

# STATE OVERVIEWS



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# ALABAMA

“The Coastal Program works closely with local governments to address the impacts of growth in the coastal zone through watershed planning, water quality monitoring, technical training....” The Coastal Program also “prioritizes projects to mitigate coastal hazards and increase public access to coastal resources.” Alabama’s coastal zone boundary extends from the state territorial sea boundary inland following the 10 ft. contour within Mobile and Baldwin Counties.

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## OCEAN PLANNING

### **Completed Activities:**

- The State has mapped the shoreline characteristic of the coastal area. The areas to be surveyed were Fowl River and remaining sections of Perdido Bay and Mississippi Sound. Shorelines will be classified under a mutually agreed upon classification system. Data will be provided in a GIS format suitable for use in an ArcGIS 9.1 environment. The State will *Estimate Erosional and Accretion Trends* and will utilize existing orthophotography to develop an estimate of erosional and accretion trends along natural shoreline. This will assist the State in planning for areas that need to be avoided for development or plan for areas of restoration.

### **Needs and/or Gaps Identified:**

- Inventory and map ocean resources, such as sand resources and fish and shellfish resources
- Key spatial/baseline data for energy siting, e.g., resource uses, energy infrastructure, and seafloor habitats
- Identification of areas best suited for recreation, designation as Geographical Areas of Particular Concern, Areas of Preservation and Restoration, etc.

### **Current or Planned Priorities and Activities:**

- Gulf Coast Restoration Task force
- Establishing a steering committee for a Coastal Area and Marine Spatial Planning Program
- Collecting natural resource related data such as oyster beds, artificial reefs, wetlands, Submerged Aquatic Vegetation, and other critical habitat areas
- Compiling programs and/or regulations to be included in the Coastal and Marine Spatial Planning Program
- GIS support and technical assistance for Coastal and Marine Spatial Plan
- Revision of the state’s Coastal Zone Management Program

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- No information available

### **Needs and/or Gaps Identified:**

- Research on the effects of sea level rise
- Communication of research results related to coastal hazards
- Established policy with regard to new threats, i.e., sea level rise
- GIS support and technical assistance

### **Current or Planned Priorities and Activities:**

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- Compilation of sea level rise models that have been interpreted for use in a sea level rise education and outreach tool
  - White paper discussing projects other coastal states have implemented to address sea level rise
  - Collaboration between agencies with using LIDAR mapping to show elevation changes and impacts on habitats and coastal development
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### CMP AND NOAA PARTNERSHIPS

CSC has provided a number of products for Alabama.

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### ADDITIONAL CMP INFORMATION

- To access the CMP fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/al.html>
- For more information on Alabama's Coastal Management Program, visit:  
<http://www.outdooralabama.com/public-lands/stateLands/landsCoastal/>  
OR  
<http://adem.alabama.gov/programs/coastal/default.cnt>

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# CALIFORNIA

The California Coastal Management Program (CCMP) consists of three state agencies: the California Coastal Commission, the San Francisco Bay Conservation and Development Commission (BCDC), and the State Coastal Conservancy. Together, these agencies work to protect, conserve, restore, and enhance environmental and human-based resources of the California coast, ocean and San Francisco Bay. California's coastal zone boundary covers 1,100 miles of coastline and extends inland several hundred feet in highly urbanized areas and up to five miles in certain rural areas. The coastal zone segment of the San Francisco Bay shoreline extends 100 feet inland from the line of highest tidal action.

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## OCEAN PLANNING

### ***On-going relevant state activities, not completed by the CCMP:***

- California Marine Life Protection Act (passed in 1999), directs the state to redesign California's system of marine protected areas, partnering with the California Natural Resources Agency, California Department of Fish and Game, and the Resources Legacy Fund Foundation. To date, marine protected areas have been established for the areas from Alder Creek to Point Arena; from Pigeon Point to Point Conception and from Point Conception to the Mexico/CA border.
- West Coast Governors' Agreement on Ocean Health, established in 2006, works collaboratively with staff from Washington, Oregon, and California on key action items for improving ocean health; however, staff from CCMP agencies have limited involvement in the WGA activities.
- Regional Sediment Management Planning

### ***Needs and/or Gaps Identified:***

- Updates of energy siting policies
- A comprehensive geospatial information management system to access, download and view geospatial data that can be integrated with existing permit tracking systems
- Information concerning climate change effects on ocean resources
- Compilation of information that can improve oil spill reaction/prevention
- Hands-on training opportunities with NOAA technical staff on implementing existing data management tools
- High resolution, synoptic bathymetry of critical coastal areas such as SF Bay for climate change, MSP and RSM planning.
- Expanded West Coast Services Center to support knowledge and tools transfer to CCMP

### ***Current or Planned Priorities and Activities:***

- Transitioning from power plant Once-Through Cooling (OTC) to alternative cooling processes
- Developing alternative and less environmentally damaging intake methods for desalination facilities
- Addressing naval training activities, particularly those with SONAR, and where it might be desirable to limit their occurrence in both space and time
- Regional airport and seaport planning

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## COASTAL CLIMATE ADAPTATION

### ***Completed Activities:***

- Completed GIS data layers to accurately map the state's coastal zone boundary and the Commission's appeal jurisdiction. These data layers, which are critical to regulatory and planning analyses, will be accessible to local governments

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- Produced a regional vulnerability assessment including a series of inundation maps demonstrating the effect of projected sea level rise (SLR) on SF Bay resources
- Hosted a forum of scientists and agency staff on Bay-related climate change research needs and developed consensus on research priorities; sponsored a regional conference entitled *Bay Area on the Move: Connecting Transportation, Land Use and Climate Protection*
- Conducted public outreach and awareness effort with local governments around the Bay
- Revised findings and policies applicable to climate change and SLR in the Bay Plan and Local Coastal Programs (LCPs) in Del Norte County, Crescent City and Santa Barbara

## **Needs and/ or Gaps Identified:**

- Additional research and mapping of hazards related to coastal erosion and SLR
- Guidance for project applicants on factoring SLR into shoreline and bluff erosion analysis
- Guidance for updating hazard policies and ordinances related to coastal erosion and SLR in LCPs
- Improved assessment and tracking of wetland changes
- Guidance for updating wetland protection policies and ordinances to include climate change adaptation measures and updated buffer provisions
- Research and data on methods to manage sensitive vegetation within fire buffer zones
- Guidance for procedures and policies to address fire prevention
- Robust planning framework, customizable training modules, models/tools, guidance documents and/or “best practices” for climate adaptation to share with local governments that can be specific to their geographic area
- Data and information tools to assist with development of climate change adaptation plans
- Resources and/or legislation to fund and direct the preparation of a adaptation strategy for the Bay Area and the California coast

## **Current or Planned Priorities and Activities:**

- Integrate climate change into coastal permitting and local coastal program planning
  - Develop sea level rise policy guidance for staff and local planners
  - Develop communication strategy to ensure that technical information on sea level rise and adaptation strategies is understandable and useable for the public, elected officials and decision-makers; engages different audiences effectively
  - Update research needs and integrate research into coastal management
  - Create a Bay Area climate change resource center and leverage existing efforts within the region
  - Revise relevant policies, findings, and guidance documents based on most current information
  - Sea level rise vulnerability and adaptation planning pilot project with local communities and stakeholders (Adapting to Rising Tides)
  - Research project on ecosystem services of wetlands for shoreline protection, impacts of sea level rise on wetlands, and potential measures to mitigate those impacts
  - Vulnerability assessment of the Bay Area to all climate change impacts and scoping adaptation strategies.
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## **CCMP and NOAA Partnerships**

The CCMP is aware of the **Digital Coast**, although exposure and use internally at analyst level is limited. **CSC** and **NERRs**, through the **Coastal Training Program**, have conducted regional workshops on climate change adaptation planning that have been useful for some CCMP planning staff. The **CZM newsletter** occasionally has useful case study examples for climate adaptation and ocean management. The Coastal Commission’s Oil Spill Program uses **NOAA products and trainings** to improve knowledge of vessel navigation safety and oil spill prevention, preparedness, and response in California. CSC is a principal partner with BCDC on the ART project addressing sea level rise discussed above.

## Additional CCMP Information

- To access the State fact sheet, visit: <http://coastalmanagement.noaa.gov/mystate/ca.html>
- For more information on California's Coastal Management Program, visit: <http://www.coastal.ca.gov/> and <http://www.bcdc.ca.gov/>

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# CONNECTICUT

Connecticut's Coastal Management Program "ensures balanced growth along the coast, restores coastal habitat, improves public access, protects water-dependent uses, public trust waters and submerged lands, promotes harbor management, and facilitates research. The Coastal Management Program also regulates work in tidal, coastal and navigable waters and tidal wetlands". Connecticut's coastal zone boundary is two tiered. The first tier runs from the State's waterward boundaries with New York and Rhode Island inland to a one-thousand foot linear setback measured from the mean high water mark, or from the inland boundary of state regulated tidal wetlands; or the continuous interior contour elevation of the one hundred year frequency coastal flood zone; whichever is farthest inland. The second tier is the area between the inland boundary of the 36 coastal communities and the inland boundary of the first tier.

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## OCEAN PLANNING

### **Completed Activities:**

- Led and participate on Northeast Regional Ocean Council, which is the locus of regional CMSP activity.
- Compiled inventory of potential beach nourishment sites to aid dredged material management plan development.
- Hosted workshop on management needs for sea floor mapping in LIS and convened steering committee to administer settlement funds LIS Seafloor mapping.

### **Needs and/or Gaps Identified:**

- Regional and sub-regional Coastal and Marine Spatial Planning
- Long Island Sound dredged material management plan
- Long Island Sound National Estuarine Research Reserve
- Sea floor mapping/benthic mapping data for LIS--dedicated ship time (benthic mapping cruises planned in coordination with regional priorities)
- Access to Data services support (e.g., web hosting, project collaboration/sharing, potentially large-scale data storage/sharing portals) for sea floor mapping and other CMSP data
- Continued access to existing real or near real-time environmental observations (in-situ, remote sensing data)
- Continued NOAA staff expertise/involvement/internships
- Increased environmental observational capacity to provide better resolution data: nearshore water levels; water quality metrics; standard meteorological/oceanographic parameters

### **Current or Planned Priorities and Activities:**

- Develop dredged material management plan for LIS.
  - General permit for beneficial use of contaminated sediments.
  - Partner with New York to establish a Long Island Sound sub-regional Coastal and Marine Spatial Plan for Long Island Sound
  - Implement LIS seafloor mapping
  - Establish state-specific spatial planning and management function to implement LIS CMSP in CT's coastal area, including capacity to manage state sovereign submerged lands.
  - Continue to participate and provide leadership to NROC and NERACOOS
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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Research on high tide line elevation for tide-gated marshes
- Coastal Hazards website and sea level rise visualization tool.
- Groton Coastal Climate Change Adaptation project—series of workshops to explore adaptation planning for community.
- Acquiring, processing and making available high-accuracy digital elevation data (LiDAR) for CT coastline.
- Through a regional partnership, developed Strategy for Sentinel Monitoring for Climate Change in LIS and established a sentinel monitoring data clearinghouse.

**Needs and/or Gaps Identified:** Connecticut identified 4 high priority needs or gaps for coastal hazards: (309 Assessment).

- Coastal storm event readiness by developing general permit for pre and post-storm needs, developing policy for issuing emergency authorizations
- Modern data describing the location, classification, and extent of current and historic shorelines.
- Baseline inventory of location/type of man-made or armored shoreline.
- Clear demarcation of high-tide line.

### **Current or Planned Priorities and Activities:**

- Developing general permits authorizing reconstruction of storm-threatened or damaged structures.
- Developing policy and factsheets for issuing emergency authorizations for coastal storm.
- Developing guideline for publication on the website explaining how regulatory tools for preparing/recovering from hurricanes work together to cover the needs of the regulated community.
- Developing inundation scenarios based on likely flooding elevations and time scenarios.
- Integrating coastal hazard documents and info into website to centralize coastal hazards info.
- Assisting UCONN Marine Science staff in developing a prototype Southern New England Storm Surge inundation visualization tool.
- Implementing climate change sentinel monitoring pilot projects.
- Develop of internal policy document so that CT CMP can more effectively incorporate shoreline change into planning/regulatory decisions
- Web-based shoreline change guidance for public that identifies high/low risk areas and examples of management options to address risks.
- Jurisdictional high tide line guidance document and refinement of the statutory definition, if needed.
- Continued development of climate change publications, outreach materials and events for Municipalities, environmental groups and the public

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## CMP and NOAA Partnerships-

Existing CMP Partnerships: **NCCOS Biogeography Branch, NOAA Office of Coast Survey** provides support for seafloor mapping including strategic planning, data analysis, and web mapping/document sharing. Information from the **National Weather Service** and other NOAA websites is included on Connecticut's hazards website. **NOAA's CSC** provides regional support for Northeast ocean governance planning. **NDBC, nowCoast, CO-OPS,** and **NODC** data and data services support Northeast regional IOOS operations.

