shoreline management structures effect habitats and ecosystems and can result in conflict between public/private rights and uses.
	Accelerated sea level rise and extreme precipitation events will increase risk of losses of development, infrastructure and coastal wetlands in the future.
South Shore of Long Island	Residential and commercial development along shorelines has impacted ecosystems, limited public access to the shoreline, and effected scenic resources.
	Off-shore wind turbine development may effect scenic resources.
	Development of Liquid Natural Gas (LNG) infrastructure offshore threatens ecosystems and could result in use conflicts.
	Development along the waterfront and in the watershed, have led to water quality issues- especially non-point pollution from stormwater runoff, and point sources such as storm sewer discharge, inadequate wastewater treatment systems outfalls.
	While a Dredged Material Management Plan (DMMP) has been developed for the South Shore, a tracking plan to facilitate dredged material management is lacking a host and resources for implementation.
	Shoreline management structures affect habitats and ecosystems, reduce littoral transport resulting in localized downcutting or scour negatively effecting regional beaches and can result in conflict between public/private rights and uses.
	Climate change driven sea level rise is 1) increasing the risk of damage to development and infrastructure; 2) drowning shoreline marshes (currently marsh islands seem to be holding their own); 3) causing saltwater migration up freshwater streams; 4) predicted to result in saltwater intrusion into the aquifer, threatening the water supply of 10's of thousands of Long Islanders.

Geographic Area	Opportunities for New or Updated Special Area Management Plans Major Conflicts/Issues
	Climate change is negatively affecting the coastal economy, infrastructure and natural resources through increased total annual rainfall, higher incidence of extreme precipitation events, increased intensity of storms and greater probability of extreme weather, and periodic drought.
	Climate change-related ocean temperature increases may affect fish and shellfish species and in turn affect commercial and recreational fisheries. Increased ocean temperatures may also increase the occurrence of brown/red tides.
Hudson River Valley	Residential and commercial development along shorelines has impacted ecosystems, limited public access to the shoreline, and affected scenic and historic resources.
	Rail ROWs along both shores of the Hudson River limits public access to the River.
	Shoreline management structures affect habitats and ecosystems and can result in conflict between public/private rights and uses.
	Development and other land uses along the River and in the watershed, have led to water quality issues - especially non-point pollution from stormwater runoff, and point sources such as storm sewer discharge, inadequate wastewater treatment systems outfalls.
	Placement of utility transmission lines in the Hudson River may affect habitats and ecosystems and can result in conflict between public/private rights and uses.
	Significant increases in water withdrawal for uses such as water supply and power production may result cumulative effects to aquatic ecosystems in the River.
	Climate change is negatively affecting the coastal economy, infrastructure and natural resources through increased total annual rainfall, higher incidence of extreme precipitation events, increased intensity of storms and greater probability of extreme weather, and periodic drought.
Great Lakes	Off-shore wind turbine development may affect ecosystem, historic and/or scenic resources.
	Shoreline management structures affect habitats and ecosystems, reduce littoral transport resulting in localized downcutting or scour negatively effecting regional beaches and can result in conflict between public/private rights and uses.
	Invasive species continue to be one of foremost issues in the Great Lakes.
	Carbon sequestration, through the injection of carbon into underground strata may result in numerous yet-to-be-determined effects.
	Open water disposal of dredged material offshore affects offshore habitats and water quality.
	Significant increases in water withdrawal for out-of-watershed water supplies, commercial bottled water and hydraulic fracturing may result in cumulative effects to groundwater hydrology and groundwater dependent ecosystems, such as streams and near shore habitats.
	Climate change is negatively affecting the coastal economy, infrastructure and natural resources through increased total annual rainfall, higher incidence of extreme precipitation events, increased intensity of storms and greater probability of extreme weather, and periodic drought.
	Water quality impairments associated with storm water runoff, exacerbated by extreme rainfall due to climate change, result in negative secondary effects such as Harmful Algal Blooms, reduced tourism and recreational fishing.
	Regulation of water levels on Lake Ontario and the Upper St. Lawrence River have severely impacted regional wetlands, diminishing a variety of plant and animal species and their associated biological communities. Management actions will need to be coordinated with the pending decision by the U.S. and Canadian governments on the new water level regulation plan advanced by the International Joint Commission.
St. Lawrence River Valley	Shoreline development along the St. Lawrence Seaway, especially in the Thousand Islands region, negatively affects natural, historic and scenic resources.

Geographic Area	Opportunities for New or Updated Special Area Management Plans Major Conflicts/Issues
	Shoreline management structures affect habitats and ecosystems and can result in conflict between public/private rights and uses.
	Regulation of water levels on Lake Ontario and the Upper St. Lawrence River have severely impacted regional wetlands, diminishing a variety of plant and animal species and their associated biological communities. Management actions will need to be coordinated with the pending decision by the U.S. and Canadian governments on the new water level regulation plan advanced by the International Joint Commission.
Niagara River	Lack of access and connections to the region's natural, cultural, recreation, scenic and heritage resources.
Harlem and East Rivers	Intense residential and commercial development along shorelines has impacted ecosystems and has limited public recreational access to the shoreline.
	Development along the waterfront and in the watershed, have led to water quality issues - especially non-point pollution from stormwater runoff, and point sources such as storm sewer discharge, inadequate wastewater treatment systems outfalls.
	Shoreline management structures affect habitats and ecosystems and can result in conflict between public/private rights and uses.

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.

No reports on the status/trends of SAMPs have been prepared since the last assessment.

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	Y	Y	N
Special Area Management Plans			
New York Rising Community Reconstruction Plans – Resiliency Plans	Y	Y	Y
Resiliency Plans	Y	Y	Y
Watershed Management Plans	Y	Y	Y
Waterfront Redevelopment Plans	Y	Y	Y
Natural Area Plans	Y	Y	Y
Local Waterfront Revitalization	Y	Y	Y

Programs			
Regional Economic Development Council Strategic 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.

Special Area Management Plans

New York Rising Community Reconstruction Plans/Resiliency Plans

a. In 2011, two storms, Hurricane Irene in August followed by Tropical Storm Lee in September, hit NYS causing extensive flood damage in New York City, Long Island and upstate communities. Hurricane Irene resulted in thirty-one counties from New York City to the Canadian Border being declared a disaster area. The storm's rains caused the Hudson River to flood Manhattan's Meatpacking District on the lower west side. The seriously flooded City of Long Beach and Village of Freeport were among the worst hit Long Island communities where many roads were impassable. Upstate communities saw unprecedented flood damage. Flooding damaged or destroyed many villages and hamlets in the mountainous areas of the Catskills and Adirondacks, where several rural communities were left isolated due to the complete washout of state and local roads. High winds knocked down many trees and power lines leaving 1.1 million people in the State without power. Overall, 10 deaths in NYS are blamed on Hurricane Irene flooding, and damages from the storm total $1.3 billion[41].

   On the heels of these two devastating storms, NYS released the *Responding to Climate Change in New York State: ClimAID Integrated Assessment for Effective Climate Change Adaptation Final Report* in November 2011. The assessment looked at seven sub-regions of NYS and summarized the risks, vulnerabilities, and adaptation measures in relation to eight different sectors: water resources, coastal zones, ecosystems, agriculture, energy, transportation, telecommunications, and public health.

   On October 29, 2012, Superstorm Sandy caused destruction on a scale not seen in generations. Superstorm Sandy combined with a Nor'easter off the Mid-Atlantic coast and grew to a 1,000 mile wide storm system, the largest hurricane ever recorded in the Atlantic Ocean. The primary source of devastation came from Superstorm Sandy's record 14-foot storm surge, 90 mile-an-hour winds, and slow movement. On Long Island alone, the storm severely damaged or destroyed as many as 100,000 homes with more than 2,000 homes deemed uninhabitable. The storm caused several barrier island breaches including one that remains open in the Wilderness area of Fire Island National Seashore at Old Inlet. New York City was also hard hit as parts of Staten Island, Brooklyn, Queens and lower Manhattan were severely flooded. Superstorm Sandy was the second costliest Atlantic hurricane in the United States with $32 billion in damages.

   In the aftermath of Superstorm Sandy, Governor Andrew M. Cuomo convened the NYS2100 Commission (as described in the Hazards Enhancement Area assessment) in response to the unprecedented, severe weather events. The 2100 Commission examined vulnerabilities in critical infrastructure systems and recommended actions to

[41] http://www.nydailynews.com/new-york/hurricane-irene-year-storm-cost-15-8-damage-florida-new-york-caribbean-article-1.1145302

strengthen and improve the resilience of those systems in the wake of stronger storms. The Commission released its report: *Recommendations to Improve the Strength and Resilience of the Empire State's Infrastructure* in 2013.

b. This was not a 309 or CZM driven change

c. In addition, NYS secured $1.714 billion dollars from the US Department of Housing and Development Community Development Block Grant Disaster Relief (CDBG-DR) program to recover from these three storm events. A portion of the CDBG-DR funding helped develop the NYRCR Program. The DOS's Office of Planning and Development (OPD) provided technical assistance to the newly formed Governor's Office of Storm Recovery (GOSR) to facilitate the preparation of forty-five NYRCR Plans representing 102 communities statewide and an additional 22 communities are in the process of preparing plans. With assistance and guidance from DOS OPD, five counties created NYRCR plans using NYS funding. The NYRCR plans focus on addressing climate change impacts as they relate to the increased frequency and intensity of storm-related flooding resulting from storm surge and heavy precipitation, higher cyclical tidal flooding, and rising sea levels. Each NYRCR plan sets forth a list of community driven reconstruction projects and strategies for making communities more resilient against future storms and sea level rise. Final NYRCR plans can be found at the NY Rising website (http://stormrecovery.ny.gov/nyrcr/final-plans).

   Unfortunately, limited CDBG-DR funding did not cover resiliency planning and recovery efforts for all areas affected by the storms nor did it cover all areas at risk of future climate change and sea level rise impacts. To fill the gap, DOS is building on the NYRCR Program by providing both technical assistance and grant funding for coastal resilience planning and implementation into its South Shore Estuary Reserve and LWRPs.

Watershed Management Plans

a. Supported by Environmental Protection Fund funding to communities within the coastal zone and the coastal nonpoint area, watershed management planning examines impacts to surface water quality on a watershed basis and includes the identification and prioritization of storm water infrastructure capital improvement projects (as described in the Watershed Enhancement Area assessment). This program has been highly successful throughout the state, and has worked with 421 communities to prepare and implement watershed management plans. These planning and implementation efforts cover 10,232 square miles within the Coastal Nonpoint Pollution Control Program Management Area.

   To promote watershed planning, DOS, in partnership with DEC, prepared a multi-media package entitled *Watershed Plans: Protecting and Restoring Water Quality*, which summarizes the integrated approach to planning and implementation. To promote the protection of water quality through watershed planning, using the approach outlined in the guidebook, DOS has presented the subject of watershed planning and the process outlined in the guidebook, as well as successful case studies and funding opportunities at a variety of forums. Our education and outreach efforts include presentations to agency partners, planning federations, soil and water conservation districts, local watershed groups, and local municipalities, amongst others. In addition to special events, DOS coordinates with agency partners on a regular basis through participation on the State Nonpoint Source Coordinating Committee, the State Soil and Water Conservation Committee, the Water Managers Advisory Committee.

b. These are 306 driven changes.

c. Since 2010, DOS has worked with communities through the EPF LWRP grant program in the preparation of the following watershed management plans:

Town of Brookhaven- Forge River Watershed Management Plan
Town of Islip – Watershed Management Plan for Great Cove Tributaries
Town of Brookhaven- Tuthills Creek Watershed Management Plan
Town of East Hampton – Watershed Management Planning for Lake Montauk
City of Kingston – Watershed Planning for the Tidal Roundout Creek
Town of Southold – Hashamomuck Pond Watershed Management Plan Implementation
Town of Shelter Island and Village of Dering Harbor – Watershed Management Plan
Erie County – Regional Niagara River Lake Erie Watershed Plan

Waterfront Redevelopment Plans

a. Community and waterfront revitalization often focuses on specific areas of concentrated development within a community, notably hamlets, downtowns and formerly developed urban waterfronts. Redevelopment of these areas is essential for successful communities, encouraging consumers and investors to live, work, shop, recreate and invest in the community and to improve their physical and economic characteristics, in the context of the regional setting. DOS, working with other state agencies, provides both financial and technical assistance to prepare and implement revitalization strategies for hamlets, downtowns and urban waterfronts, with an emphasis on: spurring appropriate economic activity in previously-developed hamlet, downtown and waterfront areas; catalyzing appropriate economic activity through development of water-dependent and water-enhanced uses and activities; redeveloping underutilized abandoned buildings and brownfield sites; improving the recreational, cultural, environmental and economic value and quality of waterfronts; linking downtowns and hamlets with nearby waterfronts; or creating a positive image of a hamlet center, downtown commercial district, and/or waterfront.

b. These plans are CZM 306 driven changes.

c. Since 2010, DOS has worked with communities through the EPF LWRP grant program in the preparation of the following waterfront redevelopment plans:

City of Troy – Riverfront Park Redevelopment Plan
City of Troy – Public Access Improvements at Riverfront Park and Troy City Center
City of Troy – Downtown Economic Development Strategic Plan
City of New York – Open Industrial Uses Study
City of Poughkeepsie – Preparation of Poughkeepsie Waterfront Redevelopment Strategy
Town of Clayton – Preparation of Chaumont River Corridor Waterfront Revitalization Strategy
Borough of Queens – Queens Tech Zone Strategic Plan

Natural Area Plans

Thousand Islands Scenic Areas of Statewide Significance

a. In 2012, ten communities along the St. Lawrence River on the Canada-United States border partnered to initiate a study of the 50-mile Thousand Islands Region to be used for designation of a new scenic area of statewide significance. Comprised of 1,864 islands, the region's unique limestone outcrops, historic island castles and boathouses, the Cape Vincent Light House, freshwater wetlands and bays combine to provide the visual variety, unity and contrast that make this area special.

b. This is a CZM 306 driven change.

c. In addition to providing protections for this scenic area from unfettered development, this project advances the Thousand Islands as a unique place to live and visit, leading to increased tourism and small business growth and enhancing the historic 454-mile Great Lakes/St. Lawrence River Seaway Trail.

