



Virginia Coastal Zone M A N A G E M E N T P R O G R A M

VIRGINIA SECTION 309 COASTAL NEEDS ASSESSMENT & STRATEGIES

**DRAFT – Submitted to NOAA July 2, 2020 by the Virginia
Coastal Zone Management Program**

Abstract

Every five years the Virginia CZM Program conducts an assessment of the Commonwealth's coastal resources and management efforts. High priority topics are then chosen and 5-year grant strategies are designed to result in new enforceable policies to better manage those high priority resources or issues.



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I. INTRODUCTION

The Virginia Coastal Zone Management Program was established in 1986. The Department of Environmental Quality (DEQ) serves as the lead agency for the program's network of state agencies that administer state laws and policies to protect and enhance coastal resources. Other agencies in the network that form the "Coastal Policy Team" include the Virginia Marine Resources Commission (VMRC), the Department of Conservation and Recreation (DCR), the Department of Game and Inland Fisheries (DGIF), the Department of Health (VDH), the Department of Forestry (DOF), the Department of Agriculture and Consumer Services (VDACS), the Department of Historic Resources (DHR), Virginia Institute of Marine Science (VIMS), Virginia Department of Transportation (VDOT), Virginia Department of Mine Minerals and Energy (DMME) and eight Coastal Virginia Planning District Commissions (PDCs).

Section 306/306A of the Coastal Zone Management Act (CZMA) provides federal funds to implement federally-approved CZM Programs. Section 309 of the CZMA is known as the Coastal Zone Enhancement Program. Established when the CZMA was reauthorized in 1990, Section 309 is a voluntary grant program in which match-free federal funds are made available to coastal states with federally approved coastal management programs to enhance coastal policies. Every five years the Virginia CZM Program conducts an assessment of nine coastal enhancement areas:

1. wetlands
2. coastal hazards
3. public access
4. marine debris
5. cumulative and secondary impacts of growth and development (CSI)
6. special area management planning (SAMPs)
7. ocean resources
8. energy and government facility siting
9. aquaculture

Specifically, Section 309 encourages states and territories to develop "program changes" -- changes to the state's enforceable policies or authorities -- that help the state make improvement(s) in one or more of the nine coastal enhancement areas.

The Virginia CZM Program's Coastal Policy Team (CPT) meets to review and prioritize (high, medium or low priority) the nine assessment areas for each five-year cycle of work. In January 2020, the CPT used the criteria listed below to determine the priority ranking for each area. CZM staff also reviewed their Phase I (High-Level) Needs Assessments and provided suggested priority rankings to the CPT. Team members then individually ranked each area on scoring sheets, considering each area on its own merits. Individual scores were combined and the overall ranking of the areas posted for reflection and discussion by Team members. The Team discussed whether arguments could or should be made to increase or lower the priority of any area, and then by consensus decided on the priority assigned to each area.

- *Feasibility:*
Can progress be made within the time and financial constraints? Is successful development of enforceable policies likely? Is adoption of enforceable policies likely?
- *Importance:*
Is there a significant threat in this enhancement area? How valuable (economically or ecologically) is the coastal resource?
- *Appropriateness for the CZM Program:*
Is this an issue that other agencies are not addressing? Is there a need for coordination of efforts within Virginia?

Once the Virginia CZM Program conducts its coastal needs assessment, and prioritizes the areas, the program develops 5-year strategies to address improvements in the areas of high priority. These strategies are developed with input from the program's partners and constituencies through focus groups and strategy work group meetings. The completed Virginia Coastal Needs Assessment and Strategies document is made available for Public Comment on the Virginia CZM website. Virginia CZM then sends the report to NOAA's Office for Coastal Management for approval.

Once NOAA's approval is received, specific grant projects are developed to accomplish the strategies over the five-year period. The proposals for these projects are then approved by NOAA's Office for Coastal Management. Pending NOAA's approval of the proposals, the Virginia CZM Program receives approximately \$500,000 each year over the five years to implement its strategies.

Past Strategies

In 1997, Virginia developed a three-year Assessment and Strategy that reviewed each enhancement area of Section 309 and identified five high priority areas (public access, hazards, cumulative and secondary impacts, SAMPs, and aquaculture). These areas were selected based on the recognized need for regulatory or program changes. Based on the highest priority of need and high likelihood for success, three strategies were developed for the FY'97-FY'99 period: SAMPs for Northampton and Southern Watershed Areas, and Aquaculture.

In 2000, Virginia developed a five-year Assessment and Strategy that identified five high priority areas with seven proposed strategies:

1. Wetlands: Wetlands Regulatory Programs Strategy
2. Coastal Hazards: Dune Management Strategy
3. Cumulative and Secondary Impacts: Shoreline Management Strategy and Clean Marina Program Strategy
4. SAMP: Southern Watershed Area Strategy, and Dragon Run Area Strategy
5. Aquaculture: Aquaculture Management Strategy

In 2005, Virginia developed a five-year Assessment and Strategy that identified six high priority areas:

1. Wetlands
2. Public Access
3. SAMPS
4. Aquaculture

5. Coastal Hazards
6. Cumulative and Secondary Impacts

To address these priorities, the Coastal Program developed six key strategies:

- Intergovernmental Decision-Making (CSI)
- Shoreline Management (CSI, wetlands, public access)
- Prioritizing Conservation Corridors (CSI, wetlands)
- Dragon Run SAMP Implementation (SAMP)
- Seaside of Virginia's Eastern Shore (SAMP)
- Management Initiatives for Shellfish Aquaculture (Aquaculture)
- Administrative Actions: Data Collection, Indicator Development, Program Changes and the 2010 Coastal Needs Assessment and Strategy (Public Access and other areas)

In 2010, Virginia developed a five-year Assessment and Strategy that identified three high priority areas:

1. Cumulative and Secondary Impacts (Working Waterfronts, Shoreline Management, and Land and Water Quality Protection)
2. Special Area Management Planning (Seaside SAMP)
3. Ocean Resources (Virginia Marine Spatial Plan)

In 2015, Virginia developed a five-year Assessment and Strategy that identified three high priority areas:

1. Cumulative and Secondary Impacts (Working Waterfronts, Leveraging Economic Benefits of Land Conservation)
2. Coastal Hazards (Shoreline Plan & Policy Development, Community Resiliency Plans)
3. Ocean Resources (Stakeholder Coordination for IJC Actions, Sand IJC Action, Ocean Data Collection/Synthesis or Tools, Marine Debris).

Current Needs Assessment & Strategies

This report presents Virginia's 2020 Assessment of the nine enhancement areas and Strategy for addressing 3 of the identified high priority areas in FY2021-25. The analysis and strategy preparation was completed using the National Oceanic and Atmospheric Administration's (NOAA) final Section 309 Guidance (September 2019). Assessment questions prepared by NOAA helped to update and determine the status of each enhancement area. Upon completion of the draft assessment, the Coastal Policy Team, comprised of the agencies noted above, met on January 15, 2020 to review and finalize the priorities.

The Virginia CZM Program will focus its attention and efforts on the following three issues over the next five years:

1. Coastal Hazards
2. Marine Debris
3. Ocean Resources

Based on meetings with stakeholders, potential strategies have been developed and are included immediately following the assessments in this document.

The Virginia CZM Program also conducted a public review and comment period from February 14, 2020 through March 16, 2020 for the draft Phase I Assessments. A draft of this document, which includes the Phase I and II Assessments and Strategies, was posted for a public review and comment period from **July 10, 2020 to August 10, 2020**. For both these periods, an announcement of the opportunity to review and comment on the draft Section 309 Assessment and Strategy was made in the Virginia Regulatory Town Hall web site as well as on the Virginia CZM web site. Written comments that were received during this timeframe are included in Appendix VII at the end of this document. CZM will submit a final draft of the Virginia Coastal Needs Assessment and Draft Strategies to NOAA for approval on September 1, 2020.