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## ADDITIONAL CMP INFORMATION

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- To access the state fact sheet, visit:  
<http://coastalmanagement.NOAA.gov/mystate/ct.html>
- For more information on Connecticut's Coastal Management Program, visit:  
[http://www.ct.gov/dep/cwp/view.asp?a=2705&q=323536&depNav\\_GID=1622](http://www.ct.gov/dep/cwp/view.asp?a=2705&q=323536&depNav_GID=1622)

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# DELAWARE

The Coastal Program manages the coastal zone and resolves conflicts related to coastal zone issues. The program's mission is to "preserve, protect, develop and where possible restore and enhance the resources of Delaware's coastal zone". Delaware's coastal zone boundary is two tiered and extends from the state territorial sea boundary inland, encompassing the entire state.

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## OCEAN PLANNING

### **Completed Activities:**

- Mid-Atlantic Regional Council on the Ocean (MARCO), Mid-Atlantic coastal management programs were instrumental in the development of MARCO and continue to lead MARCO issue areas

### **Needs and/ or Gaps Identified:**

- Gather information concerning regional habitats
- Develop tools to implement Coastal and Marine Spatial Plan
- Increase communication to stakeholders
- Gather information concerning regional sea level rise to understand effects of climate change
- Gather information of regional energy siting policies
- Gather information concerning offshore wind energy
- Improve MARCO Geographic Information System Portal
- Incorporate needs into regional governing structure

### **Current or Planned Priorities and Activities:**

- Early Implementation of Delaware's Atlantic Coast Marine Management Area Plan
- Implementation of Statewide Sea Level Rise Adaptation Plan
- Development, Refinement and Early Implementation of Delaware Climate Change Adaptation Plan

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Developed a sea level rise policy that would inform and guide decision-making within the DNREC
- Developed a five-part seminar series for DNREC staff, offering assistance to programs in understanding the need for risk assessments and tools and information to evaluate their vulnerability
- Assisted the Refuge in using the model to predict the land cover changes due to sea level rise - processes evaluated in the application include inundation, erosion, overwash, and saturation.

### **Needs and/or Gaps Identified:**

- Coastal resiliency plans
- Sea level rise adaptation for all coastal communities
- Levee management legislation

### **Current or Planned Priorities and Activities:**

- Early implementation of Delaware's Atlantic Coast Marine Management Area Plan
- Implementation of statewide Sea Level Rise Adaptation Plan
- Development, refinement, and early implementation of Delaware's Climate Change Adaptation Plan
- Development of sea level rise adaptation strategies which will complete the development of a Statewide SLR Adaptation Plan for the State of Delaware

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- Assessment of Marsh Susceptibility to SLR - Delaware's tidal impounded marshes will provide necessary information to coastal managers regarding marsh susceptibility to SLR under different SLR scenarios, and under different marsh management scenarios
  - Expedite the establishment of LANs at key locations using NGS Height Modernization initiative (HTMOD) for the state
  - Targeted SLR Education and Training
  - Improved understanding, capacity and planning to adapt to climate change impacts
  - Identify and format data to assess regional vulnerability to SLR
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### **CMP AND NOAA PARTNERSHIPS**

No information available

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### **ADDITIONAL CMP INFORMATION**

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/de.html>
- For more information on Delaware's Coastal Management Program, visit:  
<http://www.dnrec.delaware.gov/swc/Pages/default.aspx>

# GUAM

“The Guam Coastal Management Program guides the use, protection, and development of land and ocean resources within Guam’s coastal zone.” Guam’s coastal zone boundary extends from the territorial sea boundary inland to encompass the entire (Territory) island of Guam ,including offshore islands and the submerged lands and waters extending seaward to a distance of three (3) nautical miles.

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## OCEAN PLANNING

### **Completed Activities:**

- The Micronesia Challenge (2006) a partnership between Guam and the Commonwealth of the Northern Mariana Islands to provide funding to support coordination efforts within the coastal and coral management programs.
- Program staff continued to educate government officials, private contractors, and consultants in the essential elements of Erosion and Sediment Control (ESC) via classroom training

### **Needs and/or Gaps Identified:**

- Increased coordination across regional and local planning efforts
- GIS modeling tools designed for ocean related applications
- Information regarding coral bleaching events
- Data related to sea surface temperature and
- Predictive models based on different scenarios
- Access and integrate to Federal and non-Federal ocean observing systems, sensors, data collection
- Consolidation of Stormwater and drainage plan program implementation
- Applying habitat **equivalency** analysis for **coral reef** damage assessment for current and forthcoming Military Buildup increase activities.

### **Current or Planned Priorities and Activities:**

- Mapping critical coral reef and ocean resources
  - Updating benthic habitat maps
  - Addressing Coastal and Marine Spatial Planning
  - Enhance water quality in the ocean, along our coasts, and inland
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## COASTAL CLIMATE ADAPTATION – CORAL REEF

### **Completed Activities:**

- Climate Local Action Plan

### **Needs and/or Gaps Identified:**

- Insufficient data
  - Lack of enforcement
  - GIS modeling tools
  - knowledge to continually inform and improve management and policy decisions and the capacity to respond to change and challenges
  - Climate information to address today's problems and support long-term adaptation to changing climate conditions
-

## ***Current or Planned Priorities and Activities:***

- A shoreline inundation study for Southern Guam
- New setback policies
- Ongoing shoreline setback analysis
- Sea level rise modeling in urban areas
- Assessing potential climate change impacts to Guam's aquifer
- Determining climate change impacts to Guam's coral reefs
- Improve coordination and integration across the Federal Local Government, as appropriate
- Urgent need for educational outreach and public awareness of our oceans and the challenges facing them.
- Partnership with island communities to conduct research and produce information products on climate variability related to the El Nino

## **CMP AND NOAA PARTNERSHIPS**

Climate change training through the NOAA **Coral Program** has been offered to Guam staff. NOAA's **Coral Program** also recently hosted Pacific Island Watershed Institute training. Guam participated in the **National CMSP Workshop** in June 2011.

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## **ADDITIONAL CMP INFORMATION**

- To access the CMP fact sheet, visit:  
<http://coastalmanagement.NOAA.gov/mystate/guam.html>
- For more information on Guam's Coastal Management Program, visit:  
<http://www.bsp.guam.gov/content/category/6/15/37/>

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# HAWAII

Hawaii established the coastal zone program to “provide a common focus for state and county actions dealing with land and water uses and activities.” Hawaii’s coastal zone boundary extends from the state territorial sea boundary inland to encompass the entire state.

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## OCEAN PLANNING

### **Completed Activities:**

- Published Ocean Resource Management Plan Framework (1991)
- Incorporated the framework into Hawaii Coastal Management Program (1995) plan updates (2006)
- Formed Hawaii Ocean Resource Management Plan (ORMP) Policy Group (2007), a cross-agency group involving state and federal agencies, that serves as Hawaii’s Regional Ocean Partnership

### **Needs and/or Gaps Identified:**

- Balancing use conflicts
- Development of clear policies that allow for the coordination
- Complete representation of key groups in Coastal and Marine Spatial Planning (CMSP)
- Dedicated funding for ORMP implementation and other CMSP efforts by partners
- Increased staff capacity and time
- Guidance on what CMSP should include
- Clear framework for cross-sector collaboration and resource management
- For ORMP update, need data, input and/or participation from NOAA programs
- Regulatory language and/or public policies to institutionalize ORMP principles
- Integrating climate change adaptation planning into ocean and coastal resource management objectives

### **Current or Planned Priorities and Activities:**

- Mapping and Geographic Information System tools are being or have been developed
- Updating the Hawaii ORMP
- Additional revised authorities to implement the ORMP
- Codifying ocean resources objectives and policies into the Hawaii State Plan and
- Developing an Executive Order endorsing and updated ORMP
- Framework for purposeful collaborative governance
- Increasing capacity for CMSP
- Alternative financing for acquisition of shoreline public access

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Adoption of state-of-the-art building codes with customized coastal hazard mitigation standards for Hawaii, including customized wind design standards
- Training on interpretation and application of the new building codes
- Development of *A Framework for Climate Change Adaptation in Hawaii* by the ORMP Climate Change Caucus and the University of Hawaii Center for Island Climate Adaptation and Policy

### **Needs and/or Gaps Identified:**

- Development of an enhanced state hazard mitigation plan

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- Incorporation of adaptive planning measures into State plans and polices to minimize negative impacts from climate change and to increase resiliency of natural resources
- Data and insights from other coastal programs that have adopted climate change policies
- Information from other coastal programs that have looked at alternative financing shoreline public access acquisition

### ***Current or Planned Priorities and Activities:***

- Continued public outreach and education on natural hazard mitigation and new building codes
  - Development of a statewide Climate Change Policy to be presented to the state legislature and proposed for inclusion in the Hawaii State Planning Act
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## CMP AND NOAA PARTNERSHIPS

Staff from the CMP work with NOAA's **local OCRM point of contact**, personnel at the **Pacific Services Center**, and representatives of other NOAA Programs (i.e., **Sea Grant**, Pacific Region of the **National Climatic Data Center**, **Pacific Islands Ocean Observing System (PacIOOS)**, **Office of National Marine Sanctuaries**, and **National Marine Fisheries Service**). Recently, Hawaii has been working with **OCRM**, **PSC**, and other partner agencies in the implementation and update of the Ocean Resource Management Plan, as well as on development of a statewide climate change policy. In the near future, CMP staff will be working with the **Pacific Services Center** on using **Digital Coast** for Coastal and Marine Spatial Planning, as well as other Hawaii Office of Planning planning exercises.

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## ADDITIONAL CMP INFORMATION

- To access the CMP fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/hw.html>
- For more information on Hawaii's Coastal Management Program, visit:  
<http://hawaii.gov/dbedt/czm/>

# ILLINOIS

Coastal Program Currently Under Development

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### Additional State Information

- To access the Territory fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/il.html>
- For more information on USVI's Coastal Management Program, visit:  
<http://www.dnr.illinois.gov/cmp/Pages/default.aspx>

# INDIANA

“The purpose of the Indiana Lake Michigan Coastal Program is to enhance the State's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state and local agencies and organizations”. Indiana’s coastal zone boundary includes all of the waters that drain into Indiana’s portion of Lake Michigan to the state boundaries with Illinois and Michigan. Indiana’s coastal zone program works to establish a comprehensive, coordinated approach for the protection, preservation, and orderly development of the state’s coastal resources

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## GREAT LAKES PLANNING

### **Completed Activities:**

No information available

### **Ocean Resources Needs or Gaps:**

- Encourage project development
- Determine the value of resources
- Determine coastal impacts of sand and gravel erosion
- Sediment plan management and implementation
- Create policies that allow for early detection and response to invasive species
- Resource Assessments
- Data and GIS tools that are downscaled to state level

### **Current or Planned Priorities and Activities:**

- Memorandum of Understanding between Department of Natural Resources, Indiana Dunes National Lakeshore, Army Corps of Engineers
- Lake Michigan Permit Condition
- Completed Porter County Lakefront Groundwater Assessment
- Completed Groundwater/Wetlands Best Management Practice Guidance Manual
- Updates to Areas of Particular Concern designation criteria
- Lakefront community utilize groundwater assessment data and information in the Best Management Practice Guidance manual
- Alternative Energy Siting Guidelines
- Geographic Information System modeling
- Coastal Hazards
- Sediment transport and bypass
- Invasive species management

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Developed three hazard mitigation model ordinances that will be used to protect natural and manmade features of Indiana’s coastal features.

### **Needs and/or Gaps Identified**

- Public input/partnering
- Updated maps and assessments
- Protect remaining undeveloped dunes

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- Sand bypass around harbors/breakwaters
- Case studies of how to use products, especially with an economic tie-in

## ***Current or Planned Priorities and Activities:***

- Make platted shoreline and potential hazards accessible through GIS format
  - Make recommendations for modifying local codes and policies for land use assessments
  - GIS model that can be used for future development siting
  - Incorporate or update comprehensive plans for shoreline communities
  - Site planning for Hammond Beach Shoreline Stabilization Project
  - Water Quality work on recharge/runoff, green Infrastructure retrofit, and lakefront community water assessment
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## **CMP AND NOAA PARTNERSHIPS**

CMP Staff have worked with **CSC** to host a number of trainings, and also use the tools NSPECT, Digital Coast and C-CAP.

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## **ADDITIONAL CMP INFORMATION**

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/in.html>
- For more information on Indiana's Coastal Management Program, visit:  
<http://www.in.gov/dnr/lakemich/>

# LOUISIANA

“The Office of Coastal Management is responsible for the maintenance and protection of the state's coastal wetlands. The main function ... is the regulation of uses in the Louisiana coastal zone, especially those which have a direct and significant impact on coastal waters.” Louisiana’s coastal zone boundary extends from the state territorial sea boundary inland along a highly variable line encompassing all or part of 19 parishes while varying from 16 to 32 miles inland from the Gulf coast.

## OCEAN PLANNING

### **Completed Activities:**

- A comprehensive monitoring program incorporating a coastwide reference monitoring system (CRMS) and a barrier island comprehensive monitoring (BICM) program has been established to serve as a tool to monitor the performance of existing coastal restoration projects and facilitate the planning of future projects.