Local Waterfront Revitalization Programs

a. LWRPs are land and water use plans as well as strategies to implement the plans, and, as such, each one serves as a SAMP. LWRPs may be comprehensive and address all issues that affect a community's waterfront or harbor areas or they may address only the most critical issues affecting the coastal area. As planning documents, LWRPs are locally prepared land and water use plans for the developed, natural, public, and working waterfronts. LWRPs provide a comprehensive framework within which communities can develop a vision for the waterfront and in-water areas. LWRPs also provide the organizational structure, local laws, and projects to achieve the plan. Furthermore, each LWRP amends the State's Coastal Management Program with information and proposed uses for each defined Local Waterfront Area.

b. These are CZM 306 driven changes.

c. Although the DOS is working with many communities throughout the State to develop LWRPs, there are some regions that have been slow to adopt LWRPs and their implementing local laws - such as the South Shore of Long Island. An interim step is to work with some of these regions to develop regional or ecosystem based LWRPs that address issues that extend beyond a single municipality - such as climate change, sea-level rise, energy development, aquaculture, etc - similar to the approach taken during the development of the Long Island Sound Coastal Management Program - but not necessarily as comprehensively. Often regional issues are identified by one or more communities, but a single municipality may lack the capacity to solve some of these larger, more complex issues. By working with multiple communities on topic-based LWRPs, the State might be able to assist communities in successfully tackling these regional issues.

Since 2010 the following LWRPs in the coastal area have been developed or amended, and have been approved by the NYS Secretary of State (first date in the list below) and concurred by NOAA (second date in the list below). LWRPs are organized by Regional Economic Development Council (REDC) region.

Finger Lakes
1. Rochester (C) – 12/15/2011 _ 7/12/2012
2. Sodus Point (V) – 3/09/2012 _ 7/12/2012

Long Island
1. Ocean Beach (V) – 10/27/2010 _ 4/8/2011
2. Southold (T) – 2/25/2014 _ 24/7/2014

Mid-Hudson
1. Beacon (C) – 12/12/2011 _ 4/5/2012
2. Ossining (V) – 10/25/2011 _ 2/1/2012

North Country
1. Clayton (V/T) – 2/04/2013 _ 7/18/2013

Western New York
1. Evans (T) – 2/22/2013 _ 7/18/2013
2. Hamburg (T) – 3/09/2012 _ 7/12/2012
3. Lewiston (V) – 9/23/2011 _ 12/6/2011
4. Wheatfield (T) – 2/25/2014 _ 24/7/2014

Ocean/Great Lakes plans

a. The NYS Department of State's Ocean and Great Lakes Program has engaged in offshore Atlantic Ocean planning since 2010 to identify potentially suitable areas for offshore wind energy project siting and areas important to New York's ocean industries, including important offshore habitats. This work is being conducted in close coordination with multiple state and federal agencies in an effort to make most effective use of existing data and information, and to improve the level of coordination and cooperation between and among the various interested parties to improve the efficiency of future decision-making. **See write up below in Ocean and Great Lakes Resources enhancement area.**

Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

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 SAMP enhancement area was given a high priority rating as approved SAMPs refine the state's Coastal Management Program and each SAMP contains the information and projects necessary to enable the State and municipalities to better manage New York State's coastal resources. Given the development pressure and use conflicts identified throughout the coastal zone, DOS recognizes that new SAMPs need to be developed for those regions currently lacking approved SAMPs or LWRPs to address current or anticipated conflicts (e.g., energy development, water quality issues, sea level rise, and development conflicts). Additionally, given extreme weather events that New York has recently experienced, there is a need to develop SAMPs that include resilience measures to enable coastal communities to adapt and prepare for future storm events.

In-Depth Resource Characterization:

Purpose: To determine key problems and opportunities regarding the preparation and implementation of special area management plans for important coastal areas.

1. What are the one to three most significant geographic areas facing existing or emerging challenges that would benefit from a new or revised special area management plan (SAMP) or better implementation of an existing SAMP? For example, are there areas where existing management approaches are not working and could be improved by better coordination across multiple levels of government? What challenges are these areas facing? Challenges can be a need for enhanced natural resource protection; use conflicts; coordinating regulatory processes or review; additional data or information needs; education and outreach regarding SAMP policies; or other (please specify). When selecting significant challenges, also consider how climate change may exacerbate each challenge.

	Geographic Scope (within an existing SAMP area (specify SAMP) or within new geographic area (describe new area))	**Challenges**
Geographic Area 1	Long Island South Shore (South Shore Estuary Reserve Comprehensive Management Plan (SSER CMP))	Sea Level Rise, Flooding, Use Conflicts, Frequent Extreme Weather Events, Reduced Natural Protective Features and Water Quality Degradation.
Geographic Area 2	Great Lakes (some existing LWRPs but also new areas)	Water Level Fluctuation, Flooding, Inappropriate Development, Use Conflicts, and Reduced Natural Protective Features

Long Island South Shore

Long Island's South Shore is facing existing and emerging challenges that will benefit from a revised SAMP. Flooding during high tide cycles, common nor'easter storms, and heavy precipitation have become recurring problems in South Shore communities that lie closest to the bays and the Atlantic Ocean. Within a four year period between 2010 and 2013 three extreme weather events - Hurricane Irene, Superstorm Sandy, and the September 13, 2014 extreme rainfall event - impacted the region indicating that the frequency of damaging weather events is on the rise. These events caused extreme flooding and damage to South Shore communities (it is believed that damage to stormwater infrastructure systems has further exacerbated flooding during normal high tide cycles and common nor'easter storms).

Use conflicts continue to exist between significant residential development close to the shore and the space needed for water-dependent/water-enhanced business as well as the need for restoration of natural protective features. The reduction of natural protective features along the South Shore- primarily tidal marshes - is a ramification of unregulated wetland filling that took place following the end of World War II (1945) and continued until the enactment of New York's Tidal Wetlands Act in 1973.

Great Lakes

The Great Lakes are subject to a multi-decadal oscillation of water levels associated with global weather patterns. Local governments and private individuals often misinterpret periods of moderate water levels to represent the norm, while periods of unusually high or low levels are seen as deviant. Personal preference for near-water home sites has resulted in proliferation of development in areas subject to flooding and erosion. Both coastal flood plains and bluff tops have been populated, with a wide variety of protective shoreline treatments aggravating beach sediment losses and down drift erosion. Meanwhile, water level regulation on Lake Ontario and the upper St. Lawrence River has severely degraded near shore wetland communities.

2. Briefly explain why these are currently the most significant challenges that may require developing a new SAMP, or revising or improving implementation of an existing SAMP. Cite stakeholder input and/or existing reports or studies to support this assessment.

Long Island South Shore

Since the adoption of the *Long Island South Shore Estuary Reserve (SSER) Comprehensive Management Plan (CMP)* in 2001 there have been significant advances in the scientific understanding of the ecology of the SSER bays, including the causes of high nitrogen levels and its migration into groundwater, saltwater intrusion into groundwater, toxic algal blooms, and shellfish mortality among other parameters.

The SSER CMP would benefit from updated information and understandings developed over the past 15 years. Water quality degradation, nitrogen pollution, and the collapse of shellfish populations remain ongoing issues in need of additional research and development of new management strategies. The SAMP will also need to provide a regional framework built on local resiliency plans (including local resiliency plans developed through NY Rising and LWRPs) to address the climate change concerns of rising sea levels, storm surge, and increased precipitation as well as risks to public health and safety, critical infrastructure, wetlands, water quality, habitats, and natural protective features.

Great Lakes

The cumulative effects of periodic water level changes, development in unsafe locations, reduced sediment availability due to shoreline armoring and defenses, and water level regulation have not been addressed in any comprehensive planning. Compounding these issues, climate change effects including extreme precipitation aggravate flood risks. New York's Great Lakes region suffers from cumulative and secondary impacts due to gradual subdivision and development of the shore, piece-meal approaches to shoreline erosion, chronic loss of beach sediment and environmental degradation associated with water level regulation.

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
Shoreline Change from Extreme Weather Events	Research into how barrier islands, inlets, breaches, and sand movement are affected by more frequent storms and sea level rise. Updated FEMA flood maps, LiDAR/topographic data, and updated Coastal Erosion Hazard Area (CEHA) maps are needed.

Marsh Stabilization and Migration	Mitigation measures for the negative effects of nitrogen pollution on marshlands, local sea level rise projections, and identification of the extent of upland area needed for wetland migration. Updated tidal wetlands maps.
Protecting Vulnerable Assets	Specifications as to which natural, hybrid, or structural shoreline treatments are best utilized depending on specific site characteristics/conditions.

Recent extreme storm events, Superstorm Sandy in particular, highlighted how vulnerable NY's coastlines, barrier islands, bays, and tidal marshes are to shoreline changes. This includes washovers and breaches along barrier islands, which need additional research to understand future impacts. For example, there is public controversy regarding the breach Superstorm Sandy opened on Fire Island at Old Inlet – letting it run its natural course or closing it. The breach provides opportunities to study the effects of increased ocean/bay water exchange on the water quality in Great South Bay and breach behavior during storm events.

Recent research shows that there is a close nexus between excessive bay nitrogen loading and a decrease in density of belowground biomass of bank-stabilizing plant roots, which reduces the long-term sustainability of marshes to protect against coastal flooding. Additional research and the development of resiliency measures and management strategies are necessary to protect marshes and wetlands.

Some research has been conducted on the use of Living Shorelines to protect shorelines from erosion. Additional research is needed to determine how to apply these potential shoreline treatments to particular site characteristics and conditions.

In-Depth Management Characterization:

Purpose: To determine the effectiveness of management efforts to address identified problems related to the special area management planning enhancement objective.

1. For each additional SAMP 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)
SAMP research, assessment, monitoring	Y	Y	N
SAMP GIS mapping/database	Y	Y	N
SAMP technical assistance, education, and outreach	Y	Y	N
Other (please specify)			

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

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state's or territory's special area management planning efforts 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?

Identification of Priorities:

1. Considering changes with coastal resource protection or coastal use conflicts within defined geographic areas, special area management planning activities 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 their ability to prepare and implement special area management plans to effectively manage important coastal areas. *(Approximately 1-3 sentences per management priority.)*

    Management Priority 1: Coastal Resilience

    Description*:* Coastal resilience planning is a means of establishing a resilience strategy that evaluates risks, including flooding and erosion, associated with weather events, and assembles a set of management measures that establish effective adaptation to changing coastal conditions. Resilient communities understand which of their assets are at risk, take coordinated and informed measures to reduce those risks, and facilitate a quick response and effective long-term strategy following a severe weather event. NYS's CMP will adapt SAMPs to address coastal resilience planning needs to address changing climatic conditions and increased risk associated with extreme weather events.

    Management Priority 2: Regional Planning

    Description: In concert with coastal resilience planning, NYS's CMP will continue developing guidance for preparing SAMPs at a regional scale. This approach will move beyond developing SAMPs based solely on issues within a single municipality to developing regional or multi-jurisdictional SAMPs which identify regional scale resources and needs, and multi-jurisdictional actions and projects for addressing issues that go beyond a single municipality's boundaries.

    Management Priority 3: Water Quality Management

    Description: Clean and plentiful waters are needed to support local economies, provide recreational opportunities, sustain fish and wildlife habitats, and enrich our everyday experiences. Planning on a watershed or regional scale allows communities to effectively and comprehensively address water quality issues throughout their watershed, while balancing the need for economic growth and development. NYS's CMP will continue to focus on managing activities to reduce sources of water pollution along NY's waterfronts and throughout the watersheds of coastal waters and inland waterways to make the most of waterfront resources so residents can enjoy the many benefits that depend on good water quality.

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	An assessment of shoreline conditions is needed to better determine the types of shoreline/erosion protection measures that exist along our shorelines.
Mapping/GIS	Y	The existing GIS information for the NY's coastal areas, including Mean Higher High Water (MHHW) marks and existing shoreline types/conditions, is insufficient for regional and local resilience planning; information on in-water structures is especially lacking. Decision-makers need accurate maps and shore condition information to depict potential impacts of various sea level rise scenarios, predict future shoreline positions and inundation areas, identify potential damage to assets and the ecosystem health.
Data and information management	Y	An efficient way to store and disseminate GIS data is needed. Downscaled regional climate change data is also needed to better determine potential climate change impacts on NY's coastal communities.
Training/Capacity building	Y	CMP staff would benefit from training on resilience measures and use of green infrastructure.
Decision-support tools	Y	Statewide risk area assessment and mapping is needed for estimating storm and flood risks to community assets. The ability to apply risk assessments to local planning and review of risk management options would be beneficial.
Communication and outreach	Y	A way to disseminate information on resilience measures for coastal communities (especially South Shore of Long Island and Great Lakes communities) and ways to protect natural protective features is needed.
Other (Specify)		

Enhancement Area Strategy Development:

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

Yes __Yes_

No _____

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

Multiple strategies will be developed that cover this enhancement area in addition to others, including coastal hazards, cumulative and secondary impacts, and ocean and Great Lakes resources. Given the extreme weather events that New York has been experiencing, there is a need to develop SAMPs, policies and guidance documents, including model local laws, to enable coastal communities to prepare or adapt to future storm events to be more resilient. The strategy to be developed for this enhancement area will establish a process for conducting a reach assessment to characterize the condition of coastal and Great Lakes shorelines, identifying vulnerabilities and identifying the best approach to making these shorelines more resilient to climatic changes and extreme weather events.