II. SUMMARY OF RECENT SECTION 309 ACHIEVEMENTS

5-YEAR (2016 – 2020) BUDGET SUMMARY BY STRATEGY <i>(updated June 2020)</i>								
Area	Title	FY2016	FY2017	FY2018	FY 2019	FY2020	SUBTOTAL	TOTAL
	Enforceable Policies Revisions	0	42,320	0	0	0	42,320	42,320
Coastal Hazards	Natural Resilience	160,000	100,000	133,799	70,000	0	463,799	463,799
	Community Resilience	0	58,400	40,651	110,000	158,613	365,264	367,664
CSI	Leveraging Economic Benefits of Land Conservation	125,000	113,500	120,550	160,000	161,500	680,550	680,550
	Working Waterfronts	50,000	47,500	50,000	0	0	147,500	147,500
Ocean Resources	Stakeholder Coordination	59,821	48,000	48,000	48,000	73,000	276,821	276,821
	Ocean Data Collection/ Synthesis or Tools	32,290	35,680 – (cancelled, but paid out first)	50,000	55,000	49,887	222,857	222,857
	Marine Debris	75,889	57,600	60,000	60,000	60,000	313,489	313,489
	TOTAL	503,000	503,000	503,000	503,000	503,000	2,515,000	2,515,000

A. Program Changes

When the Virginia’s CZM Program was approved in 1986, the enforceable policies were documented in a Final Environmental Impact Statement (FEIS) that included an extensive list of state laws and regulations. A drawback to this approach was a lack of clarity regarding Virginia’s federal consistency policies for both project proponents and project reviewers. Although the Commonwealth’s federal consistency review process has resulted in numerous improvements to proposals submitted over the years and helped to protect important coastal resources, many recognized that clearer guidance would be helpful. In this light, and in order to save resources for Virginia and the federal government, NOAA suggested a complete revision of Virginia’s policies in the form of a series of clear and concise “narrative enforceable policies.”

With agreement from the Coastal Policy Team, the Virginia CZM Program began this revision process by providing a Section 309 grant to the Virginia Coastal Policy Center (VCPC) at the College of William and Mary for assistance in the effort. As part of the grant, the Center organized a series of meetings to

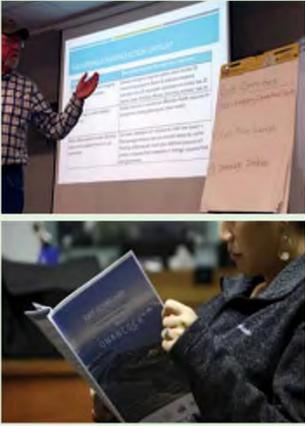
evaluate each of the existing policy areas and to consider possible additional policies to strengthen the process. A committee was formed which consisted of the state reviewing agencies, NOAA, the Virginia Office of the Attorney General and other interested parties such federal project proponents and environmental advocacy groups. With input from the committee, VCPC staff developed a set of draft narrative enforceable policies that are significantly more concise. In addition to the existing policy areas, the revised document also contains policies for state-listed threatened and endangered species, state parks and natural area preserves, invasive plants and animals, and noxious weeds.

The draft policies were considered and approved by the Virginia CZM Coastal Policy Team at its September 12, 2019 meeting and submitted to NOAA for review on June 5, 2020. A public and affected agencies review began at the same time. Once approved by NOAA, this change should result in enforceable policies for federal consistency review that put Virginia in a better position to manage its coastal resources. The revised policies can be viewed at <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/PublicNotices.aspx>.

B. Coastal Hazards

Projects supported through the 2016 – 2020 Coastal Hazards Strategy focused on building community resilience, while continuing efforts from previous Section 309 efforts to build natural shoreline resilience. The primary outcomes of the strategy were a better local understanding of the tools to address coastal hazards and plans of action to increase local resilience. Localities have already made progress in addressing recommendations that came out of the hazards strategy and now have documents to guide future resilience-building actions. The strategy also supported a number of projects to address coastal hazards associated with shoreline management. New enforceable policies were adopted to further the use of living shorelines, incorporate resilience concepts into the Chesapeake Bay Preservation Act, and encourage the beneficial use of dredge material.

Evaluation Topics from the RAFT Scorecard



- POLICY, LEADERSHIP, AND COLLABORATION**
 - LOCALITY LEADERSHIP AND PLANNING FOR RESILIENCE
 - LOCALITY LEADERSHIP AND RESPONDING TO AN EMERGENCY
 - LOCAL COLLABORATION WITH STATE AGENCIES AND REGIONAL PDC
 - ADAPTIVE MANAGEMENT
 - THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP) COMMUNITY RATING SYSTEM
- RISK ASSESSMENT AND EMERGENCY MANAGEMENT**
 - FLOOD EXPOSURE AND VULNERABILITY ASSESSMENT
 - RISK ASSESSMENT FOR VULNERABLE POPULATIONS
 - BUSINESS AND ECONOMIC RISK ASSESSMENT
 - HAZARD MITIGATION
 - RESIDENT EMERGENCY PREPAREDNESS
- COMMUNITY ENGAGEMENT, HEALTH, AND WELL-BEING**
 - PUBLIC INVOLVEMENT IN RESILIENCE PLANNING
 - PROVIDING COASTAL RESILIENCE INFORMATION TO THE PUBLIC
 - RESIDENT LEADERSHIP AND VOLUNTEER NETWORKS FOR COASTAL RESILIENCE
 - RESILIENT SYSTEMS TO PROVIDE FOOD, HEALTH, AND MEDICINE
 - PHYSICAL AND MENTAL HEALTH FOR SOCIAL EQUITY IN COMMUNITY RESILIENCE
- PLANNING FOR RESILIENCE**
 - BUDGET, FUNDING, AND STATE & FEDERAL ASSISTANCE
 - COASTAL RESILIENCE IN COMPREHENSIVE PLAN
 - LAND USE ORDINANCES
 - INCENTIVES FOR COASTAL RESILIENCE
 - NATURAL RESOURCE PRESERVATION
- INFRASTRUCTURE RESILIENCE**
 - STORMWATER INFRASTRUCTURE
 - CRITICAL TRANSPORTATION INFRASTRUCTURE
 - WATER SUPPLY AND WASTEWATER MANAGEMENT SERVICES
 - NATURAL AND NATURE-BASED FEATURES

All photos by Aileen Devlin, Virginia Sea Grant.

1. RAFT

The Resiliency and Adaptation Feasibility Tool (RAFT) was developed by an interdisciplinary collaborative led by a core team from the University of Virginia Institute for Engagement & Negotiation, the Virginia

Coastal Policy Center at William & Mary Law School, and the Old Dominion University/Virginia Sea Grant Climate Adaptation and Resilience Program. The tool uses a scorecard that is completed by graduate student assessors from the core team and reviewed by faculty and locality staff. The scorecard provides a means for localities to define and measure their environmental, economic and social resilience. After the scorecard is completed, the core team meets with local representatives to support their development of a resilience action checklist that identifies one-year actions to improve local resilience.

The Virginia CZM Program helped advance use of the RAFT by providing resources to refine the scorecard, develop a RAFT website, and expand use of the tool for regional assessments of localities on the Eastern Shore, Northern Neck, and Middle Peninsula. Feedback from localities that have been assessed through the RAFT process has been very positive. The RAFT website <https://raft.iem.virginia.edu/> provides information on the project's goals, history, and other RAFT products and materials including research and policy papers, communication products, locality scorecards and checklists, as well as risk maps produced during various stages of The RAFT.

2. CRS Analysis and Training

The Community Rating System (CRS) of the National Flood Insurance Program (NFIP) offers a good framework of local resilience-building activities, as well as cost savings for flood insurance policy holders, for participating communities. However, many coastal Virginia localities, especially in rural areas, do not currently participate. In order to expand CRS use the Virginia CZM hazards strategy supported several studies of the costs and benefits of CRS participation, along with information and case studies and resources on how to support local CRS positions. These studies, along with training on the NFIP/CRS in general, were presented to interested localities. The presentations also contained a preliminary analysis of how localities would be rated if they joined the program and recommendations for actions to take to improve their rating. Some of the localities are considering CRS participation, while others are considering implementing recommendations from their training sessions. CZM also supported technical assistance to localities already in the program or considering entering.

3. Analysis of Road Flooding Impacts

General information is available to coastal localities on where road flooding occurs, but not always on the extent of areas affected by flooding. The Virginia Institute of Marine Science (VIMS) conducted an analysis of the areas impacted by road flooding, which will help localities with future adaptation planning efforts. It will be useful for future analysis of the affected areas with regard to demographics, commuting patterns, evacuation routes and other planning topics. This was identified by localities as a critical need for building community resilience.