### **Needs and/or Gaps Identified:**

- Gather information concerning risk of nonpoint source pollution
- Develop and gather state Coastal and Marine Spatial Plan and coastal information
- The State’s Coastal Master Plan is being updated. It will recommend specific actions for saving our coast and is on track to be completed in 2012.
- A Louisiana Sediment Management Plan is being developed and will serve as a systematic analysis of sediment resource availability.
- A technical paper addressing sea level rise has been drafted and is about to undergo external peer review.
- Data collection for BICM and CRMS is an ongoing effort.

### **Current or Planned Priorities and Activities:**

No information available

## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- In May of 2008, the Office of Coastal Management took part in the development of the Louisiana Coastal Hazard Mitigation Guidebook (The Coastal Hazard Mitigation Guidebook has been heavily used by coastal parishes and coastal users.)
- Storm surge and sea level rise have been included as part of the boundary update (Coastal boundary initiative is of high priority to OCM – storm surge and relative sea level rise was one of many factors that assisted in the determination of the newly recommend coastal zone boundary.)

### **Needs and/ or Gaps Identified:**

- Coastal resiliency and hazard mitigation guidelines, procedures, and policy documents (planning and zoning recommendations to implement on a local level)
- Visualization/mapping tool regarding sea level rise (none required)
- Updated coastal zone boundary (mostly accomplished – in implementation phase, State developed its own tool.)

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- Assessment of planning/policy options available regarding Chenier Plans (state has completed a substantial amount of work/reports, etc. – implementation at local level)

## ***Current or Planned Priorities and Activities:***

- Implement an updated inland boundary (mostly accomplished – in implementation phase, State developed its own tool.)
  - Address risks and hazards through the LCP component of the LCRP (Planning and Zoning and other “Resiliency” issues to be addressed on a local level.)
  - The 2012 Master Plan Update will address future flooding and land loss and will hopefully address sea level rise
  - The 2012 Master Plan Update will address future flooding, land loss, and sea level rise.
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## **CMP AND NOAA PARTNERSHIPS**

No information available

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## **ADDITIONAL CMP INFORMATION**

- To access the State fact sheet, visit:  
<http://coastalmanagement.NOAA.gov/mystate/la.html>
- For more information on Louisiana’s Coastal Management Program, visit:  
<http://dnr.louisiana.gov/crm/>

# MAINE

Maine established the coastal zone program to balance development and conservation of Maine's coastal resources. "The Maine Coastal Program works with various partners toward the shared goal of a healthy coast and vibrant coastal communities." Maine's coastal zone boundary encompasses the state territorial sea boundary (3 nautical miles) to all political jurisdictions in Maine that have land along the coast or a tidal waterway, such as a river or bay.

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## OCEAN PLANNING

### **Completed Activities:**

- Led Governor's Task Force on the Planning and Development of Maine Aquaculture
- Facilitated public participation in identifying offshore wind energy sites
- Part of the Gulf of Maine Council on the Marine Environment
- Part of the Northeast Regional Ocean Council (NROC)

### **Needs and/or Gaps Identified:**

- Develop coastal atlas
- Gather information concerning benthic habitat
- Data/tool sharing clearinghouses to prevent "reinventing the wheel"
- Funding sources developed at the municipal level to facilitate local conservation planning

### **Current or Planned Priorities and Activities:**

- Secure high-level policy directive regarding Coastal and Marine Spatial Planning
  - Standardized benthic habitat models
  - Maine's Ocean Energy Task Force and Ocean Energy Demonstration Areas are creating a strategy for advancing development of Gulf of Maine renewable ocean energy resources
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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Climate Change Adaptation Task Force report and Legislative resolve to continue climate change planning
- Changes to Natural Resources Protection Act
- Changes to Coastal Sand Dune Regulations, along with Mandatory and Model Shoreland Zoning requirements (concerning setbacks, rebuilding, shoreline structures, etc.)
- Improved Maine's Beaches policy report
- Municipal model ordinances, revised local shoreland zoning maps and related legislation
- State funding for LiDAR
- Simulations of sea level rise impacts on coastal wetlands and the built environment in southern Maine

### **Needs and/or Gaps Identified:**

- Implementation of recommendations/strategies from reports on *Protecting Maine's Beaches for the Future* and *People and Nature Adapting to a Changing Climate*
- Latest information on techniques for engaging the public on climate change issues
- Ensuring local communities can use data relating to coastal bluffs and landslides
- Economic analyses of sea level rise impacts, coastal hazards, and adaptation responses

## STATE OVERVIEWS

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- High-quality LiDAR data for areas beyond southern Maine (and further inland)
- Simulations of sea-level rise and storm event impacts for areas beyond southern Maine
- KML files of coastal hazards for dissemination to the public via Google Earth
- Modeling and inundation analyses for storm surge from extra-tropical storms
- Updating the Coastal Marine Geologic Environment layers
- Redefining the regulatory boundary of the Highest Annual Tide using LiDAR data

### **Current or Planned Priorities and Activities:**

- Assessing and engaging communities on coastal hazards and vulnerabilities to increase local coastal resiliency and to develop appropriate adaptation strategies
  - Expanding adoption of coastal resiliency practices by partner communities
  - Evaluation of shoreline armoring locations and impacts
  - Building resiliency by applying science in the coastal zone
  - Collecting data to support decisions at local, to state, levels and regulatory programs
  - Revising definition of Erosion Hazard Area in Coastal Sand Dune Rules
  - New statutory/regulatory definition for a Future Coastal Wetland (after sea level rise)
  - Updating and expanding coastal sand dune boundaries
  - Technical assistance materials promoting adoption of low-impact development techniques, compact development, and other resource protection strategies
  - Developing and administering a grant program for planning and implementation projects on storm hazard resilience, sustainable communities, other issue areas
  - To update state conservation priorities to address adaptation needs of most vulnerable species, completing a vulnerability assessment for State Wildlife Action Plan Species of Greatest Conservation Need and assessment of habitat connectivity in Maine
- 

## CMP AND NOAA PARTNERSHIPS

**NWS** is supporting pilot inundation mapping project and a predictive model for storm inundation. CMP staff attended **NOAA-sponsored workshops** on increasing resiliency of communities to sea level rise. Maine coordinates with **NOAA CSC** and NROC Coastal Hazards subcommittee on StormSmart Coasts web portal and other coastal hazard efforts. CMP coordinated with **CSC** on acquisition of LiDAR data (2004) and has had various **Coastal Management Fellows**. CMP uses **CZMA Section 309 funding** for climate adaptation efforts at Maine Geological Survey and used **CSC funding** to work with a town on a rural smart growth plan focused conserving forest blocks and habitat connectivity, now a model for other towns.

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## ADDITIONAL CMP INFORMATION

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/me.html>
- For more information on Maine's Coastal Management Program,  
<http://www.maine.gov/spo/coastal/index.htm>

# MARYLAND

Maryland's CMP provides leadership in the management and restoration of Chesapeake, coastal and ocean resources. Maryland's coastal zone boundary extends from the state territorial sea boundary to the inland boundary of the counties (and Baltimore City) bordering the Atlantic Ocean, Chesapeake Bay, and the Potomac River (as far as the municipal limits of Washington, D.C.).

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## OCEAN PLANNING

### **Completed Activities:**

- Ocean Management Report (2006), which looked at current status of issues related to ocean management, resources, and uses, and also presented options for regional governance role
- Mid-Atlantic Regional Council on the Ocean (2009): Mid-Atlantic coastal management programs were instrumental in the development of MARCO and continue to lead MARCO issues
- Maryland's Offshore Renewable Wind Energy Request for Interest Area (2010): Led efforts to evaluate potential offshore wind areas and collect stakeholder feedback to minimize user and resource conflicts

### **Needs and/or Gaps Identified:**

- Development of a CMSP plan that can help guide management decisions
- Increased information available to managers and stakeholders
- Resources that clearly communicate the issues to the public

### **Current or Planned Priorities and Activities:**

- Comprehensive state and regional ocean and coastal planning
  - Maryland DNR continues to compile data and information about habitats, human uses, and resources to identify potential offshore wind energy areas and potential transmission corridors to support compatible uses and reduce use conflicts and environmental impacts
  - Coastal hazards and climate change adaptation planning
- 

## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Established the Maryland Commission on Climate Change (MCCC) through an Executive Order
- Maryland released its Climate Action Plan, detailing the steps necessary for Maryland to adequately cope with its changing climate
- Maryland developed an adaptation toolbox: the *Coastal Atlas*
- Maryland passed Living Shoreline Protection Act, requires non-structural shore protection practices unless proven infeasible
- Maryland's Chesapeake & Coastal Bays Critical Area Amendments that updated jurisdictional boundaries to account for sea level rise and increased vegetative buffers
- Maryland DNR adopted a climate change policy to reduce the Agency's vulnerability to potential climate impacts on facilities, natural resources and investments.
- Maryland CMP established land conservation targets for DNR programs and land trusts that support potential migration of coastal habitats as sea levels rise.
- Maryland CMP partners with local communities to deliver technical and financial assistance to support efforts to adapt to the potential effects of climate change and coastal hazards.

### **Needs and/or Gaps Identified:**

- Hazard preparedness planning at the local level

## STATE OVERVIEWS

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- Statewide sea level rise and climate change adaptation planning and policies
- Training, communication and outreach related to living shorelines
- Complete needs assessments of local governments
- Training, education, and outreach to raise awareness about coastal hazards
- Incorporate risk analysis results into the Coastal Atlas
- Implementation/adoption of the State's Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change
- Funds, education and technical support for counties and towns undertaking both vulnerability assessments and adaptation planning

### ***Current or Planned Priorities and Activities:***

- Develop and support CoastSmart communities
  - Reduce vulnerabilities of state lands, facilities, and infrastructure
- 

## CMP AND NOAA PARTNERSHIPS

Maryland's Chesapeake and Coastal Program has worked closely with NOAA to leverage resources that deliver data and technical expertise to several projects. These include Maryland's CoastSmart Communities initiative, Blue Infrastructure Assessment and Targeting Tools for Coastal Habitat and Climate Change project. Key products used were **NOAA's data support, participatory mapping resources** and **CSC training courses**. These resources have supported the State's work and allowed the Program to provide additional services and tailor projects to a greater extent than would otherwise have been possible. In addition, funding and staff support from NOAA has enhanced Maryland's capacity to provide leadership and support to the Mid-Atlantic Regional Council on the Ocean.

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## ADDITIONAL CMP INFORMATION

- To access the CMP fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/md.html>
- For more information on Maryland's Coastal Management Program, visit:  
<http://www.dnr.state.md.us/ccp/index.asp>

# MINNESOTA

“To preserve, protect, develop, and where possible, restore or enhance coastal resources along Minnesota's North Shore of Lake Superior,” Minnesota Lake Superior Coastal Program “encourages greater cooperation, simplifies governmental processes, and provides tools to implement existing policies, authorities and programs within the Coastal Boundary.” Minnesota’s coastal zone boundary follows the nearest legal coastal township along the shore, or approximately six miles inland.

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## GREAT LAKES PLANNING

### **Completed Activities:**

- To support Great Lakes planning and other efforts, acquired oblique aerial imagery, collaborated with partners to make GIS data publicly available, and provided related technical assistance

### **Needs and/ or Gaps Identified:**

- Better understand how management of Great Lakes resources might look (in state waters and at a regional level)
- Better understand needs related to Great Lakes planning at the state level and at smaller scales
- Maps and information on the status of regional coastal and marine spatial planning efforts, as well as information on how the National Ocean Policy will be implemented in the Great Lakes
- Increased staff capacity
- Port and harbor mapping
- Information concerning wind energy resources
- Research on the effects of washing excess dry cargo residue into Lake Superior
- Regulation of and best management practices for dry cargo residue disposal
- Policies concerning ballast water exchange processes
- Increased capacity at dredge material disposal sites

### **Current or Planned Priorities and Activities:**

- Increasing participation in dialogues related to Great Lakes resources planning
  - Engaging in policy analysis related to Great Lakes management and planning
  - Helping define management schemas presently in place and informing Great Lakes resources planning process to best serve coastal communities in Minnesota
  - Assembling wind resource data in a central repository where it will be publicly available
- 

## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Supported the first erosion forum in the region to highlight and discuss coastal erosion issues
- Provided technical support to local governments, including on GIS and map production (e.g., assisted the Town of Thomson on map production to support its joining the National Flood Insurance Program)

### **Needs and/ or Gaps Identified:**

- Centralized area for GIS data storage and delivery
- Erosion hazard location data and erosion rate data
- Elevation data (especially Light Detection and Ranging or LiDAR datasets)
- Oblique coastal imagery
- Erosion policy
- Erosion outreach and education

## STATE OVERVIEWS

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- Data on climate change
- Communication and outreach with the public about climate change
- Contractor training on erosion hazard minimization
- Limited MLSCP staffing capacity
- Potential MLSCP boundary change to expand the region served

### ***Current or Planned Priorities and Activities:***

- The Program's first climate change-related project involves contributing to a September 2011 "Planning For Climate Change Impacts" workshop for the western Lake Superior coast
- Coordinating with state Natural Resource Department personnel engaged in climate change efforts
- Expanding the coastal management program's role as a central conduit for climate change related information for coastal communities
- Incorporating climate change into Minnesota's Coastal and Estuarine Land Conservation plan
- Evaluating inclusion of additional areas in the official Minnesota coastal program boundary, including through soliciting public input, to develop recommendations related to potential boundary changes so as to serve a broader region

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## CMP AND NOAA PARTNERSHIPS

Most interaction between the CMP and NOAA is through the liaison in OCRM's **Coastal Programs Division**. CMP staff have also participated in **Digital Coast** webcasts. CMP staff expressed interest in receiving more information about how and when they can access other NOAA products and services.