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Ocean and Great Lakes Resources

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

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

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

Resource Characterization:

1. Understanding the ocean and Great Lakes economy can help improve management of the resources it depends on. Using Economics: National Ocean Watch (ENOW),[42] 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	469	2,439	$79.1M	$206.7M
Marine Construction	277	4,998	$410.9M	$743.3M
Marine Transportation	748	32,407	$2,100M	$3,800M
Offshore Mineral Extraction	324	2,693	$164.9M	$393.8M
Tourism & Recreation	17,233	253,873	$7,000M	$16,500M
All Ocean Sectors	19,094	297,081	$9,800M	$21,800M

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

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2010)				
	Establishments (% change)	**Employment** (% change)	**Wages** (% change)	**GDP** (% change)
Living Resources	0.43%	16.59%	54.89%	75.13%
Marine Construction	4.92%	79.59%	145.78%	133.03%
Marine Transportation	10.16%	2.36%	7.24%	38.81%
Offshore Mineral Extraction	5.88%	25.66%	70.39%	68.15%
Tourism & Recreation	19.97%	15.3%	28.65%	25.1%
All Ocean Sectors	18.45%	14.46%	26.58%	30.15%

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

Significant Changes to Ocean and Great Lakes Resources and Uses	
Resource/Use	**Change in the Threat to the Resource or Use Conflict Since Last Assessment** (↑, ↓, –, unkwn)
Resource	
Benthic habitat (including coral reefs)	↑
Living marine resources (fish, shellfish, marine mammals, birds, etc.)	↑
Sand/gravel	↑
Cultural/historic	↑
Other (please specify)	-
Use	
Transportation/navigation	↑

Offshore development[43]	-
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/Use	**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	(Specify)
Benthic habitat (including coral reefs)		X										
Living marine resources (fish, shellfish, marine mammals, birds, etc.)		X		X					X			
Sand/gravel		X										
Cultural/historic		X										
Use												
Transportation/navigation		X										
Energy production		X										

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

Fishing (commercial and recreational)		X										
Recreation/tourism		X		X								
Sand/gravel extraction		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.

   In June 2013 DOS released the Offshore Atlantic Ocean Study, the first comprehensive study on the physical, biological, wildlife and geographic characteristics of the Atlantic Ocean impacting New Yorkers. The results of the New York Offshore Atlantic Ocean Study lays the groundwork for selecting offshore areas where wind development could be most suitable and appropriate and will serve to help protect habitats important to the environmental health and recreational and tourism priorities of the coastal communities as well as sustaining New York's ocean-based industries.

   The study draws from four individual reports created for NYSDOS to support offshore ocean planning efforts. Collectively, this information will be a foundation for future site assessment and other relevant research activities, reducing the potential for wasted and duplicative research efforts, saving time and money. In the coming months, NYSDOS will provide the ability to view all the geographic data from these reports on a publicly-accessible online "Geographic Information Gateway" currently under development. The Gateway will provide an ongoing platform for making available any new data as it becomes available.

   Specific highlights of the New York Offshore Atlantic Ocean Study include:

   • New information procured from over a third of New York's active federally-licensed commercial anglers, indicating offshore areas that are significant to sustaining New York's fishing industry.

   • New data garnered from New Yorkers who use the ocean for recreation, providing insight that can be utilized for regulatory reviews, planning and other needs.

   • Original data on offshore natural resources predicting where species of potential concern may be located, such as seabirds, which were relatively unknown and difficult to study, yet are important in understanding where to potentially locate offshore wind projects.

   • Information to help identify trends and patterns across seasons and groups of species.

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

Regional comprehensive ocean/Great Lakes management plans

Regional/State

Great Lakes Action Agenda:

a) The New York Great Lakes Action Agenda is a guide to promote successful ecosystem-based management through existing programs and partnerships involving state and federal agencies, municipalities, academic institutions, non-profits, and other stakeholders in New York's Great Lakes basin. The action agenda was developed using state funds, though implementation likely will require a mix of state, federal, and non-governmental resources.

b) This is not a 309 or CZM driven change.

c) The action agenda identifies pressing problems and actions needed to protect natural resources, environmental quality and resilient communities. It helps focus federal and state programs on key challenges faced by this region of the state. Most importantly, it is a tool that agencies, communities and organizations can use to help

plan, fund and track projects that help achieve our shared vision for the conservation, restoration and protection of New York's Great Lakes basin. The action agenda brings together new priorities, as well as existing environmental, social and economic goals previously identified for New York's Great Lakes region, using an ecosystem-based management approach. The action agenda's ten priority goals guide conservation, restoration and protection efforts in New York's Great Lakes basin. NYSDOS is leading or co-leading many of the activities related to the following priorities:

- Enhance community resiliency and ecosystem integrity
- Promote smart growth, redevelopment and adaptive reuse
- Enhance recreation and tourism opportunities
- Plan for energy development

Ocean Action Plan

a) The New York Ocean Action Plan (OAP) is a coordinated and inclusive effort focused on improving the health of our ocean ecosystems and their capacity to provide sustainable benefits to New Yorkers. Together, scientists, resource managers, and a wide range of stakeholders will take stock of New York's ocean-related activities and programs. Through a ten-year action plan, the goal of the OAP is to achieve better-managed and healthier ocean ecosystems that will benefit people, communities, and the natural world. Grounded in short-term actions to reach long-term goals, the OAP will guide State government funding, research, management, outreach, and education choices. DOS is partnering with the DEC to lead this effort. The plan was developed using state funds, though implementation likely will require a mix of state, federal, and non-governmental resources.

b) This is not a 309 or CZM driven change.

c) The OAP outlines the following four interconnected goals that reflect New York's priorities for immediate action:

- Ensure the ecological integrity of the ocean ecosystem;
- Promote economic growth, coastal development and human use of the ocean in a manner that is sustainable and consistent with maintaining ecosystem integrity;
- Increase resilience of ocean resources to impacts associated with climate change;
- Empower the public to actively participate in decision making and ocean stewardship.

The corresponding long-term objectives and specific actions outlined in the OAP were developed through a stakeholder process with a diverse array of stakeholders, many of whom we would expect to be partners and take the lead in implementing the identified actions.

Regional/Interstate

a) The Mid-Atlantic Regional Planning Body (MidA RPB) was formally established in April 2013. The mission of the Mid-Atlantic RPB is to implement and advance marine spatial planning in the region by coordinating with stakeholders, scientific, business, and technical experts, and members of the public to identify and address issues of importance to the region. The Mid-Atlantic RPB provides a forum for information sharing and coordination of regional marine planning activities that affect the states of Delaware, Maryland, New Jersey, New York, Pennsylvania, and Virginia, and adjacent federal waters.

b) This is not a 309 or CZM driven change.

c) As a federal-state-tribal partnership it will leverage existing efforts underway by states and regional entities, and engage stakeholders and technical experts at every key step. The Secretary of State and Commissioner of Environmental Conservation are NYS's two representatives to the RPB. Because of the significant amount of existing offshore planning efforts and activities in the region, the emergence of the MidA RPB has created a new opportunity and challenge for New York and other Mid-Atlantic States. The RPB should reflect the past work of the Mid-Atlantic Regional Council on the Ocean (MARCO) and the ongoing work by the NYSDOS to plan for offshore wind development and habitat protection.

Elsewhere, NYSDOS participates in the Northeast Regional Ocean Council (NROC) in an ex officio capacity. Primarily, NYS shares in data acquisition and analysis activities with the other NROC States because of the shared waters of Long Island Sound. In the Great Lakes, interstate coordination has continued but no RPB appears imminent in formation.

The creation of the MidA RPB and conversations surrounding the creation of a Great Lakes RPB are reflective of the larger emergence of the National Ocean Policy, National Ocean Council and the formation of RPB's in other regions of the country.

State comprehensive ocean/Great Lakes management plans

See above description of the Offshore Atlantic Ocean Study (Resource Characterization #4).

The study relied on state funds for completion and was conducted in close partnership and coordination with federal and NGO partners.

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	N
Under development (Y/N)	Y	Y
Web address (if available)	http://www.dos.ny.gov/opd/programs/offshoreResources/index.html	http://www.boem.gov/Environmental-Stewardship/Mid-Atlantic-Regional-Planning-Body/MidA-RPB-Materials.aspx
Area covered by plan	Offshore Atlantic Ocean waters out to the continental shelf/slope, from Montauk Point to New York City	Offshore Atlantic Ocean waters (primarily federal waters) from NY to VA

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.

   There continues to be a need and opportunity for New York to better identify, plan for, and develop offshore uses and resources that are directly tied or may be tied to the State's coastal communities, including its economic well-being. Future emphases in the Atlantic and Long Island Sound will focus on better understanding the movement of sediment (particularly sand and dredge disposal) within these water bodies, as a critical component of coastal resilience and water quality, respectively. In the Great Lakes, pending changes to the Lake Ontario water level regime as proposed by the International Joint Commission may have significant effects on commercial navigation, energy production, and coastal resilience.

In-Depth Resource Characterization:

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

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

	Stressor/Threat	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Stressor 1	Offshore energy development	Federal waters south of Long Island
Stressor 2	Coastal storms and sea level rise; interface between offshore processes and coastal communities at-risk	Federal waters south of Long Island
Stressor 3	Identification and protection of areas important to the State's economy	Throughout State and federal ocean and Great Lakes

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

   Based on the Department of State's "Offshore Atlantic Ocean Study", released in July 2013, the waters offshore New York are facing increased pressure from new and existing uses. Federal activities that have begun or increased in the last several years include offshore wind permitting and planning led by the U.S. Department of the Interior, U.S. Coast Guard's ongoing Port Access Route Study of navigation trends along the East Coast, ongoing federal and state research into patterns of large marine mammal movements and population trends, recent federal expeditions using NOAA Ocean Exploration program resources into the offshore canyons, and private industry and public project proposals for LNG import facilities, telecommunications cables, and scientific research.

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**
Changes to the water level regime in Lake Ontario by the IJC	The federal government has not yet made a final decision on the changes to water level. Depending on what regime is adopted, coastal communities, shipping, and other Lake-based uses and resources may be significantly affected.

In-Depth Management Characterization:

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

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

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

    For all categories, the most significant change since the last assessment is the release of DOS's Offshore Atlantic Ocean Study in July 2013. See the Phase I assessment for more detail on that effort and the related "Geographic Information Gateway" that will provide an enhanced GIS mapping/database platform.

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

    The summary finding of the Offshore Atlantic Ocean Study is that the State's interests and equities, as anticipated, extend well beyond the State's territorial 3-mile boundary. As a follow-on to the Study, New York has recently released both a Great Lakes Action Agenda and an Ocean Action Plan to identify and prioritize study and related management efforts that can help address knowledge gaps and vulnerabilities to State coastal uses and resources. See the Phase I assessment for more information on those two action plan documents. Of note, the Ocean Action Plan includes future study work on offshore (federal and state) sand resources important to New York's ongoing and future coastal rebuilding efforts.

In addition, through participation in the Mid-Atlantic Regional Planning Body, DOS is participating in the development of a "Regional Ocean Assessment" that will summarize many of these same issues and needs at the regional level.

Identification of Priorities:

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

   Management Priority 1: ___Offshore wind development_____

   Description: DOS continues to identify the most appropriate potential areas for offshore wind development in concert with state and federal agencies, utilizing existing interagency workgroups and a growing body of knowledge of existing uses and resources and issues of potential compatibility.

   Management Priority 2: ___Resiliency planning_____

   Description: With the advent of increasing coastal storms, renewed emphasis is being placed on readiness for ongoing and future rebuilding needs. As part of this, DOS is contemplating both coastal and offshore planning efforts to identify the regional or "reach" (Shoreline stretch) needs of its coastal areas and the offshore resources (sand) that may be available for beach replenishment. These nascent planning efforts will build from the partnerships established through offshore wind planning work, studies underway at the state and federal level, and new funds available as a result of Superstorm Sandy recovery. The "reach" level work will allow the State to adequately plan for

   Management Priority 3: _Identification and protection of areas important to the State's economy_

   Description: The increased spatial pressures on state ocean and Great Lakes areas accompanying new uses and demands (wind, sand borrow) require New York to continue its efforts to identify those areas already important to New York's offshore uses and resources (e.g., fishing, shipping)

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	Continued research and data processing of important uses and resources that can facilitate siting of offshore wind and the States' resiliency planning efforts

Mapping/GIS	Y	Continued and improved coordination at the State, interstate, and federal levels of existing data and making it available for State uses and to the public
Data and information management	N	
Training/Capacity building	N	
Decision-support tools	Y	Improved technical documents and guidance that will help the State, municipalities, and federal partners identify appropriate locations for new uses, e.g., mapping programs, planning approaches.
Communication and outreach	Y	Continued engagement of NY coastal stakeholders to understand their concerns related to ongoing sea level rise, coastal flooding, and energy needs.
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.

The urgency and widespread nature of the growing energy and resiliency needs of New York, coupled with a related increased emphasis by federal government entities and private developers and the research community at-large, compel New York to continue taking a proactive approach to planning for new uses and identifying those existing uses and resources important to the State's coastal economy and communities.

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Energy and Government Facility Siting

Section 309 Enhancement Objective: Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and Government facilities and energy-related activities and Government activities which may be of greater than local significance. §309(a)(8)[44]

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

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

Resource Characterization:

1. In the table below, characterize the status and trends of different types of energy facilities and activities in the state's or territory's coastal zone based on best available data. If available, identify the approximate number of facilities by type. The MarineCadastre.gov may be helpful in locating many types of energy facilities in the coastal zone.

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	**Exists in CZ**		**Proposed in CZ**	
	(# or Y/N)	Change Since Last Assessment (↑, ↓, –, unkwn)	(# or Y/N)	Change Since Last Assessment (↑, ↓, –, unkwn)
Energy Transport				
Miles of Pipeline [45,46]	2,628 miles	unkwn	57 miles	unkwn
Electrical grid (transmission cables ≥115kV)	3,995 miles	unkwn	18 proposed projects	+13 proposed projects
Petroleum Ports	4	NA	0	NA
Liquid natural gas (LNG)[47]	0	-2	0	-1

[44] CZMA § 309(a)(8) is derived from program approval requirements in CZMA § 306(d)(8), which states:

> "The management program provides for adequate consideration of the national interest involved in planning for, and managing the coastal zone, including the siting of facilities such as energy facilities which are of greater than local significance. In the case of energy facilities, the Secretary shall find that the State has given consideration to any applicable national or interstate energy plan or program."

NOAA regulations at 15 C.F.R. § 923.52 further describe what states need to do regarding national interest and consideration of interests that are greater than local interests.

[92] For approved pipelines (1997-present): www.ferc.gov/industries/gas/indus-act/pipelines/approved-projects.asp

[46] All values are approximate and have been derived from National Pipeline Mapping System data (updated 2014). "Miles of Pipeline" include the total miles of natural gas, liquid petroleum product, and abandoned natural gas/liquid petroleum pipelines in coastal counties.