4. Resiliency Project Database

As more resources become available to undertake resilience-building projects, the need for an easily accessible database of potential projects has become apparent. As part of the coastal hazards strategy the network of agencies and localities of the Virginia CZM Program provided input to Wetlands Watch on the structure of the database, as well as initial projects to include. The database can be used to identify and prioritize potential projects based on the criteria of each funding opportunity. Although it will continue to grow and evolve, the database has already been used several times to identify potential resilience projects. When completed it will be housed in the ADAPTVA website at VIMS, the

Commonwealth’s official repository for resilience information, and is expected to be referenced in the Commonwealth’s upcoming coastal resilience master plan.

5. Shoreline Planning and Living Shorelines



Continuing support for better shoreline management and increasing the use of living shorelines was an important component of the Coastal Hazards Strategy. The Virginia CZM Program used Section 309 funds to accomplish the following during the 2016 – 2020 strategy.

- Shoreline Plans adopted by localities
- Shoreline Management Handbook updated
- Locality shoreline management decision support tools developed
- Contractor and Local Wetland Board member training held
- Assessments and designs for living shoreline demonstration projects in State Parks completed
- Shoreline evolution studies for localities completed

In 2020, the Virginia General Assembly passed SB 776, which elevated living shorelines from the preferred alternative to the default option for shoreline management unless applicants can show that a living shoreline will not work on their property. The legislation also requires updating of the Commonwealth’s wetland permit guidelines. <https://lis.virginia.gov/cgi-bin/legp604.exe?ses=201&typ=bil&val=sb776>

6. Chesapeake Bay Preservation Act Sea Level Rise Guidance

The regulations that implement the Chesapeake Bay Preservation Act are an important enforceable policy for the Virginia CZM Program. They focus on water quality protection, however, and were not designed with sea level rise and coastal hazards in mind. In order to address questions about how to allow property owners to adapt to coastal hazards issues while maintaining water quality, the Virginia CZM Program applied for and received a 2020 Section 309 Project of Special Merit. Subsequent to receiving the grant, the Virginia General Assembly passed HB 504, which added coastal resilience and adaptation to sea-level-rise to the purpose of the Chesapeake Bay Preservation Act and required the Department of Environmental Quality to revise the Bay Act regulations to address this amendment. <https://lis.virginia.gov/cgi-bin/legp604.exe?ses=201&typ=bil&val=hb504>

7. Beneficial Use of Dredged Material

In 2018, the Virginia General Assembly passed a suite of bills to assist localities in addressing dredging issues. In order to support this legislation the Middle Peninsula Planning District Commission and its partners completed a dredging report with Virginia CZM support. The report provides localities with a more comprehensive understanding of dredged material siting, ownership, permits and potential beneficial uses of dredged material. The report helps implement new policies that can be used to advance resilience-building initiatives such as the construction of living shorelines or the enhancement of wetlands and beaches.

C. Cumulative & Secondary Impacts



I. Working Waterfronts

Since FY2011, the MPPDC along with the NNPDC, A-NPDC, and HRPDC have been working to address the CZM Coastal Needs Assessment and Strategy focused on the Cumulative and Secondary Impacts of Growth and Development (CSI) with regard to working waterfronts. For the past five years, these PDC's have worked to establish definitions and an understanding of working waterfronts within their regions; created an inventory of 600+ working waterfront locations. They have improved local and regional policies regarding working waterfronts, discussed the long-term costs associated with the loss of working waterfronts, and recommend policy action and tools which the Commonwealth, local governments and private industry could consider to better manage growth pressures and ensure the preservation of Working Waterfronts as important cultural resources and economic drivers for rural, suburban and urban waterfronts.

1. Working Waterfronts Master Plan

In an effort to create a future roadmap for working waterfront infrastructure and policy within coastal Virginia, MPPDC staff led the development of a Virginia Working Waterfront Master Plan (Plan) in 2015. The Plan integrated past work from the PDC's, reviewed the threats to working waterfronts, and identified recommendations to improve working waterfronts within the Coastal Zone. The recommendations outline a series of actions to implement across all levels of government (i.e. Federal,

State, Local, and Regional) and the private sector that would lead to the preservation and redevelopment of working waterfronts in Virginia. Upon completion of the Plan, the PDC's presented the plan to their Commissions and to-date the A-NPDC, HRPDC, MMPDC, and NNPDC have adopted the plan as a policy document, the most recent being HRPDC in February 2017. In addition to the Plan, the Working Waterfront Steering Committee worked with the Virginia Coastal Policy Center at William and Mary University Law School to organize a Working Waterfront Summit. The summit, titled "*Living with the Water – Too Much, and Too Little*", was held on December 2, 2016, at the Williamsburg Lodge in Williamsburg, Va. The morning session was jointly held with the 2nd annual Working Waterfronts Summit, with presentations and discussion of the new Virginia Working Waterfront Master Plan. These presentations and discussions introduced the Plan to a range of stakeholders.

2. Rural Coastal Virginia Community Enhancement Authority

Following the 2016 Summit, the Coastal PDC's worked with the 2017 General Assembly to develop and ultimately pass new working waterfront legislation, including Rural Coastal Community Enhancement Authority (HB 2055). If approved by the respective governing bodies, the Authority can serve as a regional economic development body and represent a partnership of the Commonwealth, the planning districts, and the 12 counties within A-NPDC, MPPDC, and NNPDC.

In 2019, A-NPDC and MPPDC staff successfully coordinated and held the Rural Coastal Virginia Community Enhancement Authority summit on July 25, 2019 at the Virginia Institute of Marine Science to launch the RCVA Community Enhancement Authority. Delegates and senators who introduced the 2017 HB 2055 Rural Coastal Virginia Community Enhancement Authority attended, as did other representatives from Rural Coastal Virginia. Topics presented during the day-long event included shared challenges and opportunities in Rural Coastal Virginia as a unified region. Following the Summit, Kaufman & Canoles, P.C. developed pro bono draft documents including by-laws and operating agreements necessary to establish the Community Enhancement Authority across localities. A-NPDC and MPPDC staff are reviewing the documents and plan to develop a distribution strategy in mid-2020 for localities to adopt the policy.

3. Uninsured Motorist Fund

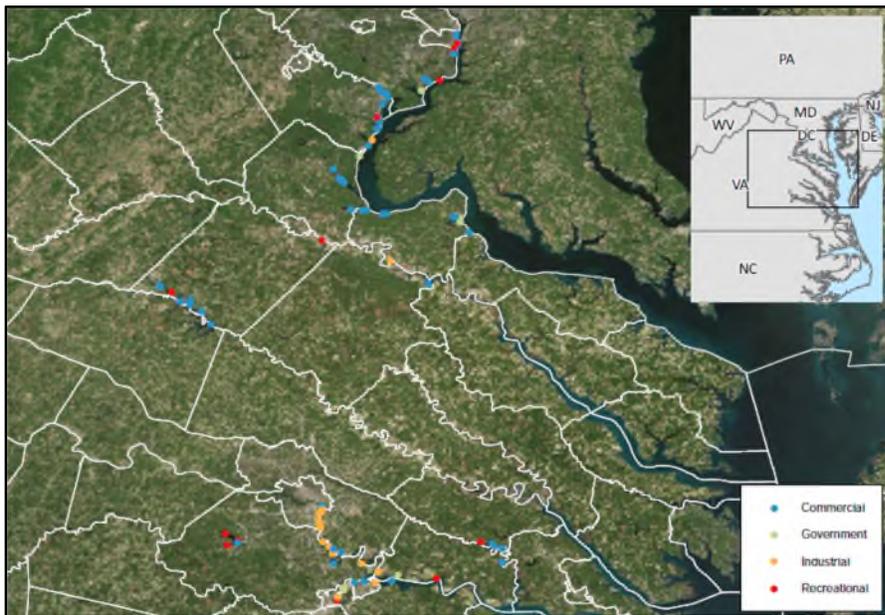
From 2016 to 2017, MPPDC staff continued to coordinate with the Working Waterfront Steering Committee to focus on implementing recommendations focused on the preservation of working waterfronts and associated industries within coastal Virginia outlined in the Virginia Working Waterfront Master Plan. More specifically, during this project MPPDC staff coordinated with the Working Waterfront Steering Committee to (1) explore the creation of either a state sponsored uninsured "motorist" program or a self-funded insurance program for workboats, (2) discuss, review, and refine legislative solutions that benefit working waterfronts and associated dredging concerns, and (3) expand the working waterfront inventory to include sites in the Richmond Regional, George Washington, Northern Virginia, and Crater Planning District Commission regions. Through research of the Commonwealth's Uninsured Motorist Program (§38.2-2206) and the Uninsured Motorist Fund (§46.2-710) and interviews with local marinas and insurance companies, MPPDC staff found that watermen are eligible to purchase boat insurance by meeting insurance company requirements, however it was found that some watermen do not follow through with the process (i.e. marine survey and fixing deficiencies) and in some cases are not willing to pay for or cannot afford the insurance premium. Consequently, MPPDC staff concluded that there was no need for an uninsured workboat program since insurance is readily available for commercial workboats.