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## ADDITIONAL CMP INFORMATION

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/mn.html>
- For more information on Minnesota's Coastal Management Program, visit:  
<http://www.dnr.state.mn.us/waters/lakesuperior/index.html>

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# MISSISSIPPI

Mississippi established the coastal zone program to carry out the goals of the Coastal Wetlands Protection Act. “The Coastal Wetlands Protection Act establishes the policy of preserving coastal wetlands in their natural state, except where an alteration of a specific coastal wetland serves a higher public interest.” Mississippi’s coastal zone boundary extends from the state territorial sea boundary to its three coastal counties.

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## OCEAN PLANNING

### *Completed Activities:*

- Living Shoreline efforts (ongoing)

### *Needs and/or Gaps Identified:*

- Re-evaluation of current sea turtle stock assessments and biological information in the Gulf of Mexico

### *Current or Planned Priorities and Activities:*

- Working Waterfront development and preservation
- 

## COASTAL CLIMATE ADAPTATION

### *Completed Activities:*

- Coastal Hazard Mitigation project, Phase I, to provide support to communities not currently participating in the Community Rating System (CRS) and supporting participating communities in their efforts to obtain a higher rating, e.g., by creating ‘Step by Step Guide’ to CRS participation

### *Needs and/or Gaps Identified:*

- Creation of a comprehensive inventory of hardened shorelines in the region
- A better understanding of hardened shoreline effects
- Continued partnerships to complete goals from the Federal to the State level, down to the local level and community level
- Funding to initiate projects and programs

### *Current or Planned Priorities and Activities:*

- Revisions to existing permitting policies/procedures
  - Inventory and assessment of existing conditions
  - Development of an Alternative Shoreline Management Planning and Design manual
  - Targeted education/outreach for shoreline property owners
  - Working waterfront development and preservation
  - Complete Phases II and III of Coastal Hazards Mitigation project
- 

## CMP AND NOAA PARTNERSHIPS

NOAA has been especially helpful assisting Mississippi in restoring fisheries resources in the aftermath of Hurricane Katrina. NOAA’s support of Regional Fisheries Management Councils has been instrumental in the decision making process for many difficult marine fisheries issues. Under **CELCP**, there have been discussions with OCRM on how climate variability planning might be adapted into State CELCP plans. Several **workshops**

## STATE OVERVIEWS

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**under CSC, in conjunction with Sea Grant**, have partnered with the Gulf of Mexico Alliance program through the Resilience Priority Team. Examples of tools between the partnerships would be the Homeowner Handbooks for each Gulf State (in production or completed and distributed). The handbook assists and informs the community on hazards pre, during and post disaster. Also, sea level rise modeling using SLAMM was funded under the Gulf of Mexico Alliance through a State/Federal partnership.

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### ADDITIONAL CMP INFORMATION

- To access the CMP fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/ms.html>
- For more information on Mississippi's Coastal Management Program, visit:  
<http://www.dmr.state.ms.us/>

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# NEW HAMPSHIRE

The mission of the Coastal Program is to “balance the preservation of natural resources of the coast with the social and economic needs of this and succeeding generations”. New Hampshire’s coastal zone boundary extends from 3 nautical miles offshore (the state territorial sea boundary) to the inland boundary of the 17 tidal municipalities.

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## OCEAN PLANNING

### **Completed Activities:**

- Tidal energy commission completed a study of the feasibility of tidal power generation and recommended a site for testing hydrokinetic energy technologies
- Participated in the Gulf of Maine Mapping Initiative
- Strong supporter of establishing Northeast Regional Ocean Council (NROC)
- Acquired LiDAR data for 85% the coastal watershed

### **Needs and/or Gaps Identified:**

- Develop a coastal and marine spatial plan
- Acquire LiDAR for the remaining 15% of the coastal watershed

### **Current or Planned Priorities and Activities:**

- State CMP managers provide leadership to and chair NROC on a rotating basis
- Development of coastal and marine spatial plan for New Hampshire waters
- Implementation of policies and identification of program change needs
- Coordination and information transfer
- Identifying regional site for dredged material disposal
- Continuing study of potential for offshore renewable energy
- Post-processing of coastal watershed LiDAR data

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- A Climate Change Policy Task Force developed a Climate Action Plan for the State (2009)
- Developed a robust analysis of coastal risks for inclusion in the revised state-wide Natural Hazard Mitigation Plan (2007)
- Participated in the New Hampshire Coastal Adaptation Workgroup (CAW), including providing technical assistance for three climate and community workshops

### **Needs and/or Gaps Identified:**

- Development of a Coastal Adaptation Plan/Toolbox
- Development of policies or legislation requiring use of the Coastal Adaptation Plan
- Addition of language to State Climate Action Plan related to implementation of Coastal Adaptation Plan
- Make CMPs more aware of the StormSmart Coasts web site as a way to communicate with other CMPs on what they are doing and how they are engaging communities in adaption planning
- Guidance on incorporating coastal climate adaptation into the Coastal and Estuarine Land Conservation plan

### **Current or Planned Priorities and Activities:**

- Memorandum of Understanding between the NH CAW and the coastal program

## STATE OVERVIEWS

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- Coastal Adaptation Plan to include elements addressing issues such as shore protection, sea-level rise, engaging decision-makers in defining responses, and educating policy-makers
  - Identification of state and local policy/program changes
  - Coordination and information transfer
  - Developing and distributing a Planning Advisory Report to member coastal communities to assist in developing local adaptation strategies
  - Motivating and helping coastal communities better prepare for climate change and severe coastal hazards
  - Incorporating climate change into the Coastal and Estuarine Land Conservation Plan
  - Developing vulnerability assessments for towns or on regional basis with the NH CAW
  - Continued technical assistance to CAW
- 

### CMP AND NOAA PARTNERSHIPS

**CSC** and **CMP** staff have helped with the NH CAW, specifically to put on the three climate and community workshops. **CMP** staff also worked with **CSC** staff on the StormSmart Coast website for NH.

**CMP** staff use information from NOAA **Coastal and Marine Spatial Planning** and **Digital Coast** websites, along with **marine cadastre data**, the **Legislative Atlas**, etc.

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### ADDITIONAL CMP INFORMATION

- To access the New Hampshire CMP fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/nh.html>
- For more information on New Hampshire's Coastal Management Program, visit  
<http://des.nh.gov/organization/divisions/water/wmb/coastal/index.htm>

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# NEW JERSEY

“A primary mission of the Program is ensuring that coastal resources and ecosystems are conserved as a vital aspect of local, state and federal efforts to enhance sustainable coastal communities”. New Jersey’s coastal zone boundary extends from the state territorial sea boundary inland to four distinct regions of the State’s coastal, treating each separately. These four boundaries are from the New York border to the Raritan Bay, the Raritan Bay south along the Atlantic shoreline and up to the Delaware Memorial Bridge, the Delaware Memorial Bridge northward up the Delaware River to Trenton, and the fourth boundary is in the northeast corner of the state bordering the Hudson River.

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## OCEAN PLANNING

### **Completed Activities:**

- Mid-Atlantic Regional Council on the Ocean (MARCO) - Mid-Atlantic coastal management programs were instrumental in the development of MARCO and continue to lead MARCO issues

### **Needs and/or Gaps Identified:**

- Develop a state Coastal and Marine Spatial Plan
- Include stakeholders in develop of state Coastal and Marine Spatial Plan
- Acknowledge regional ties to resources in development of Coastal and Marine Spatial Plan
- Map ocean area to conduct risk analysis
- Conduct value assessment for ocean resources

### **Current or Planned Priorities and Activities:**

- A Coastal and Marine Spatial Plan Memorandum of Agreement between New Jersey and federal agencies to participate on the Regional Planning Body.
- A coastal and marine spatial plan / Ocean Special Area Management Plan for areas offshore of New Jersey.
- Revisions to enforceable policies.
- New Jersey Ocean 309 Strategy (ongoing) working with the federal government and stakeholders to advance the recommendations of the Interagency Ocean Policy Task Force, adopted by the 2010 federal executive order on Stewardship of the Ocean, Our Coasts, and the Great Lakes.

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

No information available.

### **Needs and/or Gaps Identified:**

- Cost benefit analysis of present and future development in coastal hazard areas under various climate change/SLR scenarios
- Statewide Adaptation Plan addressing coastal hazards under various climate change and SLR scenarios
- Education on the costs, risks, and hazards associated with living in coastal NJ
- Analysis of potential insurance industry policy changes in high risk areas in NJ's coastal zone

### **Current or Planned Priorities and Activities:**

No information available

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## **CMP AND NOAA PARTNERSHIPS**

No information available

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## **ADDITIONAL CMP INFORMATION**

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/nj.html>
- For more information on New Jersey's Coastal Management Program, visit:  
<http://www.state.nj.us/dep/cmp/>

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# NEW YORK

The New York Coastal Program is involved in a wide variety of programs and initiatives that help revitalize, promote, and protect New York's communities and waterfronts. New York's coastal zone boundary extends from the state territorial sea boundary (3 nautical miles) to the inland boundary approximately 1,000 feet from the shoreline of the mainland, with a number of exceptions and extensions.

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## NYS OCEAN AND GREAT LAKES OFFSHORE PLANNING

### **Completed Activities:**

- Leading the formation of a NYS Offshore Renewable Energy Workgroup and a Habitat Workgroup
- Preliminary mapping and analysis of offshore data (human use, infrastructure, resources, wind)

### **Needs and/or Gaps Identified:**

- Surveys of targeted ocean areas to support habitat protection and wind generation siting
- Compilation of existing information for critical habitats and living marine resources, including their relative health, locations, any existing protection measures, and data needs
- Maps, analyses, species accounts, bio-statistical interpretation and explanation
- Commercial fisheries and coastal economic data and analytical support
- Analysis and interpretation of environmental impacts of offshore wind facilities
- NOAA science community support and review of data compilation, analysis, and application
- Data formatting, data translation, web mapping services
- Travel and logistical support for meetings

### **Current or Planned Priorities and Activities:**

- Performance measures for identifying cumulative and secondary impacts
- Updates to narratives for existing State-designated significant coastal fish and wildlife habitat
- Bio-statistical analyses, data translation, scientific advice and vetting, data review, and organization of spatial data for seabirds, marine mammals, fish, and turtles
- Seabird data, coral and sponge data, offshore use data compilation and public availability
- Amendments to New York's Coastal Management Program related to habitat protection and criteria for siting of wind energy generation and transmission facilities in New York's Atlantic Ocean environments, Long Island Sound, and the Great Lakes Erie and Ontario
- Working with NCCOS on benthic habitat assessments, ocean dynamics data, and predictive model for corals and sponges
- Identification of potentially suitable sites for offshore wind generation
- Consultation with federal, state, local, and tribal partners through BOEMRE Task Force

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## MARCO COORDINATION OCEAN AND GREAT LAKES PLANNING

### **Completed Activities:**

- Formation of and participation in the Mid-Atlantic Regional Council on the Ocean
- December, 2009 Stakeholder Workshop
- Refinement of regional priorities for next two years
- Formation and participation in the state-federal MARCO Habitat Workgroup (other WGs also) and developed initial workplans for groups

### **Needs and/or Gaps Identified:**

- Continued development and enhancements to the MARCO Data Portal

# STATE OVERVIEWS

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- Continued and enhanced federal agency support for data and analysis for the Portal
  - Stakeholder plan and strategic actions support
  - Regional human use mapping
  - Ensuring the MARCO priorities are folded into the NOC RPB priorities
  - A number of opportunities for alignment of NOAA (and other federal agencies) resources to advance shared Mid-Atlantic regional priorities, - enhanced survey work in habitat areas of interest.
  - Expanding support provided to NYS for Ocean and Great Lakes planning to the regional level
- 

## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Formation of the state Interagency Climate Change Adaptation Working Group, and joint discussions of existing programs and authorities that are applicable.
- Draft Coastal Resilience Guidance for community planning to address coastal hazards, including sea level rise.
- Pilot regional assessment and policy development for the south shore estuary.
- Participation on the state Sea Level Rise Task Force, including the report and recommendations.
- Participation on the Governor's Climate Action Council and contributions to the Adaptation section of the report.
- Participation on the project advisory panel for *ClimAID: the Integrated Assessment for Effective Climate Adaptation Strategies in New York State*.