[47] For approved FERC jurisdictional LNG import/export terminals: www.ferc.gov/industries/gas/indus-act/lng/exist-term.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)
Other (please specify)	NA	NA	NA	NA
Energy Facilities[48]				
Oil and gas	56	+1	4	+4
Coal	6	NA	0	NA
Nuclear[49]	4	NA	0	NA
Wind	1	+1	6	+1
Wave[50]	0	0	0	0
Tidal[36]	0	0	1	-4
Current (ocean, lake, river) [36]	0	0	2	+2
Hydropower	9	unkwn (last assessment stated "multiple")	0	-2
Ocean thermal energy conversion	0	0	0	0
Solar	1	+1	0	0
Biomass	1	NA	0	NA
Other (please specify)	NA	NA	NA	NA

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.

New York State is in the midst of an update to the *2009 State Energy Plan* for 2014 and beyond. As part of this planning process the State has prepared a number of Issue Briefs and Technical Assessments. In addition to the New York State Energy Planning process, State agencies and entities routinely publish status updates on the state of the energy system in New York. These include the New York State Energy Research and Development Authority's "Status and Trends" document, and the New York Independent System Operator's Load and Capacity Data "Gold

[48] The Power NY Act of 2011 (Article 10) requires the permitting process for facilities with 25MW or greater capacity to be streamlined. For the purposes of this analysis, we only considered facilities with a capacity of 25MW or greater. This threshold likely resulted in the decreases in oil & gas facilities from the 2010 assessment to the 2015 assessment.
[49] 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
[50] For FERC hydrokinetic projects: www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp

Book" on system-wide transmission. In an effort to spur private investment in the energy system, New York also published in 2012 the "New York Energy Highway Blueprint", listing existing and proposed energy facilities that would upgrade and modernize the State's energy system.

Summary of the electrical system capacity from the 2014 Gold Book: "The total resource capability in the NY Control Area (NYCA) for the summer of 2014 is 41,297 MW, which is a decrease of 155 MW from summer 2013…. The existing NYCA capability includes wind generation (1,463 MW6) and non-wind renewable generation (508 MW including 31 MW of large-scale solar PV). Beyond 2014, the resource capability in the NYCA will be affected by the net effect of additions of new generation, re-ratings of operating units, and the retirement of existing generators. Currently, the list of proposed projects that have completed, are enrolled in, or are candidates to enter a Class Year Interconnection Facilities Study, or have met other comparable milestones … [includes]… 3,461 MW are fossil fuel projects, 1,044 MW are wind turbine projects and 22 MW are non-wind renewable energy projects. Additionally, based on publicly available information, 806 MW of summer capacity can potentially be retired or mothballed by 2017."

Summary of the natural gas supply from the NYS Energy Plan (Volume 2, Sources): "Approximately 97 percent of the natural gas supply required to meet the demands of New York natural gas customers is from natural gas supply production regions in other states. In the past these regions principally included the Gulf Coast and Canada. Today the mix includes supplies from the West and a growing proportion from the Marcellus Shale. This gas supply is brought to the New York market by interstate pipelines that move the gas from producing and storage areas to customers, such as LDCs and electric generators, who purchase the gas supplies from gas producers and marketers. Production of natural gas from wells in New York dates back to 1821 when the first commercial natural gas well in the U.S. was drilled in Fredonia. Currently, there are approximately 6,800 active natural gas wells in the State. For the 2012 calendar year, total reported State natural gas production was 26.4 Bcf, down 52 percent from the 2006 record production total of 55.2 Bcf.16 As in recent years, New York gas production in 2010 was primarily driven by wells in the Trenton-Black River formation. Additionally, steady production from the Medina, Herkimer, and Queenston formations represent gas production from more traditional sources within the New York."

3. Briefly characterize the existing status and trends for federal government facilities and activities of greater than local significance[51] in the state's coastal zone since the last assessment.

The status of government facilities is relatively unchanged since the previous assessment. There have been minor disposals of federal property. A major facility, the DHS-operated Plum Island Animal Disease Center, together with its associated support site on the mainland used for docking facilities and parking, while still operating, is slated for sale at some point in the future. The DOS continues to monitor the proposed sale closely.

On-going maintenance dredging of federal navigation channels, a backlog of small harbor dredging needs, and open-water disposal site management has resulted in expanded coordination between NYS and applicable state and federal regulatory and planning agencies. DOS continues to play an active role with agency partners in addressing dredging and dredge disposal needs for Long Island, NYC, Hudson River, and Great Lakes regions.

As noted in the Hazards section, the U.S. Army Corps of Engineers is completing its assessment of storm-related flooding and erosion damage to communities across a large portion of the south shore of Long island – the Fire Island to Montauk Point Reformulation (FIMP) Study. When the study is completed and approved, the Corps will

[51] 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).

implement the plan, which includes a significant amount of federal construction involving a number of different protection features – groins, dunes, beach fills, seawalls – across the entire region.

Management Characterization:

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

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

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

Statutes, regulations, policies, or case law interpreting these

a. New York State has initiated a number of state-driven changes to energy statutes and policies. The primary objective of these changes is to incentivize more private investment in the state's energy system (particularly electricity), with a particular emphasis on encouraging more localized, distributed energy generation. This is a shift from recent reliance on large scale power plants that require extensive transmission and distribution networks to move power from source of generation to demand centers.

   Pursuant to a recent order issued by the New York State Public Service Commission, NYSERDA is developing a new 10-year program (the Clean Energy Fund) to replace New York's current System Benefits Charge, Energy Efficiency Portfolio Standard, and Renewable Portfolio Standard. The focus of the Clean Energy Fund will be on incentivizing new energy development and attracting private investment to reduce greenhouse gas emissions from New York's energy sector using a market-based approach.

   Under the related Reforming Energy Vision (REV) initiative being led by the State Public Service Commission, utilities will actively manage and coordinate a wide range of distributed resources, or generate electricity from many small energy sources and link them together. The initiative is a critical part of an overall effort by the PSC to improve system efficiency, empower customer choice, and encourage greater penetration of clean generation and energy efficiency technologies and practices.

b. These were not 309 driven changes.

c. The anticipated result of these initiatives will be an emphasis on renewable resources at a local level, creating additional need to work with communities to incorporate a different type of energy development in their planning. Such energy planning is entirely consistent with, and supportive of, increasing community resiliency, as energy generation and delivery are particularly vulnerable to climate change and severe weather events under the current system.

State comprehensive siting plans or procedures

a. The Power NY Act of 2011 was passed and signed into law June 2011. The Act encourages investment in clean power plants, affords communities more opportunities to meaningfully participate in the siting process, and expands opportunities for homeowners and businesses to invest in energy efficiency under the "Green Jobs/Green New York" program.

b. This was not a 309 driven change.

c. The Power NY Act of 2011 includes reauthorization of the State's power plant siting law, Article X to:

•Streamline the permitting process for power plants greater than 25 megawatts by creating a "one-stop" multi-agency siting board that will make siting decisions

• Empower communities to participate in the process by requiring power plant applicants to provide "intervenor funding" for the community affected by the proposed plant to hire experts and lawyers

• Improve the environment and public health by requiring the siting board to determine whether a proposed facility will create a disproportionate environmental impact in a community and, if so, requires applicant to minimize or avoid those impacts

•Reduce energy demand by allowing homeowners and businesses to pay back loans for energy efficiency upgrades using a surcharge on local utility bills

• Create jobs by encouraging investment in new power plants and energy efficiency retrofits

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.

Addressing the increasing demands of offshore energy siting and development is an important issue in the State and will remain a priority for the state program during the foreseeable future.

In-Depth Resource Characterization:

Purpose: To determine key problems and opportunities relating to the siting of energy and government facility siting and activities that may be of greater than local significance.

1. What are the three most significant existing or emerging challenges to facilitating energy and government facility siting and activities within the coastal zone? Indicate the geographic scope of the challenge, i.e., is it prevalent throughout the coastal zone or are specific areas most threatened? Challenges can be conflicting uses; coastal resource impacts; coordinating regulatory processes or review; insufficient data; natural disasters; national security; or other (please specify). When selecting significant challenges, also consider how climate change may exacerbate each challenge.

	Challenges	**Geographic Scope** (throughout coastal zone or specific areas most threatened)
Challenge 1	State energy policy changes	Statewide
Challenge 2	Offshore wind development	Federal waters south of Long Island
Challenge 3		

2. Briefly explain why these are currently the most significant challenges to facilitating energy and government facility siting and activities within the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

   The development of the New York State Energy Plan, coupled with the new "Renewing the Energy Vision" administrative proceeding and the newly-created "Clean Energy Fund", may potentially radically re-focus state energy planning and development activities away from a predominantly large utility-scale generation and transmission model to more locally-based generation of electricity (distributed energy). This concept is gaining significant support within the State because (a) the opportunity for new utility-scale renewable energy generation is seen to be limited, (b) lessons learned from recent storm events, particularly Superstorm Sandy, have highlighted the vulnerability of large-scale transmission grids and "single points of failure" and the corresponding value of locally-based power and transmission, and (c) the local economic development potential of small-scale systems is seen as significant. Offshore wind continues to be discussed as one of, if not the, most significant remaining large utility-scale renewable energy generation opportunities for New York, though the development potential remains in question without continued planning and policy support.

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**
Dredge disposal	Federal-interstate dialogue, particularly in Long Island Sound, on dredge management priorities and appropriateness of open-water disposal as a long-

	term solution

In-Depth Management Characterization:

Purpose: To determine the effectiveness of management efforts to address identified problems related to the energy and Government facilities enhancement objective.

1. For each additional energy and government facilities 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)
Energy and government facility/activity research, assessment, monitoring	Y	N/A	N
Energy and government facility/activity GIS mapping/database	Y	N/A	Y
Energy and government facility siting technical assistance, education, and outreach	Y	Y	N
Other (please specify)			

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

    The most significant development related to GIS mapping and databases is the creation of the Geographic Information Gateway. See discussion in the **Ocean and Great Lakes Resources** section.

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 facilitating energy and government facility siting and activities 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?

Because the State is continuing to develop new energy policies, new findings and analysis are anticipated in the near future that will help clarify how existing programs can effectively support distributed generation. See the Offshore Atlantic Ocean Study referenced in the Ocean and Great Lakes Resources section for specific issues related to offshore wind.

Identification of Priorities:

1. Considering changes in energy and government facility siting and activities, the management of these facilities and activities 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 facilitate the siting of energy and government facilities and activities to address the most significant energy and government facility siting and activity challenges identified. *(Approximately 1-3 sentences per management priority.)*

   Management Priority 1: State energy planning and policy changes

   Description: Ongoing identification of opportunities within the existing CMP and affiliated programs (e.g., Ocean/Great Lakes program, South Shore Estuary Reserve, and Local Waterfront Revitalization Programs) to appropriately facilitate the siting of distributed generation through technical assistance to municipalities and collaboration with federal agencies.

   Management Priority 2: Offshore wind siting

   Description: There is continued federal and private developer interest and strong stakeholder support in New York for offshore wind development. DOS will continue its offshore wind planning effort to streamline the permitting process by identifying potential issues upfront and addressing them in the context of state-federal consultation.

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	Continued research into appropriate policy mechanisms and goals, through the existing state administrative proceeding (outside the CMP)
Mapping/GIS	Y	Continued support for the Geographic Information Gateway
data and information management	N	
Training/Capacity building	N	
Decision-support tools	Y	Improved planning and guidance documents that can be used in existing work with municipalities, e.g., model local laws
Communication and outreach	Y	Continued engagement with municipalities, state energy entities, private developers

Other (Specify)		

Enhancement Area Strategy Development:

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

   Yes _____

   No ___X___

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

   DOS has the opportunity to improve the delivery of technical assistance and planning support services to communities in the coastal area in ways that help achieve state priorities related to energy development. This will be done through daily technical assistance provided to coastal communities.

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Aquaculture

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

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

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

Resource Characterization:

1. In the table below, characterize the existing status and trends of aquaculture facilities in the state's coastal zone based on the best available data. Your state Sea Grant Program may have information to help with this assessment.[39]

Type of Facility/Activity	**Status and Trends of Aquaculture Facilities and Activities**			
	# of Facilities[40]	Approximate Economic Value	Change Since Last Assessment (↑, ↓, −, unkwn)	
Mollusks	20	unkwn	Facilities: ↓	Economic Value: unkwn
Food fish, trout	3	unkwn	-	Economic Value: unkwn
Food fish (excl. catfish & trout)	1	unkwn	-	Economic Value: unkwn
Ornamental fish	3	unkwn	Facilities: ↓	Economic Value: unkwn
Crustaceans	N/A	N/A	Facilities: ↓	Economic Value: ↓ (presumed)
Total - 2012 USDA Census Data	**27**	**9,294,000***	Facilities: ↓	Economic Value: ↑

This summary was developed using the U.S. Department of Agriculture's Natural Agricultural Statistics Service's "Quick Stats" data for New York's coastal counties (Suffolk, Nassau, Queens, and Richmond). The most recent aquaculture data available at the county level for New York State were 2012 census data. The number of facilities reported was taken from the Quick Stats data field for the total number of aquaculture operations with sales and distribution. In most instances, the economic value data in the Quick Stats database were recorded as being withheld to avoid disclosing data for individual operations. This was true for all economic value subtotals by facility/activity type, and for subtotals by county for 3 of the 4 NY coastal counties.

*Only the economic value for Suffolk County was reported; thus, while the subtotals for the number of facilities by type include data from the 4 coastal counties, the $9.294M total aquaculture value reported here for New York State in 2012 is based entirely upon these Suffolk County data.

Determining the trend since the last assessment involved comparison of these 2012 data with 2007 data from the Quick Stats database. The 2007 dataset represents the most recent Quick Stats dataset collected prior to 2012 to which these data can be compared. The 2007 data were available for all NY coastal counties except Richmond County. All facility/activity type data categories were similar for the 2007 and 2012 data, making this comparison possible. It should be noted that for the "crustaceans" facility/activity type, data were reported in 2007 but not in 2012. The change since last assessment is presumed to have decreased, though this may be a case of underreporting. From 2007 to 2012, the total number of aquaculture facilities per each facility/activity type has either remained the same or decreased. However, the approximate economic value of aquaculture activity in New York State's coastal counties has increased from $7.632M in 2007 to $9.294M in 2012. Note that the assessment of the change of USDA data is not necessarily a direct comparison with the dataset used for the previous 309 assessment. Also note that there is a difference between the names/categories for the facility/activity type in this assessment and those in the previous 309 assessment

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.