This project also focused on developing legislative solutions to improve working waterfronts. During Working Waterfront Steering Committee meetings, multiple legislative ideas were shared and discussed. These legislative solutions were also shared with the Director of Policy and Legislation for Kirk Cox, Majority Leader of the Virginia House of Delegates to determine the most appropriate ideas to bundle into a legislative package for rural coastal Virginia for the 2018 General Assembly Session.

4. *Working Waterfront Infrastructure Inventory*

From 2016 to 2017, MPPDC staff also contracted with HRPDC to conduct a coarse analysis of working waterfront sites in the remaining coastal planning districts (i.e. PlanRVA, GWRC, NVRC, and Crater PDC). With access to datasets such as Bureau of Labor Statistics Quarterly Census of Employment and Wages, North American Industry Classification System (NAICS) and Standard Industrial Classification, HRPDC created GIS shapefiles and maps of working waterfronts for the four PDCs listed above. This provides a complete inventory of the working waterfront sites in coastal Virginia that were later incorporated into CZM’s Coastal GEMS online GIS database.

Coastal GEMS Working Waterfronts GIS Layer



5. *Working Waterfronts Management Guidance Document*

From 2017 to 2018, A-NPDC continued efforts to ensure sustainability of working waterfronts and related industries. The Working Waterfront Steering Committee met several times during the implementation period to discuss proposed legislative summaries and strategize how to move the proposals forward through the General Assembly. A four-page Working Waterfront Management Guidance Document for planners, administrators, and elected officials was developed and used in communicating with local planners and zoning administrators. This document will be continually updated to reflect new legislation, regulations, and tools, and can be enhanced to be most appropriate for specific regions and/or jurisdictions as needed. Each region compiled an inventory of Working Waterfront language in their respective jurisdiction’s comprehensive plans. This was used to target localities with whom to focus communications. The A-NPDC was able to submit language to be incorporated in an early 2019 amendment to the Accomack County Comprehensive Plan, so that zoning changes may be an option

moving forward. The MPPDC was able to share and discuss effective working waterfront (WWF) management tools with many local planners and administrators, using the Guidance as a tool, during a Local Planner meeting and the NNPDC shared the Guidance with all four county administrators. Extensive legal counsel was sought to review existing legislations and how they may be used by localities, which helped in creating the Guidance Document.

A Coastal Living in Virginia Rack Card for the general public, targeting new or potential residents, was also developed and distributed appropriately in each of the three rural coastal regions. In addition to raising general awareness about Working Waterfronts and the associated industries, this outreach item is intended to reduce conflicts and complaints and improve appreciation, understanding, and relationships in the community.

6. Working Waterfronts Master Plan Implementation

From 2018 to 2019 (FY2018), NNPDC staff worked to expand and complement the Working Waterfront strategy through tools that help promote and ensure the sustainability of working waterfronts and related industries. Efforts under previous grants in the Working Waterfronts strategy from the VACZM helped to implement the recommendations of the Working Waterfront Master Plan. During the 2016, 2017, and 2018 General Assembly Sessions, a comprehensive suite of coastally focused legislative bills were submitted and approved targeting key issues important to working waterfronts. These bills addressed waterfront property tax exemption, living shorelines, dredging, expediting dredge spoil permitting, storm water management, waterway maintenance. The 2018-2019 effort built upon the successful implementation of the recommended actions of Local Government and the Virginia General Assembly, as identified in the 2016 Working Waterfronts Master Plan, by implementing the recommended Private Sector actions toward adoption of recommended local government level policies. Specifically, the project sought to “educate community leaders and the public on the importance of our working waterfronts to our economy and our culture,” as recommended in the 2016 Working Waterfronts Master Plan. Education and outreach were achieved through the creation and dissemination of two main digital products, storymaps for working waterfronts in the A-NPDC, MMPDC, and NNPDC and a video that showcased working waterfronts in coastal Virginia. The project was extended until June 2020 to allow for the creation of a 30-second trailer video to be released prior to the main video and storymaps. Both releases received significant views and positive feedback.

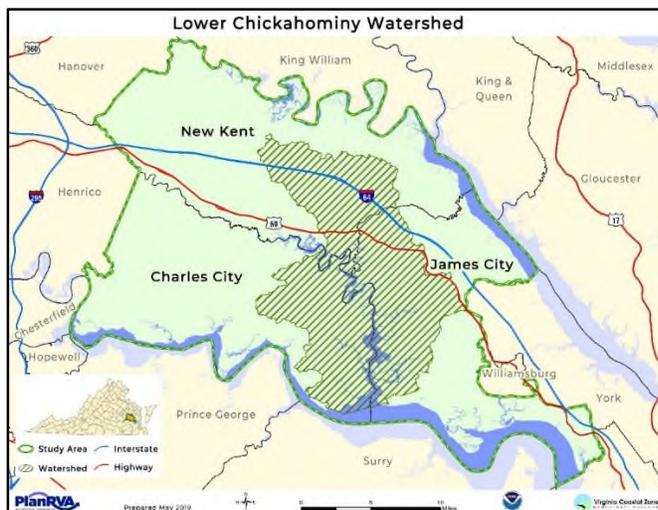
II. Native Plants

Dating back several years, CZM partners reported that throughout Virginia’s coastal zone, including the Northern Virginia region, an increasing number of gardeners were becoming aware of the water quality and wildlife habitat benefits of native plants and indicated that they would be interested in using natives, but real and perceived barriers existed that prevented people from planting native plants. With previous funding from CZM in FY2011, NVRC designed and launched the “Plant NoVA Natives” campaign with a team of representatives from collaborating organizations. The campaign uses a community-based social marketing (CBSM) approach to encourage residents to go beyond awareness and to take action – acquiring and planting species native to Northern Virginia. The campaign also emphasizes how native home landscapes connect and help provide conservation and habitat corridors in their communities and adjacent natural areas.

In FY2015, NVRC developed a set of common definitions for managed natural landscapes, noxious weeds, turf grass, and native plants to be used in local weed ordinances. NVRC staff also developed a resolution that recognizes the essential value and importance of Virginia native plants in a managed natural landscape and also acknowledges that managed natural landscape means a planned, intentional and maintained planting of native grasses, wildflowers, forbs, ferns, shrubs or trees, including but not limited to rain gardens, meadow vegetation, and ornamental plantings.

D. Leveraging Economic Benefits of the Natural Resources of the Lower Chickahominy

This effort is part of a 5-year strategy developed by CZM and PlanRVA to establish a collaborative planning process to create an overarching vision for land conservation priorities and sustainable industries for the watershed. The effort supports collaboration among natural resource agencies, local governments, businesses and non-profits to plan for the area’s future. Over the years, Virginia CZM has successfully employed this strategy on the Eastern Shore, the Southern Watersheds of Virginia Beach and Chesapeake, and in the Dragon Run of Middle Peninsula. The Lower Chickahominy is another special place with high ecological value and potentially high ecotourism value, but it is also vulnerable to development that could detract from its unique natural and cultural resources.



1. Natural Resource Inventories

Year 1 of the project (FY2016) involved establishing an updated inventory of natural resources in order to both locate sensitive habitats for conservation planning and to replace outdated spatial data that would soon become ineligible for regulatory review of projects by the Department of Conservation and Recreation (DCR). Specifically, biologists from Virginia Commonwealth University (VCU) and the Department of Conservation and DCR conducted biological surveys in the stream and terrestrial environments falling into three counties of the Lower Chickahominy River Watershed - James City, New Kent, and Charles City. For the stream surveys, VCU staff conducted standard sampling of the animals and environmental variable at 40 stream reaches in the watershed. The goal of this work was to determine if there were stream reaches in the watershed with high biological integrity. For the terrestrial surveys, DCR staff conducted field surveys to determine if rare, threatened, or endangered species could be found.