### **Needs and/or Gaps Identified:**

- State policy and policy guidance to foster community resilience, as well as training to communicate and deliver technical guidance
- State inter-agency climate change approach
- Information resources, including revised Coastal Erosion Hazard Area Maps, LIDAR and nearshore bathymetry, sea level rise inundation and storm surge models and risk maps (e.g., depicting resources exposed to hazards and risks), information on Great Lakes level change and impacts, and an inventory of coastal structures
- Improved analysis of coastal storms including nor'easters and Great Lakes events, including probability, geographic distribution of impacts, climate trends
- Pilot application for post-storm planning
- NOAA science community support and review
- Data formatting, data translation, web mapping services, and travel support
- Economic analysis tools that reflect the sustainability of alternative management approaches
- Revision of federal programs subsidizing development in hazardous areas, and replacement with incentive programs that encourage adaptive relocation to more secure areas
- Modification of state environmental review procedures to include assessment of the climate impacts of proposals as well as vulnerability to projected climate change
- Need to transition planning to longer timeframes to encourage climate change resilience in investment decisions

### **Current or Planned Priorities and Activities:**

- Updating existing state-designated significant coastal fish and wildlife habitat narratives
- Guidance for developing Local Waterfront Revitalization Programs
- Modification of LWRP planning to include climate change considerations
- Enhanced and regionally focused Local Waterfront Revitalization Programs
- Performance measures/indicators for identifying cumulative and secondary impacts

## STATE OVERVIEWS

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- Long Island South Shore Estuary Amendment to CMP for water quality improvement, habitat restoration and climate change adaptation, to include pilot work on climate change
  - Guidance on coastal resilience planning
  - Provision of climate change related technical assistance to local governments
- 

### NATIONAL OCEAN COUNCIL AND CMSP

#### **Completed Activities:**

- NY – GCC membership representing MARCO
- Participation in NOC CMSP workshop in Washington, June, 2011
- Briefings to NOC on MARCO priorities and needed assistance
- Regional priorities identified
- Preferred RPB structure developed
- Contributed to MARCO comments on NOC and CMSP framework documents

#### **Needs and/or Gaps Identified:**

- A number of opportunities for alignment of NOAA (and other federal agencies) resources to advance shared NOC/Mid-Atlantic regional priorities.
  - Guidance on coastal resilience planning
  - MARCO priorities advanced by the RPB/NOC
  - Outreach to regional stakeholders, develop mechanism for meaningful participation
  - Staff-time, travel and logistical support for RPB functions
- 

### CMP AND NOAA PARTNERSHIPS

New York's experience has included co-developing an offshore use workshop module for New York's offshore planning work with NOAA **Coastal Services Center**. New York has also worked with **Coastal Services Center** on seagrass mapping of New York's South Shore Estuary. NOAA **National Center for Coastal and ocean Sciences** is working on a Seabird and Deep Sea Coral Study that includes analysis and predictive models for seabirds, and comprehensive maps of known coral and sea pen locations. NY has a new NOAA **Coastal Services Center** Coastal Fellow to assist with offshore planning and analysis.

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### ADDITIONAL CMP INFORMATION

State Ocean Management Website within the Coastal Zone Management: (State Profiling Database)

- To access the New York state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/ny.html>
- For more information on New York's Coastal Management Program, visit  
<http://www.nyswaterfronts.com/aboutus.asp>

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# NORTH CAROLINA

North Carolina established the coastal zone program to “balance environmental protection with economic development.” North Carolina’s coastal zone boundary extends from the state territorial sea boundary inland to 20 coastal counties that in whole or in part are adjacent to, adjoining, intersected by or bounded by the Atlantic Ocean or any coastal sounds.

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## OCEAN PLANNING

### **Completed Activities:**

- Directed and funded report: “Development of a Management Strategy for North Carolina’s Coastal Ocean” which identifies five emerging issues for ocean and coastal resources (2009)
- Actively participating in the Governors’ South Atlantic Alliance (2009) in both leadership and priority area technical team roles (Working Waterfronts and Disaster-Resilient Communities)
- Worked with multiple state agency partners to update and implement the Coastal Habitat Protection Plan (2010) which is a potential vehicle for ocean planning
- Data/product generation to inform planning: Beach and Inlet Management Plan, Areas of Environmental Concern, Inlet Hazard Areas, Oceanfront Setbacks, National Estuarine Research Reserve spatial data
- Updated development rules to facilitate the siting of utility scale wind facilities in state waters
- Updated state Coastal Energy Policies to address ocean-based energy generation

### **Needs and/ or Gaps Identified:**

- Identify and fill data gaps
- Increase data sharing between state and federal agencies
- Facilitate coordination among stakeholders
- Provide stakeholder access to data through storage and server services (e.g., web portal)

### **Current or Planned Priorities and Activities:**

- Develop a Memorandum of Agreement between state and federal agencies involved in coastal resource management in N.C. to facilitate coastal and marine spatial planning (CMSP)
- Develop a CMSP Recommendations Report that outlines a strategy for developing a coastal and marine spatial plan including authority and oversight, partnerships, data, and areas of concern for priority issues
- Consider changes to ocean resource regulations to address CMSP recommendations
- Continue updates to state Coastal Energy Policies (ongoing)
- Engage in state and regional activities that foster CMSP needs (ongoing)
- Develop state Coastal and Marine Spatial Plan
- Conduct education, training, and stakeholder engagement through the National Estuarine Research Reserve

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Actively participating in the Governors’ South Atlantic Alliance (2009) in both leadership and priority area technical team roles (Working Waterfronts and Disaster-Resilient Communities)
- Completed the N.C. Division of Coastal Management Sea Level Rise Scoping Survey (2010)
- Hosted the N.C. Sea Level Rise Science Forum (2010)
- Published the N.C. Coastal Resources Commission’s Science Panel N.C. Sea Level Rise Assessment Report (2010)

# STATE OVERVIEWS

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- Worked with multiple state agency partners to update and implement the Coastal Habitat Protection Plan (2010)
- Published the Beach and Inlet Management Plan (2011)
- Developed web resources on the science of sea level rise and current activities

## ***Needs and/or Gaps Identified:***

- Digitize and rectify of historical aerial photos along oceanfront and estuarine shorelines
- Continue acquisition of digital orthophotography along oceanfront and estuarine shorelines and elevation datasets
- Develop methodology for calculating shoreline change rates along inlet areas
- Install additional water level stations (*e.g.*, tide gauges) and salinity gauges in sounds, creeks/ivers, and wetlands to ensure complete coastal coverage
- Install sentinel site monitoring infrastructure at northern and sound Coastal and National Estuarine Research Reserve sites to ensure complete coastal coverage
- Continue study and dissemination of data amongst stakeholders regarding the following:
  - sea level rise and vulnerability of and adaptation planning for coastal communities and ecosystems
  - offshore/onshore energy development potential (wind, hydrocarbon, other) and the impacts associated with those alternative energy sources
  - financial and sand resources related to beach and inlet management
  - the state's first digital estuarine shoreline
- Review appropriate coastal management rules and/or policies associated with the estuarine shoreline

## ***Current or Planned Priorities and Activities:***

- Develop/revise N.C. Coastal Resources Commission's rules to facilitate regional-based beach and inlet management
- Develop policies/programs addressing long-term sustainable project funding
- Develop objective criteria for prioritization of beach and inlet management projects
- Finalize the Inlet Hazard Areas (IHA) and development-related policy language within IHAs
- Finalize the sea level rise policy
- Incorporate sea level rise as a coastal hazard in Land Use Planning Guidelines
- Complete digitization of estuarine shoreline, shoreline type, and structures inventory
- Revise N.C. Coastal Resources Commission's rules to facilitate alternatives to vertical stabilization methods along estuarine shorelines
- Conduct education and training through the National Estuarine Research Reserve
- Expand capacity of Coastal Reserve and National Estuarine Research Reserve serving as sentinel sites for climate change
- Update the Sea Level Rise Assessment Report
- Incorporate climate vulnerability and adaptation into N.C. CELCP update

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## **CMP AND NOAA PARTNERSHIPS**

- OCRM (NERRS CICEET) and NCCOS, Center for Coastal Fisheries and Habitat Research: Investigate ecosystem services associated with several shoreline habitats and stabilization methods in three regions of the N.C. coast
  - CO-OPS: Explore possibility of additional tide gauges within the state and how existing gauges may help address needs
  - OCRM: Completed CZMA Section 309, 5 year strategy for 2011-2016
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# STATE OVERVIEWS

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- NCCOS, Ecological Effects of Sea Level Rise Program: Participated in N.C. project
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## ADDITIONAL CMP INFORMATION

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/nc.html>
- For more information on North Carolina's Coastal Management Program, visit:  
<http://dcm2.ehnr.state.nc.us/>

# COMMONWEALTH OF THE NORTHERN MARIANAS ISLANDS

Northern Mariana's Coastal Program "manages coastal development and protects and restores coral reefs, wetlands, mangroves, lagoons, and other critical coastal resources". Northern Marianas's coastal zone boundary extends from the territorial sea boundary inland to encompass the entire commonwealth.

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## OCEAN PLANNING

### **Completed Activities:**

- The Micronesia Challenge (2006) Partnership between Guam and the Commonwealth of the Northern Mariana Islands to provide funding to support coastal and coral program coordination.

### **Needs and/or Gaps Identified:**

- Develop state Coastal and Marine Spatial Plan
- Increase communication about invasive species
- Increase coordination among governments concerning resources
- Increase understanding of invasive species threats

### **Current or Planned Priorities and Activities:**

- Preliminary exploration of sea level rise (and associated climate change impacts) as a coastal threat in the Commonwealth of the Northern Mariana Islands
- 

## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

No information available

### **Needs and/or Gaps Identified:**

- Sea level rise projection data and incorporation of this data into SSMP
- Revision of coastal hazard area of particular concern maps
- Rectifying discrepancies between Saipan Zoning Law of 2008 and CRM Regulations

**Current or Planned Priorities and Activities:** (Question: What are the top priorities that you are working on, or hope to, in the areas of ocean management and planning?)

- CNMI specific sea level rise models and sea level projections
  - Document detailing major anticipated effects of climate change in CNMI
  - CNMI is starting to think about potential climate impacts, but it is only in the data gathering stage.
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## CMP AND NOAA PARTNERSHIPS

No information available

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## ADDITIONAL CMP INFORMATION

## STATE OVERVIEWS

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- To access the Commonwealth fact sheet, visit:  
[http://coastalmanagement.noaa.gov/mystate/n\\_mariana\\_islands.html](http://coastalmanagement.noaa.gov/mystate/n_mariana_islands.html)
- For more information on Northern Marianas's Coastal Management Program, visit:  
<http://www.crm.gov.mp/>

## OHIO

Ohio's Coastal Program is "designed to integrate management of Ohio's Lake Erie coast in order to preserve, protect, develop, restore, and enhance Ohio's valuable and sometimes vulnerable coastal resources" (State fact sheet). "The program sets forth policies and guidelines in nine issue areas to monitor activities that affect coastal resources and ensure resource protection while balancing economic, cultural and environmental interests". Ohio's coastal zone boundary extends from the state territorial sea boundary inland. It includes the islands and Marblehead Peninsula in their entirety. The coastal zone extends upstream approximately 16 miles from the mouth of the Maumee River into Lucas and Wood counties. It extends approximately 14 miles up the Sandusky River into the city of Fremont. From the mouth of the Maumee River east into Ottawa and Sandusky Counties, the inland boundary ranges from almost 1 mile to several miles. From the mouth of the Huron River in the port city of Huron, it follows several miles of the Huron River and includes adjacent wetlands, floodplain areas and adjacent shorelands.

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### GREAT LAKES PLANNING

#### **Completed Activities:**

- Developed Ohio Coastal Atlas to provide information about Lake Erie (2005, updated 2007)
- Wind Turbine Placement Favorability Analysis maps (2009)
- The Ohio Office of Coastal Management (OCM) responded to the wind proposal by delivering spatial information to decision makers quickly and clearly, seeking to ensure that the proposal was thoughtfully vetted with the public.