Suffolk County Shellfish Aquaculture Lease Program in Peconic Bay and Gardiners Bay 2010 Annual Report. This report describes and summarizes the status of the Suffolk County Shellfish Aquaculture Lease Program covering the Peconic Bay and Gardiners Bay.

Town of Babylon Bay & Shellfish Management Website (http://www.townofbabylon.com/index.aspx?nid=140) The Town of Babylon is conducts an annual Hard Clam Survey of the Town's 10,000 acres of underwater land, and uses this survey to determine the abundance and distribution of clams and their predators.

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	Y
Other aquaculture statutes, regulations, policies, or case law interpreting these	Y	N	Y

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

   a. Describe the significance of the changes;

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

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

a) **Chapter 425 of the Laws of New York amended the Environmental Conservation Law (ECL)** in 2004 by adding §13-0302 under which the State of New York ceded 110,000 acres of underwater land in Peconic Bay and Gardiners Bay to Suffolk County for the purpose of shellfish cultivation, and authorized the County to develop a leasing program that would provide shellfish farmers with access to these waters for this purpose. The planning and environmental review process that led to the development of this lease program was guided by the County Executive's Aquaculture Lease Program Advisory Committee (ALPAC), which included representatives from local government, the commercial fishing industry, shellfish farmers, research institutions, regulatory agencies and environmental interests. After a four year development process, 21 ALPAC meetings and two public hearings, the Suffolk County Shellfish Aquaculture Lease Program in Peconic Bay and Gardiners Bay (Lease Program) was adopted by the County in 2009, which enacted Local Law 25-2009, *A Local Law Establishing the Suffolk County Shellfish Aquaculture Lease Program in Peconic Bay and Gardiners Bay (Chapter 475, Article II of the Suffolk County Code). Suffolk County also issued a Shellfish Aquaculture Lease Program* Management Plan document, which describes all aspects of the Shellfish Aquaculture Lease Program. The Suffolk County Department of Planning completed the *Suffolk County Shellfish Aquaculture Lease Program in Peconic Bay and Gardiners Bay – Management Plan* report in 2009. During the fall of 2010, the Director of Planning executed the first five Shellfish Aquaculture Lease Agreements, and met the statutory deadline of December 31, 2010 for lease execution and filing imposed in NYS Law (ECL §13-0302).

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

c) The likely future outcomes of the changes include an increase in aquaculture businesses and production.

a) **Town of Islip Bay Bottom Leasing Program** (http://www.townofislip-ny.gov/departments/environmental-control/shellfish-hatchery). The Town of Islip established the Bay Bottom Leasing Program leases aquaculture parcels for growing out oysters, hard shell clams and scallops spread over 100 acres of Town-owned bottom in the Great South Bay.

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

c) The likely future outcomes of the changes include an increase in aquaculture businesses and production.

Town of Babylon Bay & Shellfish Management Program (http://www.townofbabylon.com/index.aspx?nid=140) The Town of Babylon is responsible for the management of shellfish aquaculture areas in the Great South Bay. The town conducts an annual Hard Clam Survey of the Town's 10,000 acres of underwater land, and operates a Spawner Sanctuary, an area stocked with clams at high densities in order to enhance reproduction. The town runs a Seed Clam Growout of one million 3-5 mm seed clams in rafts. Over 25,000,000 clams have been introduced into the Great South Bay since the program's inception in 1978. These actions were not 309 or other CZM-driven changes. The likely future outcomes of the changes include an increase in aquaculture businesses and production.

a) **Town of Brookhaven Shellfish Aquaculture Program (http://www.brookhaven.org/PressRoom/tabid/56/newsid970/1461/Councilwoman-Bonner-Joins-BOCES-Students-for-Aquaculture-Program/Default.aspx)** The Town of Brookhaven's new Shellfish Aquaculture Program provides materials to students to construct new shellfish rafts and shellfish to stock the rafts. It is expected that many of these clams may someday be harvested and brought to market by local aquaculture businesses. The Town of Brookhaven grows out one million hard clam seed, one million juvenile oysters and one million soft shell clams at their Mariculture Facility at Cedar Beach. The juvenile shellfish are released into Brookhaven waters in the Great South Bay in the fall to repopulate the species and aid in the improvement of water quality.

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

c) The likely future outcomes of the changes include an increase in aquaculture businesses and production.

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.

Currently aquaculture is only medium priority as far as management of New York State's coastal resources, but may significantly increase over the next five years. Extension specialists, municipal resource managers, industry associations, aquaculture business owners, and other concerned stakeholders continue to play a role in the needs of New York State's aquaculture industry. The State's coastal policies and existing regulations provide adequate guidance. The stakeholders surveyed for this assessment did not identify aquaculture as a priority enhancement area.

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Strategies

Long Island Regional Resilience Planning and Region Specific Guidance on Shoreline Protection Measures

I. Issue Area(s)

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

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

II. Strategy Description

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

☐ A change to coastal zone boundaries;

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

☒ New or revised local coastal programs and implementing ordinances;

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

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

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

B. ***Strategy Goal:*** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature or consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

Improve regional resilience along the South Shore of Long Island. Regional resilience plans (SAMPs) will be developed for Nassau and Suffolk Counties. Develop regional reach specific guidance on the use of natural resources, natural processes and a range of protective measures for shoreline stabilization/erosion management, and incorporate guidance into local and regional resilience planning and DOS programs.

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 Department of State will work with state agencies and coastal communities to build off of existing New York Rising Community Reconstruction (NYRCR) plans for Nassau County communities and develop a regional resilience plan for Nassau County. Further, a regional resilience plan will be developed for Suffolk County at the completion of the Long Island SSER Recovery & Resilience plan development. Implementation activities to build regional resilience will be a part of this strategy. This strategy will reflect the wide variability of coastal processes and characteristics along and off Long Island's South Shore, the focus will be on anticipated climate change effects including sea level rise.

Coastal communities are faced with resilience concerns related to shoreline management and flood protection such as failing bulkheads; differing heights and designs of bulkheads; the intersection of hardened and natural shorelines; loss of natural shoreline, etc. This strategy addresses a growing need to find better approaches to shoreline management in light of climate resilience and ever changing environments.

Work encompassed by this strategy will involve conducting regional shoreline characterization, an assessment of shoreline stabilization structures/measures along Long Island's South Shore and develop guidance and technical assistance to local governments and applicants in the development of appropriate shoreline stabilization. The strategy would involve:

- Review NY Rising Community Reconstruction plans for communities in Nassau County to cull regional strategies and implementation activities.
- A reach-by-reach shoreline characterization of shoreline and stabilization/treatment along the South shore of Long Island.
- Collect information on natural protective features characteristic of South Shore of Long Island reaches, and information on a range of stabilization/protective features including nature-based features (such as hybrid structural measures, Living Shorelines, and green infrastructure).
- Prepare technical assistance/guidance on the protective capacity of living shorelines and appropriate locations and design considerations for their use. Guidance would be utilized by state agency staff and applicants in the interpretation of consistency of federal and state actions with coastal policies, and project development by other agencies, contractors and local governments.
- Build off Recovery and Resilience planning strategy for SSER for communities in Suffolk County to cull regional strategies and implementation activities.
- Develop strategies and implementation activities to be included in regional resilience plans
- Incorporate guidance on natural processes and nature-based features into regional resilience plans, NYRCR plans and Local Waterfront Revitalization Programs (LWRP).

This strategy will address findings of the management and resource characterizations related to the coastal hazards, ocean/Great Lakes resources, cumulative and secondary impacts, and SAMP enhancement areas.

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.

For the coastal hazards, cumulative and secondary impacts and SAMP enhancement areas the NYS CMP has identified priority needs and gaps related to improving resilience planning for NY's coastal communities.

Additionally, existing GIS information for NY's coastal areas, including existing shoreline types/conditions, is insufficient for regional resilience planning; information on in-water structures is especially lacking. Decision-makers need accurate maps, analytical tools and assessment of shore conditions to predict future shoreline positions and inundation areas, and identify potential damage to community assets and ecosystem health.

The development of a new planning paradigm is necessary because the scale of the State's current coastal program does not allow for optimal decision-making accounting for reach or regional needs. Development of LWRPs provides a local planning focus while the State's ongoing offshore planning work provides a broader water-body scale focus; this particular reach by reach initiative will help connect these two efforts.

While the existing state coastal policies prioritize non-structural shoreline management measures and conservation of natural protective features, they do not establish performance guidelines or geographic applicability. In addition, recent pilot projects utilizing hybrid shoreline management structures are yielding new information about performance and site constraints. Organized guidance on protective capacity, geographic eligibility and site constraints of nature-based shoreline management measures is needed.

With assistance from DOS and selected consultants throughout the planning process, regional planning committees will identify necessary information and assessments to be gathered and analyzed. Maps displaying information and analyses will be developed highlighting critical issues which will be addressed through implementation actions identified in the plans. These regional plans will identify innovative and resilient projects for future extreme weather events while protecting, preserving and enhancing their natural resources.

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.

Taking a regional approach to planning will help bridge the local level planning through local waterfront revitalization programs and the larger statewide scope of the coastal program. This planning initiative is one step in creating a more regionally-tailored coastal program that acknowledges the unique attributes and needs of New York's many shoreline types and communities.

The Regional Resilience Plans that are developed as part of this strategy can be incorporated into the CMP as routine program changes, and incorporated into an update of the local waterfront plan. These plans will set a course for improving community resilience and preparing Long Island's coastal communities for future extreme weather and thereby potentially reducing the impacts of future storm events on coastal resources and economies of the region.

Better guidance on shoreline management and the benefit of living shorelines in striving for resilient communities can assist communities and staff in determining the most appropriate management action for a specific locality. Living shorelines can expand shoreline management performance to include habitat conservation, natural sediment and hydrologic processes, tidal exchange, nutrient cycling, and runoff filtration and can better meet regulatory and planning objectives that are more compatible with ecosystems and natural processes than conventional shoreline armoring.

Improved guidance for review staff and other agencies will set forth a consistent message and decision making process.

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.

New York's pursuit of a regional planning strategy is likely within a five year time period because it is well-aligned with the State's current implementation of the Community Risk and Resilience Act and addresses urgent and topical issues significant to New York State – namely, responding to and rebuilding from coastal storm events and preparing for climate change, including sea level rise. Funding is potentially available to move beyond the development of the planning approach and related guidance and into early planning and implementation.

Because NYS-DOS can incorporate guidance into coastal policy interpretation for federal actions (funding, permits and direct actions) there is a high likelihood of success. Information on viable natural protective features and nature-based measures can be posted to our website and the Geographic Information Gateway. Guidance will also be incorporated into new and existing Local Waterfront Revitalization Program, watershed management plans, community resilience plans, and other initiatives. Coordination with other agencies offers additional opportunities to promote natural protective features and nature-based measures and provide consistent messaging statewide.

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: Support regional resilience along Long Island's south shore coastlines through development of a regional planning approach that addresses local physical characteristics and community needs. Develop regional specific guidance on the use of natural resources, natural processes and nature-based protective measures for shoreline stabilization/ erosion management, and incorporate the guidance into local and regional waterfront planning and DOS programs

Total Years: Five
Total Budget: $907,725

Year(s): 1 - 2
Description of activities: Building on existing NYRCR plans prepare regional resilience plan for Nassau County. Development of guidelines for nature-based shoreline management measures appropriate for the South Shore of Long Island.

Major Milestone(s):

I. IDENTIFICATION OF REACHES

DOS will identify reaches by characterizing shorelines considering geomorphology, coastal processes, ecosystem services, watersheds and use and characterization of shoreline stabilization/treatment in use along the south shore of Long Island.

II. IDENTIFICATION OF THE GEOGRAPHIC SCOPE OF PLAN

The Consultant will assist DOS and the Regional Planning Committee in identifying the geographic scope of the Regional Resilience (RR) Plan. The geographic scope of the plan will be presented in graphical format on a map suitable for public presentation.

III. PUBLIC ENGAGEMENT STRATEGY

The Consultant will prepare a public engagement strategy which will specify the level, type, format, and purpose of community engagement throughout the planning process.

IV. REACH VISION

The Consultant will prepare a regional vision statement for consideration which will address regional resilience and be consistent with input received from the general public, local governments, the Regional Planning Committee and DOS. The overall aim of the vision statement should be to capitalize on social and economic assets to improve the regional economy; and build a more resilient coast to expand the economy and reduce future risk.

V. SHORELINE TREATMENT OPTIONS AND GUIDANCE DEVELOPMENT

Shoreline treatment options coordinated with geographic applicability. Document with guidelines outlining the general criteria for use of nature-based shoreline protection and regional reach specific guidance on the use of nature-based protective measures for shoreline stabilization/erosion management.

VI. COMMUNITY ASSET INVENTORY

Within the geographic scope of the Resilience Plan, the Consultant will complete an inventory of regional assets located within the DOS risk areas (extreme, high, and moderate) that have been affected by coastal hazards or could be affected as shown on the risk area maps. Regional assets may relate to economic development, health and social services, housing, infrastructure systems, natural and cultural resources, socially vulnerable populations, and any other assets of regional importance.

VII. RISK ASSESSMENT

The Consultant will conduct a rigorous analysis of the region's identified assets to determine where the greatest vulnerabilities and opportunities lie. This analysis will be conducted using DOS' Risk Assessment Tool and includes assessment of the vulnerability of physical assets – for example, water treatment plants, nursing homes, hospitals, waterfront properties and beaches – and of systems such as local transportation, zoning and building codes, ecosystems, and residential development.

VIII. NEEDS AND OPPORTUNITIES ASSESSMENT

The Consultant will prepare an assessment of the Region's needs and opportunities related to the following six core functions: Regional Planning and Capacity Building; Economic Development; Health and Social Services; Housing; Infrastructure; and Natural and Cultural Resources.