These surveys looked for plants and animals that had not been seen from the surveyed locations in many years. In addition, DCR staff sought natural communities that were significant due to the rarity or the integrity of the natural community. In total, 7 significant stream reaches, 17 significant natural communities and 22 rare plant populations were documented by VCU and DCR within the 3-county project area. These occurrences were geo-referenced and quantitative and qualitative data were collected on their condition. Fieldwork resulted in a significant update of the biological resources for the Chickahominy watershed. All data from the Natural Heritage surveys are now available within Biotics, the Virginia Natural Heritage database system that contains all data on the occurrence of Natural Heritage Resources in Virginia. In addition to providing an update to Biotics, the information collected through this grant is being utilized as an input data set in an update of a Natural Landscape Assessment for the entire Coastal Zone of Virginia. This update was needed as an input to the next planned revision of the Coastal Virginia Ecological Value Assessment (VEVA), a comprehensive integration of conservation datasets and priorities developed to guide land use and conservation planning at the local government and planning district levels. In addition to DCR's fieldwork, a herpetological survey was also conducted in the watershed by the Virginia Department of Game and Inland Fisheries (DGIF) where more than 60 reptile and amphibian species were documented. For this field work, the Game Department surveyed Game Farm Marsh and Chickahominy Wildlife Management Areas, New Kent Forestry Center, Crawford State Forest and private lands.

During Year 1, PlanRVA staff also coordinated the creation of a project Steering Committee that represents a diverse group of local and state agencies active in the watershed as well as non-profit stakeholders and two land conservancies. Staff also finalized base maps of the study area, which included population density, conserved land, parcels and subdivisions showing the existing pattern of development, land cover, Virginia Ecological Value Assessment (VEVA), floodplains, and wetlands.

2. *Valuation of Conserved Resources*

Year 2 (FY17) of the project involved efforts by both PlanRVA staff and research done by George Mason University (GMU) economists. PlanRVA staff updated GIS data and maps for the study area of various themes including land conservation, water quality, recreation, etc. as well as creating a conserved land and point of interest database for the study area. PlanRVA staff also completed background research for policy options discussed with the project Steering Committee. Information summarized as part of the research includes: policy history, examples of success and/or failure for each policy, studies or plans completed related to each policy, etc.

The GMU research team evaluated the economic and fiscal impacts associated with conserved lands located in the Lower Chickahominy River Watershed (LCRW) in Charles City County, James City County, and New Kent County in the Commonwealth of Virginia. The analyses performed examined current land uses and fiscal conditions present in each county. The findings of these analyses provide a baseline of data with which local government officials, in collaboration with state agency and private sector stakeholders, can more effectively plan future land use strategies, especially those directly related to preserving natural environs and preventing environmental degradation in critical watershed areas. Ultimately, the study found that the fiscal impact model indicate that lands with conservation easements do not place a fiscal burden on any of the three counties, similar to the Eastern Shore study.

3. *Initial Stakeholder Engagement*

Year 3 (2018) saw a transition from understanding the natural resources of the watershed to the human stakeholders within the same area. Identifying and engaging the communities and individuals was crucial to understanding what priorities resource managers, economic development staff, and local businesses had for the watershed and to understand if these were consistent with CZM’s goals of sustainable economic development and natural resource conservation. This process involved developing and implementing an expanded stakeholder outreach and communication strategy to: (1) further defining stakeholder interests and issues, and (2) developing and refining potential coordinated watershed policies and strategies for maximizing both socio-economic and ecological benefits. The Institute for Engagement & Negotiation (IEN) at the University of Virginia was contracted to support the VCZMP and PlanRVA in conducting outreach to watershed stakeholders.

First, IEN conducted a series of 16 thought leader interviews in mid-May 2019, drawing from active stakeholders and leaders in the LCW. These interviews formed the basis for the main ideas and themes for the project. Second, to test these ideas and themes, and to develop more specific ideas for policies and strategies, IEN facilitated three Focus Groups in early August 2019, organized along affinity interests of natural and historic resources, economic development, and government. Last, working with the steering committee, IEN developed and conducted an electronic survey for broader outreach to the stakeholders of the watershed, to further refine and test the emerging proposals for policies and strategies.

From 2018 to 2020, Dr. Terry Clower of GMU was again consulted in the effort to create a roadmap for local government economic development staff to not only invest in eco-tourism business development, but also industries linked by supply chains and playing supportive roles (e.g. lodging, restaurants). The study included an input-output analysis of upstream and downstream businesses along the supply chain, identified strengths and weaknesses of the existing economies of the region, and provided suggestions for addition businesses to focus on developing such as aquaponics.

4. *Tribal & Local Government Engagement*



Local Government Staff Complete Stakeholder Surveys During August 2019 Focus Group Meetings.

Currently, in Year 4 (FY19), the project team has met with the Chickahominy Tribe, the Chickahominy Indians – Eastern Division, and the Pamunkey Tribe to understand their needs and concerns about the watershed. These included the lack of consultation with the tribes on the review of large-scale developments that had the potential to disturb cultural resources as well as insufficient communication on environmental impact reviews. The tribes are currently working with the Federal government,

including the Environmental Protection Agency (EPA) to streamline communication and establish maps of historical tribal territory, but there has been no formal engagement of the tribes by state and local governments, nor is there an enforceable policy requiring such coordination. To address the need for improved communication between the tribes and the local governments in the region, the project team held a virtual meeting with staff from Charles City County, James City County, and New Kent County on June 16, 2020 to share the tribes' concerns, better understand the local review process for development projects, and review the priorities listed by the local government staff who attended the Focus Group session in August 2019. A workshop for the tribes to meet with local government staff has been scheduled for July 22, 2020 in order to facilitate continued discussion of how each entity can improve communication and consultation in conserving natural resources, cultural resources, and encourage sustainable economic development. Following the July workshop, a larger Stakeholder Summit will be held on August 18, 2020 and include breakout sessions to discuss several topics that consistently emerged as priorities from the previous meetings: local planning and ordinances, recreational infrastructure, sustainable economic development opportunities, data improvement, river advocacy and restoration, land conservation, protection of tribal cultural resources, and ecological improvement opportunities.

E. Ocean Resources & Marine Debris

I. Ocean Planning

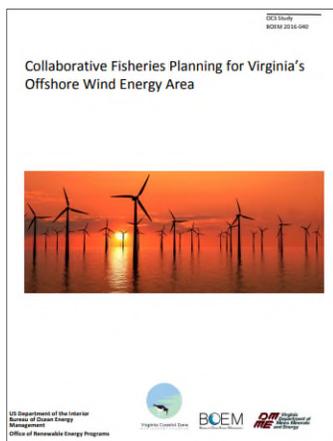


In 2016, Virginia was deeply involved in the development of one of the nation's first regional ocean action plans. The Mid-Atlantic Ocean Action Plan was agreed to by the Mid-Atlantic Regional Planning Body comprised of five states, eight federal agencies, a Tribal representative and the Mid-Atlantic Fisheries Management Council, (<https://www.boem.gov/sites/default/files/environmental-stewardship/Mid-Atlantic-Regional-Planning-Body/Mid-Atlantic-Regional-Ocean-Action-Plan.pdf>) In December of 2016 it was approved by the National Ocean Council. Virginia CZM was the lead on developing five of the six actions for the "Healthy Ocean Ecosystem" goal. These actions included identification of ecologically rich areas (ERA's) to foster better decision-making; mapping shifts in ocean species and habitats; developing a Mid-Atlantic ocean acidification monitoring network, developing a regionally appropriate strategy for marine debris reduction; and developing indicators of ocean health.

In 2017, a variety of work groups were established to implement the plan’s actions. Virginia CZM led the ERA, Marine Debris and OA work groups and continued to lead MARCO’s Ocean Mapping & Data Team. From June 2016 through June 2018, the Virginia CZM Manager served as the State Co-lead on the RPB. In June 2018 a new federal Executive Order on oceans was announced and the RPB was abolished. By spring of 2019, MARCO established the Mid-Atlantic Committee on the Ocean to bring back together the federal agencies, states, tribes and MAFMC to address ocean planning needs. The Virginia CZM Manager severed as the first Chair of MACO. Additional information about MACO is available at:

<https://www.midatlanticocean.org/ocean-planning/mid-atlantic-committee-on-the-ocean/>.