#### **Needs and/or Gaps Identified:**

- Increase coordination of the management of dredged materials
- Gather information on the effects of wind energy facility siting

#### **Current or Planned Priorities and Activities:**

- Wind Energy Policy Implementation
- Policy documents reflecting a regional coordination and identification of common siting criteria for offshore wind energy.
- Lake Erie Shore Erosion Management Plan development and implementation
- Agreement with the Corps of Engineers for efforts to bypass sand at federal harbors
- Revised Ohio Administrative Code rules for coastal authorizations
- Agreement with an outside entity to study Ohio's sand resources and related impacts from erosion control structures
- Collaborating in the development of draft rule for the placement of Lake Erie wind-powered generation facilities (ongoing)

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### COASTAL CLIMATE ADAPTATION

#### **Completed Activities:**

- A 90% draft of the Coastal Design Manual first edition (focuses on the design process including a summary of required existing site condition information, basic coastal engineering and surveying methods and design examples for revetments and seawalls) has been completed
- Ashtabula County was selected as Region 1 for the Lake Erie Shoreline Erosion Management Plan and the process of data gathering and analysis has been completed

#### **Needs and/or Gaps Identified:**

## STATE OVERVIEWS

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- Continued development of Lake Erie Shoreline Erosion Management Plan (LESEMP) reaches
- Adequate sand resource and federal erosion control structure impact information
- Continued coordination with Corps of Engineers on sand management issues

### ***Current or Planned Priorities and Activities:***

- Lake Erie Shoreline Erosion Management Plan development and implementation
  - Agreement with an outside entity to study Ohio's resources and related impacts from erosion control structures
  - Agreement with Corps of Engineers for efforts to bypass sand at federal harbors
  - Revised Ohio Administrative Code rules for coastal authorizations
  - Waterfront planning
  - Prepare policy guide report concerning climate change and potential affects in the coastal zone.
  - The OCM will continue development of a plan for local communities and individual property owners to use in addressing Lake Erie based erosion and flooding concerns in conjunction with the restoration of some of the shore and nearshore habitats and resources along the Lake Erie coast.
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### **CMP AND NOAA PARTNERSHIPS**

No information available

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### **ADDITIONAL CMP INFORMATION**

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/oh.html>
- For more information on Ohio's Coastal Management Program, visit:  
<http://www.ohiodnr.com/Default.aspx?alias=www.ohiodnr.com/coastal>

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# OREGON

“The Mission of the Oregon Coastal Management Program is to work in partnership with coastal local governments, state and federal agencies, and other stakeholders to ensure that Oregon’s coastal and ocean resources are managed, conserved, and developed consistent with statewide planning goals”. Oregon’s coastal zone boundary extends from the state territorial sea boundary inland to the crest of the coastal range, except along the Umpqua River, Rogue River, and Columbia River Basins, where it extends further inland.

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## OCEAN PLANNING

### **Completed Activities:**

- Supported Ocean Fisheries Mapping and Valuation Study (2010)
- Marine Reserve Designation area study (2010)
- “Seafloor mapping” for entire coast (2010)
- Established Nearshore Marine Research Task Force (2010)
- Established Oregon BOEM Task Force for marine renewable energy development
- West Coast Governors’ Agreement on Ocean Health (2006) - Staff from the coastal management programs of Washington, Oregon, and California all provide leadership on the Agreement as well as on the issue-based action teams

### **Needs and/or Gaps Identified:**

- Create spatial plan to identify areas for consideration as marine reserves
- Create spatial plan to identify areas suitable for offshore renewable energy development
- Increase data collection and mapping of nearshore resources and use patterns
- Detailed updated inventory of distribution and composition of estuarine habitats
- Economic valuation methodologies for nearshore fisheries and recreational uses
- Tools for visualizing the impact of marine renewable energy facilities on aesthetic resources

### **Current or Planned Priorities and Activities:**

- Completing Territorial Sea Plan amendment to incorporate maps that spatially delineate areas and plan for ocean alternative energy in state ocean (in progress)
- Developing a strategic plan for ocean alternative energy on the OCS off Oregon through the state BOEM task force (in progress)
- Implementing a system of marine reserves along the Oregon coast, including conducting baseline monitoring and research to implement marine reserve system (in progress)
- Developing spatial management decision-support tool using Marine Map for different uses (in progress)
- Developing data management network with state, federal, academic, and NGO partners, and continue to update Oregon Coastal Atlas (in progress)
- Formalize and support stakeholder and local advisory group involvement in CMSP process

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Provided basic information on climate change and the likely effects of climate change on coastal communities to coastal community planners. (2008-2009)
- Produced “Climate Ready Communities: A Strategy for Adapting to the Impacts of Climate Change on the Oregon Coast.” (2009)

## STATE OVERVIEWS

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- Assisted in the development of Oregon's state-level Climate Change Adaptation Framework, which identifies risks associated with future climate conditions that will affect communities, infrastructure, and natural resources. The Framework includes risks specific to the coastal zone. (2010) The Oregon Climate Change Adaptation Framework is available online at:  
[http://www.oregon.gov/ENERGY/GBLWRM/docs/Framework\\_Final\\_DLCD.pdf](http://www.oregon.gov/ENERGY/GBLWRM/docs/Framework_Final_DLCD.pdf)
- Completed an inventory of dikes and levees surrounding Oregon's estuaries. (2011)
- Created maps for four coastal counties that identify properties eligible for beachfront protective structures under the state's policy limiting such structures to development approved prior to 1977 (2006-2010). Currently being expanded to include the remaining three coastal counties.
- Continuing implementation of *Ocean Shore Management Plan* with the Oregon Department of Geology and Mineral Industries to monitor beach erosion and accretion processes coast-wide (2006-2010).
- Partnering with California and Washington in a National Research Council study of sea level rise along the west coast of the continental U.S. (publication scheduled for late 2011)

### **Priority Needs and/or Gaps Identified:**

- Information on the likely behavior of drowned river mouth estuaries, estuarine shorelines, and estuarine sand spits in response to long-term changes in climate conditions
- Information on the effects of changes in ocean temperatures and chemistry on estuarine and nearshore marine habitats and resources, including commercial and recreational fisheries
- Revised estimates of the magnitude and frequency of future floods
- An inventory and map of coastal shorelands that are at risk of erosion or inundation, or are barriers to shoreline migration
- Access to accurate and reliable downscaled information about the effects of climate change on coastal communities, infrastructure, and natural systems
- Long-term state and local adaptation strategies for coastal shorelands
- Coastal erosion risk probability mapping

### **Current or Planned Priorities and Activities:**

- Downscaled modeling of likely future climate conditions at state and (sub-state) regional scales
- Regional-scale risk assessments
- Natural resource vulnerability assessment for the Coquille estuary and associated lowland systems
- Local adaptation planning
- Updated inventories of chronic coastal hazards, including velocity-zone flooding

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## CMP AND NOAA PARTNERSHIPS

- Oregon frequently uses services from the NOAA **Coastal Services Center**, principally, technical or GIS training and data products but also cooperative agreements or contracts to help support what Oregon is doing that aligns with NOAA's mission. This relationship was described by Oregon as responsive and flexible. Oregon has described the alignment with the NOAA **Coastal Services Center Fellowship** as having enormous benefit as the six fellows, soon to be seven, have helped to build long-lasting program capacity and data products, particularly around estuarine and ocean program functions. Oregon has also been working with staff at NOAA's **East-West Center in Honolulu** to create an initiative to bring NOAA's climate data to bear on local climate adaptation planning needs on the Oregon coast. Oregon recently established a partnership with NOAA's **NCCOS Biogeography Branch** to complete ecological assessments to support ocean alternative energy planning.
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## ADDITIONAL CMP INFORMATION

- To access the State fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/or.html>
- For more information on Oregon's Coastal Management Program, visit:  
[http://egov.oregon.gov/LCD/OCMP/about\\_us.shtml](http://egov.oregon.gov/LCD/OCMP/about_us.shtml)

# PENNSYLVANIA

The mission of Pennsylvania's Coastal Zone Program is to "protect and enhance fragile natural resources by reducing conflicts between competing land and water uses while representing a comprehensive approach to managing the impacts of development and other activities on coastal areas". Pennsylvania's coastal zone boundary extends from the state territorial sea boundary inland. Along Lake Erie, the inland boundary varies from 900 feet in urban areas to over 3 miles in more rural areas. In the Delaware River Estuary, the boundary extends inland from 660 feet, in urbanized areas to 3.5 miles in rural areas.

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## OCEAN PLANNING

### **Completed Activities:**

No information available

### **Needs and/or Gaps Identified:** (What tools or services do you most need to accomplish these priorities?)

- Increase mapping of coastal resources
- Gather more information about the effects of climate change on the coastline
- Gather information and monitoring data for the coastal watershed
- Increase governmental coordination
- Increase capacity to evaluate Automatic Identification System
- Greater ability to control invasive species

### **Current or Planned Priorities and Activities:** (What are the top 3 priorities you are working on, or hope to, in the areas of ocean management and planning?)

- Revisions and updates to the Pennsylvania Automatic Identification System Management Plan
  - A baseline of existing Geographic Information System layers and identification of specific needs
  - Memorandum of Understandings between state agencies and possibly non-governmental partners
  - Proposing CMSP project in Lake Erie coastal zone
  - Evaluating feasibility of CSMP project in Delaware Estuary coastal zone
- 

## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- The Department's Bluff Regulations were updated in 2009

### **Needs and/or Gaps Identified:** (What tools or services do you most need to accomplish these priorities?)

- Vegetation management
- Catastrophic loss prevention insurance

### **Current or Planned Priorities and Activities:** (What are the top 3 priorities you are working on, or hope to, in the areas of climate adaptation?)

- The CRM program is finalizing a set of criteria and standards for the placement of shoreline stabilization structures along the Lake Erie shoreline.
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## CMP AND NOAA PARTNERSHIPS

No information available

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## ADDITIONAL CMP INFORMATION

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/pa.html>
- For more information on Pennsylvania's Coastal Management Program, visit:  
<http://www.dep.state.pa.us/river/czmp.htm>

# RHODE ISLAND

The Rhode Island Coastal Management Program is a comprehensive program for managing coastal resources, primarily at the state level. The Program includes planning, policy, permitting, enforcement, and coordination responsibilities. Rhode Island's coastal zone encompasses the entire state, although the inland extent of the Coastal Program's regulatory authority is generally 200 feet inland from any coastal feature.

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## OCEAN PLANNING

### **Completed Activities:**

- RI Aquatic Invasive Species (AIS) Management Plan approved by the Federal Aquatic Nuisance Species Task Force in November 2007. Have conducted over 2 yrs of AIS monitoring using established rapid assessment survey protocols.
- Ocean Special Area Management Plan, comprehensive plan to manage RI's offshore waters, was completed and adopted by CRMC October 2010 and incorporated into RI's federally approved coastal management program May 2011. Ocean SAMP developed significant public education and outreach.
- URI conducted many research projects to support the development of the Ocean SAMP including assessing marine transportation, critical habitats for fish, marine animals and birds, geology and meteorology within the SAMP boundary.

### **Needs and/or Gaps Identified:**

- Need NOAA backing on Smart From the Start
- Need a consistent Habitat Classification System. While other states have their own systems it seems that a more coordinated effort is needed to have consistent classification in place. The OSAMP uses the federal system but other regional systems in NE are also being used and it is difficult for comparison/understanding. There is no agreement among NE states; a Forum for such may be a track worth taking
- Continued monitoring and research with the Ocean SAMP boundary; update to datasets and maps
- [Are there particular areas that are greater priority than others?] – Fish Habitat in general
- Updates to relevant sections of the Ocean SAMP
- Public outreach and communication for the final adopted Ocean SAMP.

### **Current or Planned Priorities and Activities:**

- Implementation of Ocean SAMP
  - Continued participates in Northeast Regional Ocean Council (NROC).
- 

## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- USACE led regional sediment management study has developed shoreline change maps to show shoreline erosion and accretion rates for the RI coast which were incorporated into RICRMP.
- Added Section 145 Climate Change and Sea Level Rise to the RI Coastal Resources Management Program which summarizes most recent climate change and sea level rise science and establishes 3-5ft of relative sea level rise as a baseline prediction for future sea level rise in the state for planning purposes.
- Added Coastal Hazards Chapter to Metro Bay SAMP which includes vulnerability assessment and inventory for the 4 Metro Bay municipalities (Providence, East Providence, Pawtucket and Cranston).
- Revised RICRMP Section 210.2 (Barrier Island and Spits) to prohibit construction, expansion or public infrastructure and shoreline protection structures on barriers and add info on climate change and SLR.

## STATE OVERVIEWS

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- Produced various factsheets and workshops to provide education/outreach on coastal hazards, climate change, sea level rise.

### ***Needs and/or Gaps Identified:***

- Need tide-coordinated NOAA LiDAR Coastal Surveys (mid-tide to low-tide)(shoreline; topo)
- Need funding for aerial overflights (once every five years and after storm events)
- Mapping sea level rise inundation zones.
- Develop sea level rise regulations under Section 145 of RICRMP.
- Update shoreline change maps.
- Address structures on eroding shorelines.

### ***Current or Planned Priorities and Activities:***

- Using high-resolution elevation data collected through the USGS Regional LiDAR project, conduct detailed risk assessments for coastal hazards/sea level rise.
  - Continue to collaborate with State Building Commissioner to adopt freeboard calculations to accommodate sea level rise. Current RI State Building Code requires 1 ft freeboard and that structures built in A zone subject to wave heights 1/5 ft or more must be build to V zone standards.
  - Promote living shorelines and other alternative shoreline stabilization techniques in RI.
  - Work with Corps on RI South Shore Regional Sediment Management Study.
  - Continue to update RICRMP and SAMPs as well as Coastal and Estuarine Land Conservation Plan to incorporate sea level rise/climate change data.
  - Participates in NROC Hazards Mitigation subcommittee.
  - Working with URI Coastal Resources Center to develop Storm Smart Coasts website
- 

## CMP AND NOAA PARTNERSHIPS

The RI CMP has worked closely with **RI SeaGrant** to develop the Ocean SAMP and will continue to do so to implement. **Sea Grant** is also funding a project with the RI CMP, URI's Environmental Data Center, URI Coastal Resources Center, TNC, and Statewide Planning Office to use existing elevation dataset to produce several tools, such as maps of inundation zones), that will help communities conduct hazard vulnerability assessments and work with a pilot community to produce community based inventories and vulnerability analyses. The RI CMP works with **NOAA's CSC** on NROC and regional CMSP efforts. **NOAA Data Buoy Center** provided data for Ocean SAMP and regional sediment management project.