The economic needs and opportunities assessment will include an assessment and analysis of the key drivers of the region's economy to identify both weaknesses and potential opportunities for growth. These needs may relate to expanding the regional economy or to making existing assets more resilient.

IX. RESILIENCE STRATEGIES, PROJECTS, PROGRAMS AND ACTIONS

The Consultant will prepare strategies to spur economic growth and to make the region more resilient to future storms and sea level rise. For each strategy the Consultant will describe projects, actions, and/or programs the region can undertake to implement those strategies.

X. CONCEPTUAL REGIONAL RESILIENCE PLAN

The Planning Consultant will assemble a conceptual RR Plan for public review. The conceptual RR Plan will include, at a minimum, the following items:

i. The regional vision as approved by the Regional Committee.
ii. The geographic scope of the plan.
iii. Maps illustrating identified assets in relation to Risk Areas
iv. Key shoreline treatments appropriate for reaches in this region.
v. Key strategies identified by the Regional Committee.
vi. Potential key projects identified by the Regional Committee.
vii. Potential actions that could be taken to implement the key strategies.
viii. A description of how the public has been engaged in development of the Conceptual Regional Resilience Plan.

XI. COMPLETED REGIONAL RESILIENCE PLAN

The Consultant will prepare a completed RR Plan that includes the following items:

i. Overview

1. Geographic scope of plan
2. Description of critical issues
3. Community vision

ii. Assessment of Risk and Needs

1. Description of regional assets
2. Assessment of risk to assets
3. Assessment of risk to systems
4. Assessment of needs and opportunities

iii. Resilience Strategies, Projects, Programs and Actions

1. Strategies, projects, programs, and actions related to regional planning and capacity building
2. Strategies, projects, programs, and actions related to economic development
3. Strategies, projects, programs, and actions related to health and social services
4. Strategies, projects, programs, and actions related to housing
5. Strategies, projects, programs, and actions related to infrastructure
6. Strategies, projects, programs, and actions related to natural and cultural resources

iv. Implementation Schedule

1. A schedule of implementation actions which identifies the strategy, actions, target dates, and responsible parties

Budget: 1.5 FTEs annually for two years = $363,090

Year: 3
Description of activities: Implementation of resilience strategies, projects, programs and actions. Guidance incorporated into coastal consistency review processes and is advanced in Local Waterfront Revitalization Programs, program components and regional resilience plans.
Major Milestone(s): With DOS contract oversight and management, and in collaboration with regional planning committee, selected consultants will work to advance priority resilience strategies, projects, programs and actions that implement regional resilience plans. Tasks may include RFP development for planning services, development of construction specifications and public bid materials, brick & mortar construction, wetland restoration, etc. depending on individual resilience plans.

NYS-DOS staff have the capacity to understand appropriate applications of natural processes and nature-based features in shoreline management projects and plans. One or more Local Waterfront Revitalization Programs or regional shoreline management programs incorporate guidance on natural processes and nature-based features into master plans and decision making.
Budget: 1.5 FTEs = $181,545

Year: 4
Description of activities: Build on SSER recovery & resilience plans to prepare regional resilience plan for Suffolk County.

Major Milestone(s):

I. IDENTIFICATION OF REACHES
DOS will identify reaches by characterizing shorelines considering geomorphology, coastal processes, ecosystem services, watersheds and use, and characterization of shoreline stabilization/treatment in use along the south shore of Long Island.

II. IDENTIFICATION OF THE GEOGRAPHIC SCOPE OF PLAN
The Consultant will assist DOS and the Regional Planning Committee in identifying the geographic scope of the Regional Resilience (RR) Plan. The geographic scope of the plan will be presented in graphical format on a map suitable for public presentation.

III. PUBLIC ENGAGEMENT STRATEGY
The Consultant will prepare a public engagement strategy which will specify the level, type, format, and purpose of community engagement throughout the planning process.

IV. REACH VISION
The Consultant will prepare a regional vision statement for consideration which will address regional resilience and be consistent with input received from the general public, local governments, the Regional Planning Committee and DOS. The overall aim of the vision statement should be to capitalize on social and economic assets to improve the regional economy; and build a more resilient coast to expand the economy and reduce future risk.

V. SHORELINE TREATMENT OPTIONS AND GUIDANCE DEVELOPMENT

Shoreline treatment options coordinated with geographic applicability. Document with guidelines outlining the general criteria for use of nature-based shoreline protection and regional reach specific guidance on the use of nature-based protective measures for shoreline stabilization/erosion management.

VI. COMMUNITY ASSET INVENTORY

Within the geographic scope of the Resilience Plan, the Consultant will complete an inventory of regional assets located within the DOS risk areas (extreme, high, and moderate) that have been affected by coastal hazards or could be affected as shown on the risk area maps. Regional assets may relate to economic development, health and social services, housing, infrastructure systems, natural and cultural resources, socially vulnerable populations, and any other assets of regional importance.

VII. RISK ASSESSMENT

The Consultant will conduct a rigorous analysis of the region's identified assets to determine where the greatest vulnerabilities and opportunities lie. This analysis will be conducted using DOS' Risk Assessment Tool and includes assessment of the vulnerability of physical assets – for example, water treatment plants, nursing homes, hospitals, waterfront properties and beaches – and of systems such as local transportation, zoning and building codes, ecosystems, and residential development.

VIII. NEEDS AND OPPORTUNITIES ASSESSMENT

The Consultant will prepare an assessment of the Region's needs and opportunities related to the following six core functions: Regional Planning and Capacity Building; Economic Development; Health and Social Services; Housing; Infrastructure; and Natural and Cultural Resources.
The economic needs and opportunities assessment will include an assessment and analysis of the key drivers of the region's economy to identify both weaknesses and potential opportunities for growth. These needs may relate to expanding the regional economy or to making existing assets more resilient.

IX. RESILIENCE STRATEGIES, PROJECTS, PROGRAMS AND ACTIONS

The Consultant will prepare strategies to spur economic growth and to make the region more resilient to future storms and sea level rise. For each strategy the Consultant will describe projects, actions, and/or programs the region can undertake to implement those strategies.

X. CONCEPTUAL REGIONAL RESILIENCE PLAN

The Planning Consultant will assemble a conceptual RR Plan for public review. The conceptual RR Plan will include, at a minimum, the following items:

i. The regional vision as approved by the Regional Committee.
ii. The geographic scope of the plan.
iii. Maps illustrating identified assets in relation to Risk Areas.
iv. Key shoreline treatments appropriate for reaches in this region.
v. Key strategies identified by the Regional Committee.
vi. Potential key projects identified by the Regional Committee.
vii. Potential actions that could be taken to implement the key strategies.

viii. A description of how the public has been engaged in development of the Conceptual Regional Resilience Plan.

XI. COMPLETED REGIONAL RESILIENCE PLAN

The Consultant will prepare a completed RR Plan that includes the following items:

i. Overview

1. Geographic scope of plan
2. Description of critical issues
3. Community vision

ii. Assessment of Risk and Needs

1. Description of regional assets
2. Assessment of risk to assets
3. Assessment of risk to systems
4. Assessment of needs and opportunities

iii. Resilience Strategies, Projects, Programs and Actions

1. Strategies, projects, programs, and actions related to regional planning and capacity building
2. Strategies, projects, programs, and actions related to economic development
3. Strategies, projects, programs, and actions related to health and social services
4. Strategies, projects, programs, and actions related to housing
5. Strategies, projects, programs, and actions related to infrastructure
6. Strategies, projects, programs, and actions related to natural and cultural resources

iv. Implementation Schedule

1. A schedule of implementation actions which identifies the strategy, actions, target dates, and responsible parties

Budget: 1.5 FTEs = $181,545

Year: 5

Description of activities: Implementation of resilience strategies, projects, programs and actions.

Major Milestone(s): With DOS contract oversight and management, and in collaboration with regional planning committee, selected consultants will work to advance priority resilience strategies, projects, programs and actions that implement regional resilience plans. Tasks may include RFP development for planning services, development of construction specifications and public bid materials, brick & mortar construction, wetland restoration, etc. depending on individual resilience plans.

Budget: 1.5 FTEs = $181,545

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.*

Additional funds will be available for contracting consulting firms to prepare the recovery and resilience plans and for funding implementation activities. Consultants will be contracted using State funds secured through available appropriations. State funds will also be used to undertake select implementation strategies, projects, programs, and actions.

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 CMP conceptualized and developed the risk assessment tool and resilience planning process described and has gained experience using the process in recovery and resilience plan development through the NY Rising Community Reconstruction work. Additionally, the CMP will work with contracted consultants, likely ones that also worked on developing NY Rising Community Reconstruction plans, who will possess the technical knowledge, skill, and equipment to prepare the regional resilience plans.

VIII. Projects of Special Merit (Optional)

If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above. The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.

1. Inventory of shoreline structures by reach.
2. Classification of shores by resistance to erosion and according to likelihood of storm impacts (shoreline orientation, prevailing winds, fetch, wave heights or other factors.)
3. Identify a suite of shoreline management techniques, with particular focus on living shorelines, on a reach by reach basis.
4. Develop a monitoring protocol for assessing the cost and benefits of implemented shoreline management measures.
5. Set standards for inclusion in land use codes, permitting and other means to manage shoreline structures.

Long Island South Shore Estuary Reserve Community Recovery and Resilience Plans

I. Issue Area(s)

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

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

II. Strategy Description

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

- ☐ A change to coastal zone boundaries;
- ☐ New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- ☒ New or revised local coastal programs and implementing ordinances;
- ☐ New or revised coastal land acquisition, management, and restoration programs;
- ☒ New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- ☐ New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

B. ***Strategy Goal:*** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature or consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

Preparation of ten community recovery and resilience plans to address the needs of the Long Island south shore Towns of Islip, Brookhaven, and Southampton, and Villages of Patchogue, Westhampton, Westhampton Beach, Quogue, and Southampton. The Long Island South Shore Estuary Reserve (SSER) community recovery and resilience plans will provide needed resilience planning to communities that were affected by Superstorm Sandy but not eligible for New York Rising Community Reconstruction funds. These plans will result in special area management plans that will address recovery, restoration, and resilience to future storm events.

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.)*

Drawing on lessons learned from the New York Rising Community Reconstruction Program this effort will be a combination of bottom-up community participation and State-provided technical expertise. This powerful combination recognizes not only that community members are best positioned to assess the needs and opportunities of the places where they live and work, but also that decisions are best made when they are grounded in rigorous analysis and informed by the latest innovative solutions.

The Recovery and Resilience Planning process will begin by defining the scope of the planning area, assessing storm damage, and identifying critical issues. An asset vulnerability analysis using DOS risk areas will evaluate the potential impacts from flooding, storm surge, extreme precipitation events, sea level rise, and erosion of shoreline features. Site-specific plans will identify local actions and projects that aid in protecting community assets and property from coastal hazards using green infrastructure, open space restoration and protection, and other appropriate protection measures. Strategic planning for shoreline resilience will help protect essential community and public assets, preserve the foundation of the maritime economy, and ensure communities are equipped to respond to threats in the face of a changing climate with increased frequency and intensity of storms and projected sea level rise.

On the basis of this work, the community planning committee will describe recovery and resilience needs and identify opportunities for addressing those needs. Through DOS and consultant provided guidance, the planning committee will then develop a series of comprehensive reconstruction and resilience strategies and implementation actions. In the last two years of the process, DOS will work with the communities to implement select projects that will increase community resilience. Actions recommended through this planning process will also facilitate implementation of the SSER Comprehensive Management Plan which calls for improvement of water quality, protection and restoration of living resources, expansion of public use and enjoyment, and sustaining and expanding the estuary economy.

This strategy will address findings of the management and resource characterizations related to the coastal hazards, cumulative and secondary impacts, and SAMP enhancement areas.

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.

For the coastal hazards, cumulative and secondary impacts and SAMP enhancement areas the NYS CMP has identified priority needs and gaps related to improving resilience planning for the State's coastal communities. Additionally, existing GIS information for New York's coastal areas, including Mean Higher High Water (MHHW) marks and existing shoreline types/conditions, is insufficient for regional and local resilience planning; information on in-water structures is especially lacking. Decision-makers need accurate maps, analytical tools and assessment of shore conditions to depict potential impacts of various sea level rise scenarios, predict future shoreline positions and inundation areas, and identify potential damage to community assets and ecosystem health.

With assistance from DOS and selected consultants throughout the planning process, local planning committees will identify necessary information and assessments to be gathered and analyzed. Maps displaying information and analyses will be developed highlighting critical issues which will be addressed through implementation actions identified in the plans. These community driven plans will identify innovative and resilient projects for preparing communities for future extreme weather events while protecting, preserving and enhancing their natural resources.

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.

With the approval, incorporation and update of each successful local waterfront plan, New York's coastal management program is further refined to reflect the on-the-ground conditions that can only be identified by local

communities. The ten Community Recovery and Resilience Plans that are developed as part of this strategy can be incorporated into the CMP as routine program changes, incorporated into an update of the local waterfront plan or can be used to inform the preparation of a regional resilience strategy which also can be integrated into the Coastal Management Program. These plans will set a course for improving community resilience and preparing the south shore of Long Island for future extreme weather and thereby potentially reducing the impacts of future storm events on the communities and economies of the south shore region.

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.

Building off the success of the New York Rising Community Reconstruction Program, this strategy is very likely to succeed. The planning, an established and proven process, utilizes a bottom-up approach which includes public engagement throughout the process. Through the efforts of the Governor's Office of Storm Recovery the New York Rising Community Reconstruction Program attracted considerable attention to recovery and resiliency planning on Long Island, and on the south shore in particular. South Shore communities not included in the program (assessed damages did not meet the threshold to be included in the program) missed out on an opportunity to improve their resilience. This proposed strategy will provide an opportunity that has been expressly desired by local planning committees to prepare recovery and resilience plans for those ten south shore communities that did not participate in the program. Through a combination of state and federal funds DOS will work with these communities during years one through three to prepare recovery and resilience plans and in years four and five fund select implementation actions to address recovery and resiliency needs. Adding to the likelihood of success, this effort with have both federal and state funds to advance the strategy for planning and implementation.