Meanwhile, through its 2016-20 Ocean Resources Strategy, the Virginia CZM Program provided continuous funding to an Ocean Stakeholder Engagement Coordinator from Virginia Commonwealth University. This position developed strong relationships with Virginia’s commercial and recreational fishing industry. As Virginia began planning for both its offshore wind research and commercial leases to be built, this relationship was vital to ensuring the minimization of use conflicts between offshore wind and fishing activities. This effort was the major reason for the Virginia CZM Program being asked by the



Bureau of Ocean Energy Management and the Virginia Department of Mines, Minerals and Energy to undertake a \$237k study (<https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/Virginia-Wind-Energy-Area-Collaborative-Fisheries%20Planning-Final-Report.pdf>) on collaborative fisheries planning for offshore wind. The project resulted in fine-scale maps of fishing in and around the Virginia lease areas vetted by Virginia’s fishing community, a listing of best practices for maximizing fishing in and around Virginia’s lease areas and also provided an opportunity for Virginia’s fishermen to speak directly with peers from England who had experienced offshore wind development. The report was completed in summer 2016.

In FY2017, Virginia CZM provided a \$48k ocean strategy grant to MARCO to assist with identifying and assessing ERA’s. The overall goal of the project was to test the utility of a new approach to identifying key ocean habitats that synthesizes information on marine animals and habitats and how they are currently used and managed into concise reports that would lead to better informed decision-making. However, this grant was cancelled in deference to a June 2018 Executive Order that prohibited the identification of ecologically rich areas.

In FY2018, Virginia CZM provided a \$48k ocean strategy grant to The Nature Conservancy to facilitate understanding of shifts in core abundance of 18 fish species. TNC used data from NOAA’s Northeast Fisheries Science Center (NEFSC) (e.g., trawl survey data), Duke and others to develop visualizations of species movements that were incorporated into the MARCO data portal. NEFSC and others (e.g. Rutgers Ocean Adapt project) had mapped individual species movements and changes in latitude or depth, but those data were not readily accessible in ocean data portals. TNC developed an animated “slider tool” showing how core abundance has shifted decadally since the 1970’s. Now resource managers and other stakeholders can view these data in the context of other portal data. A recorded webinar is available on the portal website: <https://portal.midatlanticocean.org/news/video-rewind-shifting-species-webinar/>

In FY 2019, Virginia CZM provided a \$50k ocean strategy grant to The Nature Conservancy to:

1. Review, update and modify available marine-life, habitat and oceanographic regional data layers;
2. Determine the best metrics to characterize the ecosystem, especially given its variability;
3. Analyze and interpret different layers compared to the rest of the region in the context of wind-energy development; and,
4. Publish a decision support tool where users can easily visualize and query the resulting maps.



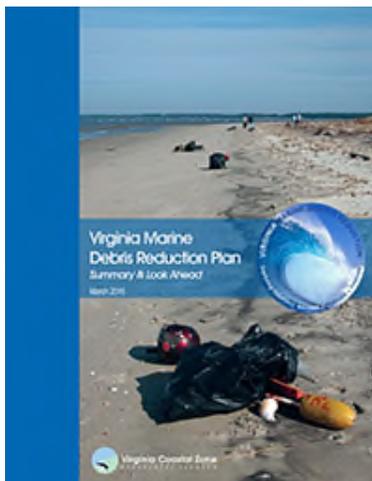
Through DEQ’s Environmental Impact Office and the VCU Ocean Stakeholder Coordinator, the Virginia CZM Program has been working toward the establishment of Geographic Location Descriptions (GLD’s) for important offshore fishing areas. Research has been underway to collect data on the economic value of offshore fish landed in Virginia. Once these GLDs are mapped (based on the MARCO Ocean Data Portal’s “Communities-at-Sea” fishing maps which identify important areas by fishing effort based on NOAA Vessel Permit and Vessel Trip Report data), and approved by NOAA, federal actions within these areas will be required to determine their consistency with the Virginia CZM Program’s enforceable policies regarding fisheries management. A companion document to the GLD submission is being created with FY2018-19 funds and will be a compilation booklet on the value of offshore fisheries to Virginia.

In 2018, the FY2016-20 Ocean Resources Strategy was amended to remove reference to any policy development surrounding identification of ecologically rich areas and offshore sand uses. Attempts to address both issues had become quite controversial.

II. Marine Debris

Grants in FY16 - 20 to Clean Virginia Waterways (CVW) of Longwood University from the Virginia Coastal Zone Management (CZM) Program supported CZM's commitment to provide leadership in reducing the amount of trash and marine debris from land-based and water-based sources in Virginia and the Mid-Atlantic region. Efforts followed the Virginia Marine Debris Reduction Plan (VMDRP) that was originally funded under FY11 Task 95.03).

The overarching goal of the Virginia Marine Debris Reduction Plan is to reduce the amount of trash and marine debris from land-based and water-based sources in Virginia through **leadership, prevention, interception, innovation, and removal** for ecological, social, and economic benefits. The Virginia Marine Debris Reduction Plan is a roadmap for nonprofit organizations, local governments, state agencies, regional partners, researchers, and industry as they work together on sustained approaches to reducing the flow of plastic trash and other trash items into our coastal waters.



The Virginia Marine Debris Reduction Plan utilizes multiple approaches. Solutions to marine debris will come from a combination of behavior change campaigns, new policies, informed consumers, readily available substitutes, and increased infrastructure.

Leadership: This goal of the VMDRP recognizes the need for a collaborative and coordinated approach to reduce marine debris. Work during this period was accomplished by CVW in close collaboration with the staff of the Virginia CZM Program, and stakeholders in Virginia as well as other mid-Atlantic states including agencies, local governments, researchers, manufacturers and businesses, nonprofits and citizens. Members of the Virginia Marine Debris Advisory Committee contributed to the workshops, summits, monitoring and research, behavior change campaigns, removal of debris, and other activities during this period.

Summits: VA CZM Program and CVW staff organized the 2016 Virginia Marine Debris Summit and 2019 Mid-Atlantic Summit for researchers, educators, policy-makers and businesses to share case studies, research, social marketing campaigns, and different approaches to raising awareness and changing

behaviors to reduce marine debris. Summit attendees received updates on current marine debris science and trends and explored techniques and tools effective in enhancing knowledge, changing behavior, and influencing policies that reduce marine debris.

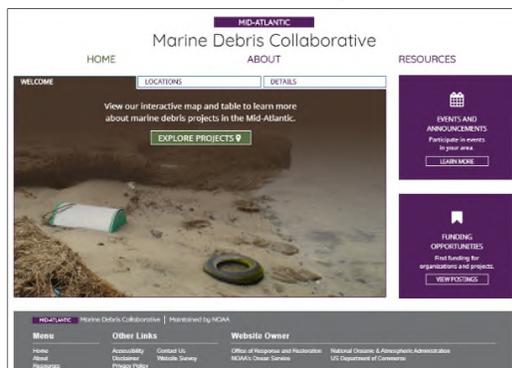
Capacity Building: Community-Based Social Marketing Workshop: Representatives from MARCO, NOAA Marine Debris Program, and state, regional and federal partners attended the VA CZM Program-sponsored “Introduction to Community-Based Social Marketing Workshop” in Richmond, VA taught by Dr. Doug McKenzie-Mohr, founder of community-based social marketing (CBSM) and author of *Fostering Sustainable Behavior*. The workshop met a goal of the Virginia Marine Debris Reduction Plan: to build the capacity to research, develop, and implement campaigns to promote positive environmental attitudes and behaviors and to increase voluntary compliance with anti-litter laws. Dr. McKenzie-Mohr also held a 90-minute executive summary for those who could not attend the workshop in person.

During work on the NOAA Marine Debris Program Grant project to reduce the intentional release of balloons, partners from MARCO participated in coaching sessions and gained insights from Dr. McKenzie-Mohr. As a result of his coaching, the scope of the balloon litter prevention campaign expanded to include audiences other than just wedding couples and wedding venues.