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## ADDITIONAL CMP INFORMATION

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/ri.html>
- For more information on Rhode Island's Coastal Management Program, visit: <http://www.crmc.ri.gov/>

# PUERTO RICO

The Puerto Rico Coastal Management Program (PRCZMP) is a partnership led by the Puerto Rico Department of Natural and Environmental Resources (DNER) to promote the protection, conservation, and sustainable development of Puerto Rico's coastal zone and natural resources. The PRCZMP is the coastal element of the Puerto Rico Island-wide land use plan.

Puerto Rico's coastal zone boundary extends from the territorial sea boundary (9 nautical miles) to about 1 kilometer inland; however, it extends further inland in certain areas to include important coastal resources.

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## OCEAN PLANNING

### **Completed Activities:**

- "Guidelines for Marine Spatial Planning for Submerged Lands in Puerto Rico" (2008) completed by work done on benthic habitats
- Coastal Management program is directing CZMA FY 10 funding to explore the framework for regional coastal and marine spatial planning for future cooperation on CMSP
- Coastal and Marine Spatial Planning symposium (2011)

### **Needs and/or Gaps Identified:**

- Instruct personnel on the effects of coral damage associated to ocean acidification and climate change adaptation
- Gather information about viable offshore energy locations
- Update information concerning coral reefs, coastal wetlands and wildlife, and gather information about meso-photic and deep water coral reefs.
- Monitor level of biodiversity and size of habitats. In 2011 PRCMP initiated a coastal ecosystems, habitats and geomorphic features inventory that will need to be routinely monitored to assess potential impacts of sea level rise.
- Policy and regulations: new setback requirements and building code amendments.
- Increase arrangements to allow for greater government cooperation

### **Current or Planned Priorities and Activities:**

- Governments of Puerto Rico and the U.S. Virgin Islands have agreed to establish the U.S. Caribbean Regional Ocean Partnership. This initiative was supported by the Caribbean Fisheries Management Council, the Caribbean Ocean
- Coastal and Marine Spatial Planning (CMSP) initiatives: based on updated coastal ecosystems, habitats and geomorphic features: assess vulnerability to current and future coastal hazards, and identify stakeholders, use conflicts as basis for CMSP.
- Hosting annual marine spatial planning conferences (fall 2010 and summer 2011)

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Completed the evaluation of coastal features functions as non-structural forms of coastal hazards mitigation.
- Supported the collection of aerial photography and LIDAR imagery used to model a 1 meter sea level rise scenario.
- Identified critical infrastructure of the metropolitan area vulnerable to a 1 meter sea level rise.
- Evaluated coastal areas that would be potentially affected by sea level rise.

## STATE OVERVIEWS

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- PRCMP and the UPR-CariCOOS modelers identified a problem of accuracy associated to the lack of enhanced elevation data for Puerto Rico. NOAA's National Geodetic Survey is completing the PRVD 2002 which would address current inaccuracies.
- Governor of Puerto Rico created the Puerto Rico Advisory Committee via Executive Order.2008-09.
- November 2010: Creation of the Puerto Rico Climate Change Council.

### ***Needs and/ or Gaps Identified:***

- Beach/dune/geomorphic feature protection
- Promotion of alternative shoreline stabilization methods
- Real estate sales disclosure requirements
- Local post-disaster redevelopment plans
- Climate change planning and adaptation
- Vulnerability assessments for climate variability and change
- Institutional arrangement to support inter-agency collaboration/coordination
- Comprehensive data/mapping for coastal hazards and geomorphic features
- Island-wide adaptation strategy
- Design standards for natural and man-made features
- Climate change awareness, understanding and interest

### ***Current or Planned Priorities and Activities:***

- Analysis and prioritization of potential hazard mitigation and climate adaptation strategies
- GIS – based coastal hazards library and database
- PRCMP leads the development of the climate change vulnerability assessment and adaptation strategies process.
- Guidance for new design standards for man-made features subject to flooding
- New draft legislation for certain hazard mitigation strategies
- Multi-media education and outreach materials
- Developing a vulnerability assessment and adaptation plan for the coastal zone, focused on sea level rise and coming from the Commonwealth level.

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## STATE AND NOAA/AGENCY PARTNERSHIPS

**NOAA-NGS** is soon to complete the Puerto Rico Vertical Datum (PRVD02) which will enable modelers to increase accuracy on their sea level rise, storm surge, and tsunami inundation projections. **NOAA-Biogeography Program**, PRCMP and other federal agencies and universities have partnered in the development of benthic maps, mesophotic reefs studies, and MPA design and planning. **NOAA-National Weather Service** and PRCMP have partnered in data exchange and raising community awareness about climate variability and change.

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## ADDITIONAL STATE INFORMATION

- To access the Territory fact sheet, visit:  
[http://coastalmanagement.noaa.gov/mystate/p\\_rico.html](http://coastalmanagement.noaa.gov/mystate/p_rico.html)
- For more information on Puerto Rico's Coastal Management Program, visit:  
<http://www.drna.gobierno.pr/oficinas/arn/recursosvivos/costasreservasrefugios/pmzc/descripcion>

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# SOUTH CAROLINA

The South Carolina Coastal Management Program (SCCMP) program is administered by the S.C. Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (DHEC-OCRM). DHEC-OCRM has direct permitting authority over the coast's critical areas, defined as the state's territorial sea, beaches and dunes, and the coastal marsh. Through its authority to review and approve federal and state permits in the eight coastal counties, DHEC-OCRM manages the state's coastal resources in partnership with other state and federal agencies. South Carolina's coastal zone boundary extends from the state territorial sea boundary inland to all lands and waters in the counties of the State which contain any one or more of the critical areas (coastal waters, tidelands, beaches, and primary oceanfront sand dunes).

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## OCEAN PLANNING

### **Completed Activities:**

- Hosted a series of public workshops on ocean planning issues, including ocean mapping, monitoring, living marine resources, energy, sand resources, and aquaculture.
- Formation of the Governors' South Atlantic Alliance (2009) - South Carolina CMP director currently chairs the Executive Planning Team

### **Needs and/or Gaps Identified:**

- High resolution seafloor data, including bathymetry and habitat characterization
- Ocean use mapping
- Strong technical assistance for state managers, e.g., in selecting and using the appropriate databases, web-based portals, and geographic information systems for integration/dissemination and stakeholder engagement processes
- Evaluation of the current state-level capacities for ocean planning in the U.S., identification of gaps and needs, and better coordination with NOAA state partner programs (CZM, NERRs, and Sea Grants) to achieve strong ocean plans

### **Current or Planned Priorities and Activities:**

- South Carolina Ocean Planning Initiative (2007-present)
- Developing a comprehensive S.C. Ocean Report covering a wide range of ocean issues and priorities (anticipated Fall 2011)
- Building a foundation for a potential S.C. Ocean Special Area Management Plan through key partnerships and outreach efforts
- Plan to develop an Ocean Planning Memorandum of Agreement between state and federal partners in South Carolina to guide the development of the (potential) Ocean SAMP Plan to develop a Guidance Document for SC partners with detailed implementation steps for the development of a (potential) Ocean SAMP.
- Evaluating an ocean leasing framework for state waters

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Facilitated the work of an external technical Shoreline Change Advisory Committee
- Developed a State of Knowledge report on shoreline changes in South Carolina, past and future, to supplement the Shoreline Change Initiative
- Identified four broad goals for improved shoreline management in South Carolina

# STATE OVERVIEWS

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- Conducted six regional Community Leaders Discussion Forums to both inform community leaders of the Committee's work and solicit input for the development of policy options and recommendations

## ***Needs and/or Gaps Identified:***

- Improved and more frequent data collection for shorelines (aerial imagery, LIDAR, and beach profile surveys)
- Hands-on or direct assistance with sea level rise modeling
- NOAA CO-OPS uses a simple linear regression analysis of tide gauge data for relative sea level trends and uncertainties associated with this statistical approach need to be addressed given the growing number of publications that are questioning this method
- Where possible, local and subregional (within state) sea level rise analyses should be conducted in partnership with state programs to ensure that all relevant data and information from universities and state agencies are considered

## ***Current or Planned Priorities and Activities:***

- Facilitating the work a DHEC Board-appointed Blue Ribbon Committee on Shoreline Management to develop specific regulatory and policy recommendations to enhance coastal management
- Updating State Beach Management Plan
- Working to incorporate coastal hazards information and coastal vulnerability assessments, including sea level rise, into the South Carolina Hazard Mitigation Plan
- Developing broad sea level rise planning guidance for coastal communities through a SARP grant from the NOAA Climate Program Office
- Working to improve coastal communities' Community Rating System scores through assistance from FEMA and ongoing coastal planning activities

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## **CMP AND NOAA PARTNERSHIPS**

CMP reports positive experiences interacting with **NOAA OCRM** and **CSC** on climate information and products. For example, relevant coastal data, case studies, training, etc. are now readily available to assist managers in planning for coastal inundation, flooding, and sea level rise through the **Digital Coast** website. More in-depth technical assistance is available on an *ad hoc* basis, with some states receiving a high degree of technical support and unique product development from federal partners. CMP has also begun an initial coastal adaptation planning effort, with our state university partners, through a one-year **SARP grant** from the NOAA **Climate Program Office**.

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## **ADDITIONAL CMP INFORMATION**

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/sc.html>
- For more information on South Carolina's Coastal Management Program, visit:  
<http://www.scdhec.gov/environment/ocrm>

## TEXAS

“The Texas Coastal Management Program (CMP) seeks to ensure the long-term ecological and economic productivity of the Texas coast through management of the state's coastal natural resource areas.” Texas’s coastal zone boundary is comprised of 367 miles of Gulf shoreline and more than 3,300 miles of bays, estuaries and other submerged lands to a distance of 10.3 miles out into the Gulf of Mexico.

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### OCEAN PLANNING

#### **Completed Activities:**

- CZMA Section 309 Final Assessment and Strategy for 2011-2015 which incorporates coastal and marine spatial planning for Texas was approved.

#### **Needs and/or Gaps:**

- Wetlands inventory and permit monitoring for wetland mitigation tracking and enforcement
- Fresh water inflow standards – data on indicators of biological response to inflow
- Tide gauges to monitor inflow
- Public education on water resource conservation
- Develop/ implement habitat management plans for wetland enhancement & restoration
- Ocean monitoring data
- High resolution LIDAR
- Bathymetric data
- Data on invasive species which pose threats to indigenous marine species, habitats, food webs and fisheries
- Environmental and socioeconomic data to assist in planning for coastal and offshore renewable energy development
- Data on the loss of public access and public facilities due to natural disasters
- Assist local governments in unincorporated portions of coastal counties to improve planning and growth management

#### **Current or Planned Priorities and Activities:**

- Creation of a Coastal and Marine Spatial Planning program that provides a framework for the Texas coast that is comprehensive, adaptive, integrative, ecosystem-based and transparent for managing Texas’ coastal natural resources
- Planning for offshore renewable energy facilities
- Coastal habitat restoration and conservation
- Sediment management
- Improved planning for and providing public access
- Management of freshwater inflows

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### COASTAL CLIMATE ADAPTATION

#### **Completed Activities:**

- Status and Trends of Dune Volume, Morphology, and Vegetative Cover along the Texas Gulf Shoreline study, Year 1 results (provided valuable data to assist in addressing the nexus between state and local regulatory and recommended practices and coastal management decisions)
- Development and implementation of local hazard mitigation plans.
- Geohazards mapping of North Padre and Mustang Islands

# STATE OVERVIEWS

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- Expanded Texas Coastal Erosion Data Network
- Developed Texas page on StormSmart Coast website

## ***Needs and/or Gaps:***

- Public education about hazards
- State wide sea level rise assessment and information on effects on floodplains
- Integrated coastal hazards information on vulnerability, impacts, and inundation
- Tiered coastal hazards training for local communities
- Compiled data on sea level rise and changes in coastal weather patterns
- Integration of ADCIRC modeling and SLAMM for sea-level rise modeling
- Storm surge information
- Information on the effects of sea level rise on public access
- Facilitate effective community planning to reduce cumulative and secondary impacts in coastal areas and to mitigate vulnerability to sea level rise and natural hazards

## ***Current or Planned Priorities and Activities:***

- Coastal community adaptation and resilience
  - Working with local communities on planning issues associated with coastal hazards, including erosion response plans
  - Status and Trends of Coastal Vulnerability to Natural Hazards assessment currently underway that will generate policy and programmatic recommendations related to coastal programs, management, and regulations
  - Working with FEMA on mapping issues related to erosion and coastal hazards
  - Engaging in hurricane response and state mitigation planning
  - Note: A bill has been filed, but not passed, in the Texas Legislature mandating multi-agency climate change adaptation strategies
  - Shoreline change analysis begun
  - Developing Texas home owners handbook to prepare for hazards
  - Developing local post-disaster redevelopment plans through the State Hazards Mitigation Team
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## **CMP AND NOAA PARTNERSHIPS**

Texas has most recently worked with the **Coastal Services Center** (climate adaptation webinars and tools) and with the **NOAA Gulf CMSP workgroup** to obtain data and information on climate issues and ocean planning. Texas also has worked with the **National Hurricane Center** and used its data frequently in tracking and monitoring weather events. Additionally, Texas has worked with **NOAA SeaGrant** in securing SeaGrant fellows.