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: Preparation and implementation of ten community recovery and resilience plans
Total Years: 5 years
Total Budget: $907,725

Year(s): 1-3
Description of activities: Preparation of community recovery and resilience plans
Major Milestone(s):

With DOS contract oversight and management, and in collaboration with planning committees, selected consultants will undertake the following tasks to prepare ten Community Recovery and Resilience (CRR) plans:

I. REVIEW OF RISK AREA MAPS

The Consultant will review risk area maps prepared by the Department of State in partnership with National Oceanic and Atmospheric Administration Coastal Services Center (NOAA-CSC) and the Federal Emergency Management Agency (FEMA) and present the risk maps to the Planning Committee.

II. IDENTIFICATION OF THE GEOGRAPHIC SCOPE OF PLAN

The Consultant will assist DOS and the Planning Committee in identifying the geographic scope of the Community Recovery and Resilience (CRR) Plan. The geographic scope of the plan will be presented in graphical format on a map suitable for public presentation.

III. PUBLIC ENGAGEMENT STRATEGY

The Consultant will prepare a public engagement strategy which will specify the level, type, format, and purpose of community engagement throughout the planning process.

IV. COMMUNITY VISION

The Consultant will prepare a community vision statement for consideration which will address regional and community recovery and resilience and be consistent with input received from the general public, local governments, the Planning Committee and DOS. The overall aim of the vision statement should be to address damage caused by coastal storms; capitalize on social and economic assets to improve the local economy; and rebuild a more resilient community to expand the economy and reduce future risk.

V. COMMUNITY ASSET INVENTORY

Within the geographic scope of the CRR Plan, the Consultant will complete an inventory of regional and community assets located within the DOS risk areas (extreme, high, and moderate) that have been affected by coastal or riverine hazards or could be affected as shown on the risk area maps. Regional and community assets may relate to economic development, health and social services, housing, infrastructure systems, natural and cultural resources, socially vulnerable populations, and any other assets of community importance.

VI. RISK ASSESSMENT

The Consultant will conduct a rigorous analysis of the community's identified assets to determine where the community's greatest vulnerabilities and opportunities lie. This analysis will be conducted using DOS' Risk Assessment Tool and includes assessment of the vulnerability of physical assets – for example, water treatment plants, nursing homes, hospitals, waterfront properties and beaches – and of systems such as local transportation, zoning and building codes, ecosystems, and residential development.

VII. NEEDS AND OPPORTUNITIES ASSESSMENT

The Consultant will prepare an assessment of the Community's needs and opportunities related to the following six core recovery functions: Community Planning and Capacity Building; Economic Development; Health and Social Services; Housing; Infrastructure; and Natural and Cultural Resources.

The economic needs and opportunities assessment will include an analysis of the key drivers of the community's economy to identify both weaknesses and potential opportunities for growth. These needs may relate to repairing or replacing assets that were damaged by previous storm events; to lost economic opportunities attributed to damages or to energy and funds redirected toward recovery; to rebuilding or expanding the local economy; and to making existing assets more resilient or to needs already existing when the storm hit.

VIII. RECONSTRUCTION STRATEGIES, PROJECTS, PROGRAMS AND ACTIONS

The Consultant will prepare strategies to rebuild and spur economic growth and to make communities more resilient to future storms and sea level rise. For each strategy the Consultant will describe projects, actions, and/or programs the community can undertake to implement those strategies.

IX. COORDINATION WITH REGIONAL PLANNING

The Consultant will ensure that the developed CRR plans will be coordinated with ongoing regional planning efforts.

X. CONCEPTUAL CRR PLAN

The Planning Consultant will assemble a conceptual CRR Plan for public review. The conceptual CRR Plan will include, at a minimum, the following items:

i. The community vision as approved by the Committee.

ii. The geographic scope of the plan.

iii. Maps illustrating identified assets in relation to Risk Areas.

iv. Key strategies identified by the Committee.

v. Potential key projects identified by the Committee.

vi. Potential actions that could be taken to implement the key strategies.

vii. A description of how the public has been engaged in development of the Conceptual CRR Plan.

XI. COMPLETED CRR PLAN

The Consultant will prepare a completed CRR Plan that includes the following items:

i. Overview

1. Geographic scope of plan
2. Description of storm damage
3. Description of critical issues
4. Community vision
5. Description of its relationship to the regional plan

ii. Assessment of Risk and Needs

1. Description of community assets
2. Assessment of risk to assets
3. Assessment of risk to systems
4. Assessment of needs and opportunities

iii. Reconstruction Strategies, Projects, Programs and Actions

1. Strategies, projects, programs, and actions related to community planning and capacity building
2. Strategies, projects, programs, and actions related to economic development
3. Strategies, projects, programs, and actions related to health and social services
4. Strategies, projects, programs, and actions related to housing
5. Strategies, projects, programs, and actions related to infrastructure
6. Strategies, projects, programs, and actions related to natural and cultural resources

iv. Implementation Schedule

1. A schedule of implementation actions which identifies the strategy, actions, target dates, and responsible parties

Budget: 1.5 FTEs annually = $544,635

Year(s):4 and 5
Description of activities: Implementation of reconstruction and/or resilience strategies, projects, programs and actions
Major Milestone(s): With DOS contract oversight and management, and in collaboration with planning committees, selected consultants will work with the communities to advance priority reconstruction/resilience strategies, projects, programs and actions that implement the CRR plans. Tasks may include RFP development

for planning services, development of construction specifications and public bid materials, brick & mortar construction, wetland restoration, etc. depending on individual CRR plans.
Budget: 1.5 FTEs annually = $363,090

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.*

Additional funds will be available for contracting consulting firms to prepare the recovery and resilience plans and for funding implementation activities. Consultants will be contracted using State funds secured through available appropriations. State funds will also be used to undertake select implementation strategies, projects, programs, and actions.

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 CMP developed the process described and has gained experience using the process in recovery and resilience plan development through the NY Rising Community Reconstruction work. Additionally, the CMP will work with contracted consultants, likely ones that also worked on developing NY Rising Community Reconstruction plans, who will possess the technical knowledge, skill, and equipment to prepare the recovery and resilience plans.

VIII. Projects of Special Merit (Optional)

If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above. The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.

As the recovery and resilience plans are developed, projects of special merit may be identified that will improve the planning process and/or make south shore communities more resilient to future climatic changes.

Great Lakes Reach by Reach Resilience Planning and Region Specific Guidance on Shoreline Protection Measures

I. Issue Area(s)

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

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

II. Strategy Description

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

- ☐ A change to coastal zone boundaries;
- ☐ New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- ☒ New or revised local coastal programs and implementing ordinances;
- ☐ New or revised coastal land acquisition, management, and restoration programs;
- ☒ New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- ☒ New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

B. ***Strategy Goal:*** *State the goal of the strategy for the five-year assessment period. The goal should be the specific program change to be achieved or be a statement describing the results of the project with the expectation that achieving the goal would eventually lead to a program change. For strategies that implement an existing program change, the goal should be a specific implementation milestone. For example, work with three communities to develop revised draft comprehensive plans that consider future sea level rise or, based on research and policy analysis, present proposed legislation on wetland buffers to state legislature or consideration. Rather than a lofty statement, the goal should be achievable within the time frame of the strategy.*

The goal of this strategy is to improve resilience along New York's Great Lakes coastlines through the development of a regional planning approach that takes into consideration local physical characteristics and addresses coastal community needs. Regional resilience plans (SAMPs) will be developed and Best Management Practices (BMPs) will be identified based on reach characteristics to improve community resilience. Shoreline resilience will be improved to ensure coastal communities are equipped to respond to climate change and changes in regulatory water level regime. This strategy will seek to develop regional reach specific guidance on the use of natural resources, natural processes and a range of protective measures for shoreline stabilization/erosion management, and guidance will be incorporated into local and regional resilience planning and DOS programs.

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 Department of State will work with federal and state agencies and coastal communities to develop an approach for addressing resilience at the level of individual shoreline reaches. This strategy will reflect the wide variability of coastal processes and characteristics along and off New York's Great Lakes coast; the focus will be on anticipated climate change effects and changes to the existing water level regime in Lake Ontario. The strategy will result in a planning approach that identifies individual reaches and resilience plans based on those reaches.

Coastal communities are faced with resilience concerns related to shoreline management and flood protection such as failing bulkheads; differing heights and designs of bulkheads; the intersection of hardened and natural shorelines; loss of natural shoreline, etc. This strategy addresses a growing need to find better approaches to shoreline management in light of climate resilience and ever changing environments.

A coastal property and ecosystem vulnerability analysis will be conducted to predict the potential impacts of flooding, erosion, and altered precipitation patterns that may occur as a result of climate change and their effects on human and natural communities. Furthermore, a vulnerability assessment of built and natural coastal infrastructure will be conducted to inform and prioritize coastal resiliency planning and project implementation.

Work encompassed by this strategy will involve conducting regional shoreline characterization, assessment of shoreline stabilization structures/measures along New York's Great Lakes shorelines and developing guidance and technical assistance for local governments and applicants to use in the development of appropriate shoreline stabilization. The strategy would involve:

- A reach-by-reach shoreline characterization of shoreline and stabilization/treatment along the shore of New York's Great Lakes.
- Collect information on natural protective features characteristic of Great Lakes reaches, and information on a range of stabilization/protective features including nature-based features (such as hybrid structural measures, Living Shorelines, and green infrastructure)
- Preparing technical assistance/guidance on the protective capacity of living shorelines and appropriate locations and design considerations for their use. Guidance would be utilized by state agency staff and applicants in the interpretation of consistency of federal and state actions with coastal policies, and project development by other agencies, contractors and local governments.
- Development of risk areas for Great Lakes based on the concept of the DOS Risk Areas developed for New York's maritime coasts.
- Identify important community assets on a reach by reach basis and conduct risk assessment using DOS Risk assessment tool.
- Develop strategies and implementation activities to be included in reach resilience plans
- Incorporate guidance on natural processes and nature-based features into reach resilience plans, Local Waterfront Revitalization Programs (LWRP) and regional plans.

This strategy will address findings of the management and resource characterizations related to the coastal hazards, ocean/Great Lakes resources, cumulative and secondary impacts, and SAMP enhancement areas.

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.

For the coastal hazards, cumulative and secondary impacts and SAMP enhancement areas the NYS CMP has identified priority needs and gaps related to improving resilience planning for NY's coastal communities. Additionally, existing GIS information for the NY's coastal areas, including existing shoreline types/conditions, is insufficient for regional and local resilience planning; information on in-water structures is especially lacking. Decision-makers need accurate maps, analytical tools and assessment of shore conditions to predict future shoreline positions and inundation areas, and identify potential damage to community assets and ecosystem health.

In the Great Lakes, pending changes to the Lake Ontario water level regime as proposed by the International Joint Commission may have significant effects on commercial navigation, energy production, and coastal resilience. The development of a new planning paradigm is necessary because the scale of the State's current coastal program does not allow for optimal decision-making accounting for reach or regional needs. Development of LWRPs provides a local planning focus while the State's ongoing offshore planning work provides a broader water-body scale focus. This particular reach by reach initiative will help connect these two efforts.

While the existing state coastal policies prioritize non-structural measures and conservation of natural protective features, they do not establish performance guidelines or geographic applicability. In addition, recent pilot projects utilizing hybrid structures are yielding new information about performance and site constraints. Organized guidance on protective capacity, geographic eligibility and site constraints is needed.

With assistance from DOS and selected consultants throughout the planning process, regional/reach planning committees will identify necessary information and assessments to be gathered and analyzed. Maps displaying information and analyses will be developed highlighting critical issues which will be addressed through implementation actions identified in the plans. These regional plans will identify innovative and resilient projects for preparing communities in the reach for future extreme weather events while protecting, preserving and enhancing their natural resources.

Means to predict probability/frequency and impact of storm waves by location, means to predict onshore frequency, extent and depth of flood waters, means to classify shorelines for erosion potential (with and without defensive structures: if we removed the armoring, how would the shoreline react?), means to predict and report the size and extent of sediment transport effects of shore defense structures (bulkheads, breakwaters and jetties), means to predict stable bluff slopes and compare with existing (in other words, probability for slumping/mass wasting will occur and the resulting slope), means to predict likely beach widths if no shoreline armoring were present, a means to weight the relative effectiveness of various natural protective features and shore defenses for resisting waves and flooding.

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.

Taking a "reach" level approach to planning will help bridge the local level planning through local waterfront revitalization programs and the larger statewide scope of the coastal program. This planning initiative is one step in creating a more regionally-tailored coastal program that acknowledges the unique attributes and needs of New York's many shoreline types and communities.

The Regional Resilience Plans that are developed as part of this strategy can be incorporated into the CMP as routine program changes, and incorporated into an update of the local waterfront plan. These plans will set a course for improving community resilience and preparing New York's Great Lakes coast for future extreme weather and thereby potentially reducing the impacts of future storm events on the communities and economies of the region.

Better guidance on the range of shoreline management measures that are available can assist communities and staff in determining the most appropriate management action for a specific locality for improving resilience. Living shorelines, or similar innovative techniques, can expand shoreline management performance to include habitat conservation, natural sediment and hydrologic processes, tidal exchange, nutrient cycling, and runoff filtration and can better meet regulatory and planning objectives that are more compatible with ecosystems and natural processes than conventional shoreline armoring.

Improved guidance for review staff and other agencies will set forth a consistent message and decision making process.

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.

New York's pursuit of a reach-level planning strategy is likely within a five year time period because it is well-aligned with the State's current implementation of the Community Risk and Resilience Act and addresses urgent and topical issues significant to New York State – namely, responding to and rebuilding from coastal storm events and preparing for a change in the water level regime for Lake Ontario. Funding is potentially available to move beyond the development of the planning approach and related guidance and into early planning and implementation.

Because NYS-DOS can incorporate guidance into coastal policy interpretation for federal actions (funding, permits and direct actions) there is a high likelihood of success. Information on viable natural protective features and the range of stabilization/protective features including nature-based measures can be posted to our website and the Geographic Information Gateway. Guidance will also be incorporated into new and existing Local Waterfront Revitalization Program, watershed management plans, community resilience plans, and other initiatives. Coordination with other agencies offers additional opportunities to promote natural protective features and nature-based measures and provide consistent messaging statewide.