Mid-Atlantic Collaboration: VA CZM Program and CVW staff actively supported the work of the Mid-Atlantic Regional Planning Body (RPB) marine debris work group as well as smaller task groups working on development of regional approaches to prevent or remove marine debris. Because of Virginia’s earlier work in creating a marine debris reduction plan and creating a CBSM campaign to address balloon litter, CVW and VA CZM Program staff often provided guidance and background information to the Mid-Atlantic RPB marine debris work group. Specifically, VA CZM Program and CVW staff contributed to:

- **Mid-Atlantic Marine Debris Collaborative Portal.** This collaboration portal, developed by the NOAA Marine Debris Program, fulfills a priority of the VA Marine Debris Reduction Plan. It includes summary information on marine debris prevention and mitigation programs underway in Virginia and other mid-Atlantic states.

(<https://marinedebris.noaa.gov/reports/virginia-marine-debris-emergency-response-guide>)



- **Virginia Marine Debris Emergency Response Guide** by the NOAA Marine Debris Program.

- **Expansion of the balloon release reduction Community-Based Social Marketing campaign** (described later in this report). The Mid-Atlantic Regional Council on the Ocean (MARCO) won a grant from NOAA's Marine Debris Program for this expansion. (<https://marinedebris.noaa.gov/reports/virginia-marine-debris-emergency-response-guide>)

Prevention: This goal of the VMDRP focuses on reducing marine debris through source reduction, preventing trash from becoming litter and entering the water, and by preventing fishing gear from becoming lost or abandoned. Approaches included new policies and laws as well as behavior change campaigns.

Policies and Laws: Five new laws were passed during the 2020 Virginia General Assembly Session that focus on decreasing single-use disposable waste:

- Establishment of a **Plastic Waste Prevention Advisory Council**, (<https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+HB1354>)
- Allowance of local government enactment of **fees on single-use plastic and paper shopping bags**,
- Raising of the **Virginia Litter Tax** for the first time in 43 years from \$10 to \$20 annually for businesses that sell soda, beer and related items. Awareness of the need to raise this tax came about as part of research done in the development of the VMDRP. A fact sheet was developed and disseminated to key policy makers and groups that were interested in lobbying for the change. Proceeds from the tax are distributed by DEQ's Recycling and Litter Prevention Program to local governments for local litter and recycling programs. The FY2019 tax generated \$1.9 million for local litter prevention and recycling programs. Had the tax been indexed to inflation since the mid-1970s, it would now be generating nearly \$8 million per year.
- Increase of the **fine for businesses that do not pay the annual Litter Tax**.
- Additionally, a bill to **prohibit the use of expanded polystyrene food service containers** starting in 2023 was passed by the General Assembly in 2020 and signed by the governor, but will need to be reenacted during the 2021 General Assembly session to remain in effect.

LitterFreeVA.org: A new resource, **LitterFreeVA.org** was established in 2019 to facilitate tracking of legislation and policy in Virginia related to litter prevention and source reduction of single-use plastics. It provides a summary of bills, fact sheets and talking points. It was created by Clean Fairfax, and is supported by Clean Virginia Waterways through its VA CZM Program section 309 grant.

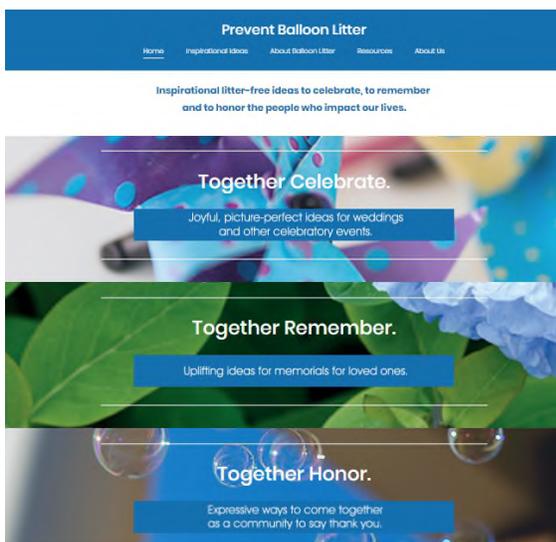
Balloon Release Reduction Campaign: One of the near-term actions identified in the VMDRP was design and implementation of a community-based social marketing campaign targeting behaviors that will reduce balloon litter in the marine environment. The Virginia CZM Program received a \$50,000 grant from the FY14 NOAA Marine Debris Program to pursue this work. After conducting extensive research to better understand who plans balloon release events – and, most importantly, why -- Virginia CZM partners designed and implemented a pilot campaign, *Joyful Send-off*, to encourage couples to select litter-free alternatives to balloon releases. *Joyful Send-off* promotes wedding send-off activities that provide memorable, joyful, picture-perfect, and litter-free alternatives to balloon releases. The goal is that couples will learn that all released balloons become litter, and they will not organize or participate in a balloon release in the years to come.

The pre-campaign research and findings, design and implementation of the *Joyful Send-off Campaign*, and preliminary results is documented in *Balloon Release Research in Virginia & Reducing Balloon Debris through Community-Based Social Marketing* - which is available on the Virginia CZM Program website at <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/MarineDebris/MarineDebris-Balloons.aspx> and the Clean Virginia Waterways website at <http://www.longwood.edu/cleanva/publications.html>.



Media outlets, including the Chesapeake Bay Magazine, NPR, CBS, AP, ATTN: Media, and BirdWatching Magazine published articles about this research, and the impacts balloon litter has on wildlife.

PreventBalloonLitter.org: VA CZM Program & CVW created <http://www.PreventBalloonLitter.org> - a new hub for balloon litter information to support various balloon-litter prevention efforts. It promotes inspirational litter-free ideas to celebrate, to remember, and to honor the people who impact our lives. Partners on the site include NOAA, EPA, local governments, NGOs and organizations from Mexico, South Korea and South Africa.

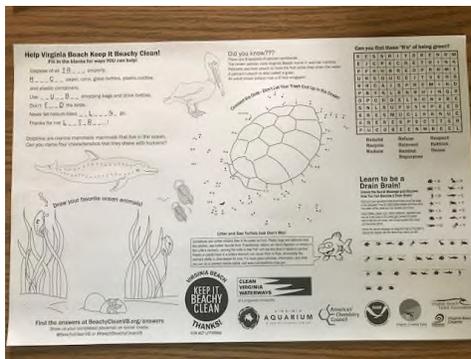


VA CZM Program and CVW also wrote and produced two videos that focus on the harm that balloon litter can cause to wildlife. (<https://www.youtube.com/channel/UC79VQJ1IkeGbKJDT-6owRyw>)



VA CZM Program staff, working with CVW and a professional media company, created two videos that address the sources, impacts, and solutions to balloon-related litter.

Keep It Beachy Clean: VA CZM Program partnered with CVW on its “Keep it Beachy Clean” community outreach program which was developed to influence the behaviors of a key target audience: visitors to beach resorts and beach communities. The VMDRP recognizes that everyone can help prevent marine debris, but restaurants and retailers could play an especially key role since food- and beverage-related litter are, in aggregate, the largest source of marine debris as determined by data collected by volunteers during the International Coastal Cleanup. Keep it Beachy Clean materials are distributed to restaurants, hotels, stores, and rental cottages in several VA coastal communities including VA Beach. Messages also are on trash receptacles on the beach, on tourists’ trolleys, fishing line recycling bins, outdoor ash receptacles, and in publications that target beach visitors.



Three versions of these popular placemats for children were distributed to restaurants in Virginia Beach in 2017-2020. Logos from Keep It Beachy Clean’s major partners are printed on the placemats, including NOAA and the Virginia Coastal Zone Management.

“Kick the Straw” Campaign for Campuses: CVW worked with partners to develop and implement a pilot campaign called “Kick the Straw” for college campuses. This included testing messages and images with the target audience (college students), development of resources, an event during

which the documentary “Straws” was shown, and a mechanism for collecting pledges made by college students to skip single-use straws. The campaign engaged many CBSM elements including making a public commitment, receiving a prompt in the form of stickers, stimulating social norms through direct contact between people and signage at locations where plastic straws are used, and providing reusable metal straws as an incentive.