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## **ADDITIONAL CMP INFORMATION**

- To access the CMP fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/tx.html>
- For more information on Texas's Coastal Management Program, visit:  
<http://www.glo.state.tx.us/coastal/cmp.html>

# VIRGINIA

Virginia's Coastal Zone Management Program goals include "protecting and restoring coastal resources, air and water quality, preventing the loss of coastal habitat and loss of life and property from coastal hazards, providing for sustainable wild fisheries and aquaculture, promoting sustainable ecotourism and renewable energy, and ensuring government coordination and use conflict minimization." Virginia's coastal zone boundary extends from the state territorial sea boundary inland to include 29 coastal counties, 15 cities and 43 towns which border on tidal waters.

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## OCEAN PLANNING

### **Completed Activities:**

- Mid-Atlantic Regional Council on the Ocean (2009): Mid-Atlantic coastal management programs were instrumental in developing MARCO and continue to take the lead on MARCO issues
- The first regional ocean mapping and planning portal was launched in late 2010 using Virginia CZM funds.

### **Needs and/or Gaps Identified:**

- Funding for data collection (particularly biological resources and human uses) and for creation of decision support tools to analyze and compare management scenario options
- Step-by-step process for stakeholder engagement to develop a regional Coastal and Marine Spatial Plan (although MARCO is currently drafting a process)
- Personnel with expertise to conduct an in-depth stakeholder process and create a regionally approved CMS Plan

### **Current or Planned Priorities and Activities:**

- Virginia Marine Spatial Plan and a comprehensive approach to regional ocean management, to protect ocean health and biodiversity, including the needs of stakeholders
- Working with ocean stakeholders to understand their objectives for ocean management
- Improved biological and human use data for Mid-Atlantic ocean to support ocean management
- Permanent servers or funding for cloud technology to house the MARCO portal
- Decision support tools for MARCO portal (looking at MarineMap and INVEST)
- Virginia Seaside Special Area Management Plan to map, analyze, and interpret the current status and trends in uses, economic values, and beneficial ecosystem functions associated with state-owned and other habitats in the seaside bays, to re-evaluate uses and recommend guidelines for the allocation of resources that optimize environmental and socioeconomic benefits
- Virginia Marine Debris Plan

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Convened a statewide climate change commission
- Contracted 3 years of funding (FY 08, 09 and 10) for initial climate adaptation plans for Northern Virginia, Middle Peninsula and Hampton Roads (to be completed in fall 2011)

### **Needs and/or Gaps Identified:**

- Expertise on how to engage certain sectors of the public in climate change adaptation
- LiDAR elevation data, more accurate mapping of flood risk area, and associated training
- Outreach and education for the public regarding sea level rise and other climate change impacts

## STATE OVERVIEWS

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- State level policy and guidance for integrating climate change adaptation into local planning
- Continued research on climate change impacts for improved planning
- Collaboration of emergency managers and land use planners on coastal hazards issues
- Increased staff capacity at the local level to monitor and enforce compliance with building restrictions and other regulations
- Continued outreach to residents in high risk areas
- Shoreline management planning
- Funding for state and/or local purchase of high-risk properties
- Continued research and monitoring related to tidal wetlands and living shorelines

### ***Current or Planned Priorities and Activities:***

- Streamlined permitting processes for living shorelines
- Development of local shoreline management plans, to include shoreline inventories, shoreline evolution studies, cost assessments, recommendations for shoreline management, etc.
- Funding to complete collection of LiDAR data
- Creating user-friendly maps depicting the LiDAR data
- Developing a social marketing approach toward increasing public understanding of the sea level rise threats facing Virginia's coast
- Supporting a limited number of regional planning districts to conduct vulnerability assessments via 3-year grants to Planning District Commissions for green infrastructure or climate change

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## CMP AND NOAA PARTNERSHIPS

Staff from the **NCCOS Biogeography Branch** visited the CMP office to talk about the data gaps that they might be able to help fill for the MARCO portal. BOEMRE funding will allow NCCOS to expand a seabird data set from New York through Virginia.

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## ADDITIONAL CMP INFORMATION

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/va.html>
- For more information on Virginia's Coastal Zone Management Program, visit:  
<http://www.deq.state.va.us/coastal/>

# U.S. VIRGIN ISLANDS

The VICZMP strives to manage, enhance, protect and preserve our coastal resources, while reducing conflicts between competing land and water uses. The USVI's coastal zone boundary extends from a relatively narrow strip along the coast known as the "Tier 1 boundary" (varies between islands) seaward to the limit of the territorial sea and includes all off shore islands and cays.

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## OCEAN PLANNING

### **Completed Activities:**

- The VICZMP has two managed areas that it oversees: the St. Croix East End Marine Park, and the St. Thomas East End Reserves. Management plans have been created for both areas and are currently in the first five year implementation phases of each.

### **Needs and/or Gaps Identified:**

- The largest needs are the collection of data, and the database to store all the data collected. Data is collected on a relatively small scale; however, the sharing of information is slow due to the lack of a central database to store the information collected.

### **Current or Planned Priorities and Activities:**

- The VICZMP has 18 Areas of Particular Concern (APCs) and the boundaries of each extend to the three nautical mile territorial limit. We are currently in the process of reorganizing our APC program and assessing management priorities for the designated areas
  - In December 2010, the Governments of Puerto Rico and the US Virgin Islands signed and MOU for the creation of a regional ocean partnership. By committing to ocean planning on a regional level, it will also push planning efforts on a territorial level.
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## Coastal Climate Adaptation

### **Completed Activities:**

- None to date; the VICZMP is just beginning to look at climate change adaptation.

### **Needs and/or Gaps Identified:**

- The first step will be assessing the known data, as well as the data gaps, that will allow for the VICZMP to create a strategic plan for addressing climate change and adaptation strategies.

### **Current or Planned Priorities and Activities:**

- The VICZMP is currently working on its 309 Assessment and Strategy for submission to NOAA this fall, and it will focus on coastal climate adaptation. As the territory is in the process of developing a comprehensive land and water use plan, the VICZMP would like to incorporate input that shows vulnerability and risk assessments, as well as scenario modeling, into the planning process.
  - VICZMP intends to submit a proposal to the Coastal Services Center for a management fellow to assist with coastal climate adaptation strategies for the USVI. With one of the strategic focus areas being **projects related to climate change adaptation planning and risk assessment, it will make for a good opportunity for the VICZMP to partner with NOAA and receive expertise in this endeavor.**
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# STATE OVERVIEWS

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## CMP AND NOAA PARTNERSHIPS

- Most of the VICZMP imagery data for the US Virgin Islands was provided by NOAA. Additionally, older benthic resources layers were provided by NOAA; however, the scale that the data was recorded at makes the datasets relatively unusable for the VICZMP.
  - VICZMP staff participates in CSC webinars for tools that may be useful to the US Virgin Islands, but sometimes the tools are not completely applicable to the territory and must be tweaked for our use. For example, the VICZMP has participated in webinars for the use of the N-SPECT tool; however, due to the topography of the US Virgin Islands, the tool will have to be modified in order for the VICZMP to accurately model erosion in our nearshore areas.
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## STATE AND NOAA/AGENCY PARTNERSHIPS

- Currently the VICZMP has a cooperative agreement with the NOAA Coral Reef Conservation Program (CRCP) for the management and monitoring of our ocean resources. Through this partnership we have designated the US Virgin Islands' first territorial marine park, we continually monitor our coral reefs and we are developing ways to implement the Local Action Strategies (LAS) for key areas within the territory. Additionally, CRCP has funded coastal and watershed planning studies to provide much needed information to VICZMP as it moves forward with its mandate of coastal resources management,
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## ADDITIONAL STATE INFORMATION

- To access the Territory fact sheet, visit: [http://coastalmanagement.noaa.gov/mystate/virgin\\_islands.html](http://coastalmanagement.noaa.gov/mystate/virgin_islands.html)
- For more information on USVI's Coastal Management Program, visit: <http://czm.dpnr.gov.vi/>

# WISCONSIN

Wisconsin's coastal zone program is "dedicated to preserving and improving access to the natural and historic resources of Wisconsin's Great Lakes coasts". Wisconsin's coastal zone boundary extends from the state territorial sea boundary inland to encompass the fifteen counties with frontage on Lake Superior, Lake Michigan, or Green Bay.

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## GREAT LAKES PLANNING

### **Completed Activities:**

- Two Wisconsin Beach Health workshops convened state and local beach health leaders and stakeholders for disseminating information on current research, monitoring and management activities, and identifying training, collaboration and networking opportunities. See <http://www.doa.state.wi.us/subcategory.asp?linksubcatid=593&linkcatid=108&linkid=65&locid=9>
- Development of the Wisconsin Clean Marina Program (<http://wisconsincleanmarina.org/>). The Program was launched in 2010 and currently has 17 certified marinas and 10 pledged marinas.
- Development of the Wisconsin Marina Association (<http://www.wisconsinmarinas.org/>). The Association was launched in 2009 with the purpose of connecting marina operators, promoting education and training, enhancing Wisconsin's marinas and recreational boating, and managing the WI Clean Marina Program.

### **Needs and/or Gaps Identified:**

- Increase communication in regards to Great Lake resources
- Monitor habitat size and health
- More aggressively leverage other funding opportunities to implement Wisconsin Coastal Management Program funded plans
- Re-examine state agency partnerships under the new administration
- Find resources to sponsor collaboration, education and networking opportunities for counties and municipalities

### **Current or Planned Priorities and Activities:**

No information available

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## COASTAL CLIMATE ADAPTATION

### **Completed Activities:**

- Completed the final phase of an effort to characterize bluff conditions on the Lake Superior coastline to help communities create defensible setbacks
- Took and geolocated oblique photographs of Wisconsin's coasts and developed a detailed GIS database to compare the new photographs to a set from the 1970s
- The University of Wisconsin-Madison completed projects investigating the effect of lakebed down cutting on long-term bluff recession

### **Needs and/or Gaps Identified:**

- Updated, long-term projections of potential lake levels
- Detailed near shore bathymetry for multiple time periods
- Current, high resolution LiDAR data
- Current and historical orthophotography
- Parcels, inventory of building footprints, tax assessment data, and panimetric mapping

## STATE OVERVIEWS

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- Current inventory of development and comparison to 1980s inventory
- Probing of lakebed to determine lakebed down cutting
- Detailed, on the ground inventory of shore protection structures
- Zoning or local regulations ensuring appropriate setback from hazard
- Testing of predicted climate change effects on bluff stability and shoreline recession
- Education of engineers and DNR staff for identifying hazardous areas, ensuring appropriate setbacks, and use of non-structural shoreline stabilization methodologies
- Notifying public of potential hazards when they purchase a shoreline property
- Technical tools to help communities address development and plan for hazards
- Development of near shore sediment management plans

### ***Current or Planned Priorities and Activities:***

- New and revised coastal hazards regulations which include
  - Education and outreach
  - Policy development
  - Technical tools
- A current project led by the University of Wisconsin “Education & Outreach of Bluff and Beach Profile in Response to Coastal Structures in Ozaukee County,” will result in new technology such as oblique digital imaging, laser range finders, and a combination of ground-penetrating radar, sub-bottom profiler, and sub-scan sonar.
- Development of an interactive exhibit interpreting the relationship among coastal wetlands, climate change, people, and change impacts on traditional Ojibwe ways of life
- Development of coastal climate change curriculum to expand the Discovery Center/exhibit outreach guiding middle school students and above in investigating themes through a teacher-guided curriculum or self-directed learning at the center classroom, field experiences, or web based education.
- Demonstration and promotion on how small behavioral choices can make a difference in mitigating climate change and improving the sustainability of coastal resources
- University of Wisconsin-Extension led Climate Adaptation Planning Workshops in Green Bay and Superior, in cooperation with the NERR System.

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## CMP AND NOAA PARTNERSHIPS

Downloaded regional land cover data and the C-Cap tool (Coastal Change Analysis Program) from NOAA’s Digital Coast hosted by the **Coastal Services Center**.

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## ADDITIONAL CMP INFORMATION

- To access the state fact sheet, visit:  
<http://coastalmanagement.noaa.gov/mystate/wi.html>
- For more information on Wisconsin’s Coastal Management Program, visit:  
<http://www.doa.state.wi.us/category.asp?linkcatid=648&linkid=65&locid=9>