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: Support improved resilience along New York's Ocean and Great Lakes coastlines through development of a regional planning approach that addresses local physical characteristics and community needs. Develop regional specific guidance on the use of natural resources, natural processes and a range of stabilization/protective features including nature-based protective measures for shoreline stabilization/ erosion management, and incorporate the guidance into local and regional waterfront planning and DOS programs

Total Years: Five

Total Budget: $712,090

Year(s): 1 - 3

Description of activities: Identification of individual reaches in Lake Ontario. Preparation of community recovery and resilience plans. Identification of available geological data on offshore coastal processes. Creation of planning guidelines that can be used by communities to establish needs and opportunities that address their geographically-specific process concerns related to resilience.

Major Milestone(s):

I. DEVELOPMENT OF RISK AREA MAPS

Department of State will work with federal and state partners and possibly contractors to conceptualize risk area derivation that replicates utility of DOS risk areas developed for maritime coastal areas of NY and develop those risk areas for New York's Great Lakes coasts.

II. IDENTIFICATION OF REACHES

DOS will identify reaches by characterizing shorelines considering geomorphology, coastal processes, ecosystem services, watersheds and use. Characterization of shoreline stabilization/treatment in use along the shore of New York's Great Lakes

III. IDENTIFICATION OF THE GEOGRAPHIC SCOPE OF PLAN

The Consultant will assist DOS and the Regional Planning Committee in identifying the geographic scope of the Reach Resilience (RR) Plan. The geographic scope of the plan will be presented in graphical format on a map suitable for public presentation.

IV. PUBLIC ENGAGEMENT STRATEGY

The Consultant will prepare a public engagement strategy which will specify the level, type, format, and purpose of community engagement throughout the planning process.

V. REACH VISION

The Consultant will prepare a regional vision statement for consideration which will address regional and community recovery and resilience and be consistent with input received from the general public, local governments, the Regional Planning Committee and DOS. The overall aim of the vision statement should be to capitalize on social and economic assets to improve the local and regional economy; and build a more resilient community to expand the economy and reduce future risk.

VI. SHORELINE TREATMENT OPTIONS AND GUIDANCE DEVELOPMENT

Shoreline treatment options coordinated with geographic applicability. Document with guidelines outlining the general criteria for use of nature-based shoreline protection and regional reach specific guidance on the use of nature-based protective measures for shoreline stabilization/erosion management.

VII. COMMUNITY ASSET INVENTORY

Within the geographic scope of the Resilience Plan, the Consultant will complete an inventory of regional and community assets located within the DOS risk areas (extreme, high, and moderate) that have been affected by coastal or riverine hazards or could be affected as shown on the risk area maps. Regional and community assets may relate to economic development, health and social services, housing, infrastructure systems, natural and cultural resources, socially vulnerable populations, and any other assets of regional or community importance.

VIII. RISK ASSESSMENT

The Consultant will conduct a rigorous analysis of the region's identified assets to determine where the reach's greatest vulnerabilities and opportunities lie. This analysis will be conducted using DOS' Risk Assessment Tool and includes assessment of the vulnerability of physical assets – for example, water treatment plants, nursing homes, hospitals, waterfront properties and beaches – and of systems such as local transportation, zoning and building codes, ecosystems, and residential development.

IX. NEEDS AND OPPORTUNITIES ASSESSMENT

The Consultant will prepare an assessment of the Region's needs and opportunities related to the following six core functions: Regional Planning and Capacity Building; Economic Development; Health and Social Services; Housing; Infrastructure; and Natural and Cultural Resources.
The economic needs and opportunities assessment will include an assessment and analysis of the key drivers of the region's economy to identify both weaknesses and potential opportunities for growth. These needs may relate to expanding the regional economy or to making existing assets more resilient.

X. RESILIENCE STRATEGIES, PROJECTS, PROGRAMS AND ACTIONS

The Consultant will prepare strategies to spur economic growth and to make communities more resilient to future storms and regulatory lake level management. For each strategy the Consultant will describe projects, actions, and/or programs reach communities can undertake to implement those strategies.

XI. CONCEPTUAL RESILIENCE PLAN

The Planning Consultant will assemble a conceptual CRR Plan for public review. The conceptual RR Plan will include, at a minimum, the following items:

i. The community vision as approved by the Reach Committee.
ii. The geographic scope of the plan.
iii. Maps illustrating identified assets in relation to Risk Areas.
iv. Key shoreline treatments appropriate for this reach.
v. Key strategies identified by the Reach Committee.
vi. Potential key projects identified by the Reach Committee.
vii. Potential actions that could be taken to implement the key strategies.
viii. A description of how the public has been engaged in development of the Conceptual Resilience Plan.

XII. COMPLETED RESILIENCE PLAN

The Consultant will prepare a completed RR Plan that includes the following items:

i. Overview

1. Geographic scope of plan
2. Description of critical issues
3. Community vision

ii. Assessment of Risk and Needs

1. Description of reach community assets
2. Assessment of risk to assets
3. Assessment of risk to systems
4. Assessment of needs and opportunities

iii. Resilience Strategies, Projects, Programs and Actions

1. Strategies, projects, programs, and actions related to regional planning and capacity building
2. Strategies, projects, programs, and actions related to economic development
3. Strategies, projects, programs, and actions related to health and social services
4. Strategies, projects, programs, and actions related to housing
5. Strategies, projects, programs, and actions related to infrastructure
6. Strategies, projects, programs, and actions related to natural and cultural resources

iv. Implementation Schedule

1. A schedule of implementation actions which identifies the strategy, actions, target dates, and responsible parties

Budget: 1.3 FTEs annually= $470,730

Year(s): 4 - 5

Description of activities: Implementation of resilience strategies, projects, programs and actions. Guidance incorporated into coastal consistency review processes and are advanced in Local Waterfront Revitalization Programs, program components and regional resilience plans.

Major Milestone(s): With DOS contract oversight and management, and in collaboration with regional planning committees, selected consultants will work with the reach communities to advance priority resilience strategies, projects, programs and actions that implement regional resilience plans. Tasks may include RFP

development for planning services, development of construction specifications and public bid materials, brick & mortar construction, wetland restoration, etc. depending on individual resilience plans.

NYS-DOS staff have the capacity to understand appropriate applications of natural processes and nature-based features in shoreline management projects and plans. One or more Local Waterfront Revitalization Programs, or regional shoreline management programs incorporate guidance on natural processes and nature-based features into master plans and decision making.

Budget: 1 FTE annually= $242,060

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.*

Additional funds will be necessary for contracting consulting firms to prepare regional resilience plans and for funding implementation activities. Consultants will be contracted using State funds through the Ocean and Great Lakes program. State funds will also be used to undertake select implementation strategies, projects, programs, and actions.

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 CMP conceptualized and developed the risk areas as well as the risk assessment tool and resilience planning process described and has gained experience using the process in recovery and resilience plan development through the NY Rising Community Reconstruction work. Additionally, the CMP will work with contracted consultants, likely ones that also worked on developing NY Rising Community Reconstruction plans, who will possess the technical knowledge, skill, and equipment to prepare the regional resilience plans.

VIII. Projects of Special Merit (Optional)

If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above. The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.

1. Develop Risk Areas to be incorporated into asset risk assessment activities.

2. Risk Assessment Tool for regional planning applications in Lakes Erie and Ontario and the St. Lawrence River - a revised semi-quantitative method for estimating storm and flood risk to reach community assets.
3. Inventory of shoreline structures by reach.
4. Classification of shores by resistance to erosion and according to likelihood of storm impacts (shoreline orientation, prevailing winds, fetch, wave heights or other factors.)
5. Identify a suite of shoreline management techniques, with particular focus on living shorelines, on a reach by reach basis.
6. Develop a monitoring protocol for assessing the cost and benefits of implemented shoreline management measures.
7. Set standards for inclusion in land use codes, permitting and other means to manage shoreline structures.

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.

Strategies	**Year 1 Funding**	**Year 2 Funding**	**Year 3 Funding**	**Year 4 Funding**	**Year 5 Funding**	**Total Funding**
Long Island Regional Resilience Planning and Region Specific Guidance on Shoreline Protection Measures	$181,545	$181,545	$181,545	$181,545	$181,545	$907,725
Long Island South Shore Estuary Reserve Community Recovery and Resilience Plans	$181,545	$181,545	$181,545	$181,545	$181,545	$907,725
Great Lakes Reach by Reach Resilience Planning and Region Specific Guidance on Shoreline Protection Measures	$156,910	$156,910	$156,910	$121,030	$121,030	$712,790
Total Funding	$520,000	$520,000	$520,000	$520,000	$520,000	$2,600,000

Summary of Stakeholder and Public Comment

Stakeholder Surveys

Approximately 50 stakeholders, including state and federal agency partners, gubernatorial staff, local governments, regional planning organizations, non-governmental organizations, local businesses, and academia were surveyed as to what they felt should be the State's highest priority enhancement areas.

- The agencies contacted were: NYS Canal Corporation; Division of Homes and Community Renewal; Department of Environmental Conservation; Hudson River Estuarine Research Reserve; Department of Transportation; Office of Parks, Recreation and Historic Preservation; the Governor's Office of Storm Recovery; and the US Army Corps of Engineers.
- The local governments contacted were the Town of Clayton, New York City, City of Buffalo, and the Town of Babylon.
- Regional planning organizations included Niagara River Greenway Commission, Hudson River Valley Greenway, and the Hempstead Harbor Protection Committee.
- The surveyed non-governmental organizations included the Maritime Association of the Port of New York and New Jersey, the Long Island Commercial Fishing Association, the Metropolitan Waterfront Alliance, Scenic Hudson, the Nature Conservancy, Audubon New York, Buffalo Niagara Riverkeeper, Citizens Campaign for the Environment.
- From academia, the State University of New York (SUNY) School of Atmospheric and Marine Sciences at Stony Brook and the SUNY College of Environmental of Environmental Science and Forestry were surveyed.

These stakeholders were asked a set of questions to determine which enhancement areas they considered as their top three priorities. In addition to identifying the priorities, they were asked to identify the greatest problems pertaining to the enhancement areas and the greatest opportunities for enhancing the state's CMP to address those problems. All of the nine enhancement areas were identified as being one of the top three priorities with coastal wetlands and coastal hazards clearly standing out from the rest as the highest priorities with public access and cumulative and secondary impacts just slightly behind.

In regards to coastal wetlands, stakeholders' responses regarding this enhancement area included:

> *"The continuous push to develop inland area for residential and commercial development affects and destroys freshwater wetlands that are not effectively protected. Even with the threats of hurricanes and other severe storms and their flood related impacts (which have been realized in many areas of the State over the past decade), wetlands are still being lost, impacted and threatened. Wetlands will always need to be protected as they provide so many benefits (flood protection, habitat, water purification, etc.); that will never change."*
>
> *"Wetlands are the heroes of our coastlines. They mitigate stormwater pollutants; protect the uplands from severe storms (which are becoming more frequent); and provide habitat and breeding areas for wildlife. They are the key to healthy waters."*
>
> "*Local communities need to truly recognize and understand the importance of wetlands. This can lead to a strengthening of local protections."*

As for coastal hazards, stakeholders had the following responses:

"*Improved regulations and better adherence to existing regulations will help address issues related to coastal hazards. Updating comprehensive plans and LWRPs, adopting hazard mitigation plans, including resiliency planning as a part of other planning efforts, etc., will help. Updating flood plain mapping and improving and enforcing building codes and flood development regulations is also important. Finally, recognizing that sea levels are rising and planning for this is also necessary*."

"As we saw with Hurricane Sandy and other storm events, managing and accounting for climate change, including sea level rise, will play an important role in our future resiliency and recovery efforts."

"Selection of shoreline defenses and flood control measures needs to be more site specific as opposed to being based on very generic guidelines. Yes it takes more time and perhaps more staff, but it has a long term benefit – and without it we lose the very shoreline access, marshes and features that are desired."

The input received from stakeholders was taken into consideration when determining the priority enhancement areas and whether or not strategies were developed for those particular enhancement areas.

Public Comment

The draft 309 Assessment and Strategies were made available to the public for a 30-day review and comment period commencing on May 20, 2015 and ending on June 22, 2015. The following public notice was published in the New York State register and on the NYS DOS website:

Announcement for State Register:

The Department of State announces the availability of New York State's draft Section 309 Combined Assessment and Strategy for 2016 – 2020, a public document pursuant to 15 CFR part 923 subpart K, for public review and comment. The Department of State prepared the Combined Assessment and Strategy as the administrator of the New York State Coastal Management Program (CMP), for approval by the National Oceanic and Atmospheric Administration's Office for Coastal Management (OCM), in order for the State to be eligible for federal Coastal Zone Management Act Section 309 funding in FY2016-2020.

The Section 309 Combined Assessment and Strategy for 2016 – 2020 is presented in two parts. The first part is an assessment section which describes the current status and associated accomplishments by New York State in each of nine federal "priority enhancement areas" (Wetlands, Coastal Hazards, Public Access, Marine Debris, Cumulative and Secondary Impacts, Special Area Management Planning, Ocean/Great Lakes Resources, Energy and Government Facility Siting, and Aquaculture) over the past five years, 2011 – 2015. The second part presents strategies and projects the Department of State will advance over the next five years using federal Section 309 funds to: improve regional resilience along the South Shore of Long Island by preparing regional resilience plans for Nassau and Suffolk Counties; preparing ten community recovery and resilience plans to address the needs of the Long Island south shore Towns of Islip, Brookhaven, and Southampton, and Villages of Patchogue, Westhampton, Westhampton Beach, Quogue, and Southampton; and supporting improved resilience along New York's Great Lakes coastlines through development of a regional planning approach that takes into consideration local physical characteristics and addresses coastal community needs.

The draft Section 309 Combined Assessment and Strategy is available for review at http://www.dos.ny.gov/opd/publicNotices/notices.html. Comments on the draft document should be sent in writing via e-mail to opd@dos.ny.gov. Please type 'Comments on Draft 309 Assessment and Strategy' in the e-mail's subject line. Comments are due no later than close of business Monday, June 22, 2015.

No comments were received during the comment period.