Campus and Balloon Releases - new policies: Research done for the *Joyful Send-off* CBSM campaign showed that campuses are a frequent location for organized balloon releases. After learning that VA universities did not include policies regarding balloon or sky lantern releases, CVW reached out to them requesting that they pursue an educational campaign about balloons as litter, and consider adding balloons and sky-lanterns to their anti-litter policy in order to decrease the intentional release of balloons on their campuses. Subsequently at least three universities adopted policies and took steps to minimize balloons at graduation including Longwood University and the University of Virginia (UVA). At UVA, steps included a student pledge, a social media campaign, articles in newsletters and the student newspaper, and messages from the president to all graduates and parents. These actions resulted in media coverage (TV news and newspaper articles) and an apparent decrease in balloons at graduation. The University cited the harm that balloon litter causes in the environment as well as how balloons slow down the security check-in process prior to the graduation ceremony. The College of William and Mary also started discussions on reducing litter from balloon releases.

State Parks - new policy: Learning about the impact of balloon litter from the *Joyful Send-off* research, Virginia State Parks adopted a policy to disallow the releasing of balloons and sky lanterns from all park property.

Community Outreach and Raising Awareness: CVW and the VA CZM Program staff spoke extensively about marine debris prevention to attendees of local, statewide, and international gatherings including the 6th International Marine Debris Conference in 2018. Partners distributed biodegradable paper straws and reusable metal straws to promote the use of alternatives to single-use plastic straws, and shared through web sites (CZM & CVW), Facebook and other social media platforms. CVW was also engaged with work groups in two high-population counties--Fairfax and Prince William--to address plastic pollution and litter in stormwater. These work groups, made up of government staff and NGOs, focus on local solutions to land-based sources of marine debris.

Interception: Intercepting litter before it enters a stream is a core goal of the Virginia Marine Debris Reduction Plan since 60% to 80% of marine debris comes from inland sources including littering, mismanaged solid waste, uncovered trucks, balloon releases, illegal dumping, etc.

More than 170 stormwater and litter prevention professionals from local governments, military bases, universities, and businesses attended three **Stormwater and Litter workshops** (in 2018, 2019, and 2020) that were co-sponsored by CZM, CVW, and other partners to discuss solutions to stormwater-borne litter. Topics included monitoring protocols, public education, engaging local businesses, case studies, and engineered solutions to trap debris in streams, end-of-pipe, and at storm drains. Stormwater managers also discussed challenges and contributed to the updating of the VMDRP.

Innovation: This goal of the VMDRP focuses on reducing marine debris through innovation of materials, designs, practices, equipment, technologies, and recovery. Innovative technologies were shared during the two Marine Debris Summits as well as the three Stormwater & Litter Workshops. In the article, *Experiments with by-catch reduction devices to exclude diamondback terrapins and retain blue crabs*, the author Corso et al. discuss experiments to examine the responses of blue crabs (*Callinectes sapidus*) and diamondback terrapins (*Malaclemys terrapin*) to commercial-style crab pots modified in visual and other ways that might attract and retain crabs while excluding terrapins as by-catch. (<https://link.springer.com/article/10.1007/s12237-017-0223-4>),

Removal: This goal of the VMDRP calls for removal of marine debris items and cleaning up litter as well as mitigating the impacts and the damage marine debris causes.

Derelict Fishing Gear: Extensive work by researchers at William & Mary's Virginia Institute of Marine Science (VIMS) shows that "ghost" crab pots are the most common type of derelict fishing gear in the Chesapeake Bay and have ecological and economic impacts baywide. VIMS researchers have led efforts to locate and remove derelict pots, or to keep them from being lost in the first place. Key reports, which are highlighted in the Phase I assessment, include: *Assessing ecological and economic effects of derelict fishing gear: A guiding framework* (<https://scholarworks.wm.edu/reports/63/>) and *Examining derelict pot impacts on harvest in a commercial blue crab *Callinectes sapidus* fishery* (<https://www.sciencedirect.com/science/article/pii/S0025326X18308658>).

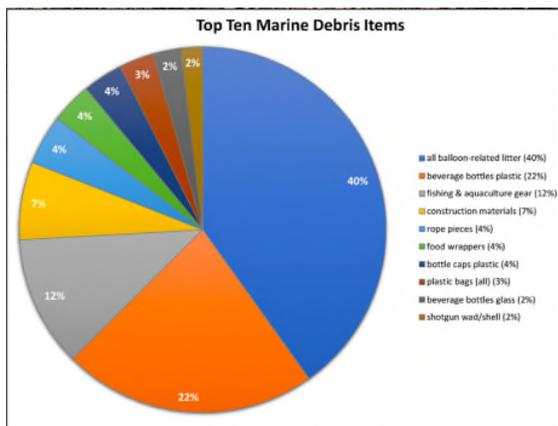
Derelict Clam Nets: Discussions among CZM, CVW, clam aquaculture businesses and other stakeholders led to a system whereby conservation property owners report derelict clam nets to a central phone number and then aquaculture businesses promptly collect the reported nets that become loose after ice storms and similar events. Removing derelict netting demonstrates the industry's commitment to being good stewards and wanting to maintain good relations with neighbors. Given the high costs of sending used clam netting to landfills, CVW worked with the recycling company Terracycle to determine if there are lower-cost disposal or recycling options for used clam nets. This work is ongoing.

Litter Cleanups: Many local governments, civic organizations, nonprofit groups, businesses and schools are engaged in removing litter and marine debris from Virginia's watersheds. These include the statewide Virginia Waterways Cleanup [part of the Ocean Conservancy's International Coastal Cleanup (ICC)] organized by CVW. More than 116,000 volunteers removed nearly 5 million pounds of litter and debris from Virginia's waterways between 1995 and 2019. Volunteers act as citizen scientists by using data forms to tally the debris items – information that CVW has used to build a comprehensive database of litter and marine debris found in Virginia's waterways. Many of the "Top 20" items found during the ICC are mentioned as items of concern in the VMDRP. Data can be downloaded from <https://www.coastalcleanupdata.org/>

Other volunteer-driven litter cleanups are organized annually by the Alliance for the Chesapeake Bay (Clean Streams), Keep Virginia Beautiful (Great American Cleanup), Chesapeake Bay Foundation (Clean the Bay Day), Potomac Conservancy, many Keep America Beautiful affiliates, and more.

Monitoring to fill Data Gaps: In addition to the five major goals of the VMDRP, stakeholders recognized there are many data gaps that required monitoring. The following monitoring projects were conducted over the past few years in Virginia:

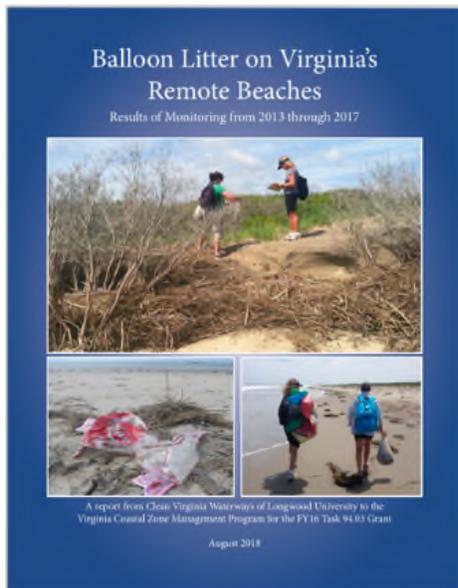
Monitoring Marine Debris in Virginia's Coastal Zone: Researchers from the Virginia Aquarium & Marine Science Center teamed with CVW to conduct monthly monitoring of marine debris on four coastal beaches in Virginia in 2014-2018 using NOAA’s Marine Debris Shoreline Survey protocol. The monitoring team conducted 54 surveys on Back Bay National Wildlife Refuge in Virginia Beach; 51 surveys on Chincoteague National Wildlife Refuge in Accomack County; 50 surveys on Fisherman Island National Wildlife Refuge in Northampton County; and 52 surveys on Grandview Nature Preserve in Hampton. Their report documents the 15,276 pieces of debris that were found--the vast majority of which (83.0%) were made of plastic. The study, funded by Virginia CZM through grants from NOAA Marine Debris Program, sought to understand the scope of the marine debris problem in coastal Virginia by understanding the products and material types that are most frequently found on beaches. The results of this monitoring effort will assist communities as they craft policies and campaigns to reduce the amount of litter and trash that ends up becoming marine debris. The report can be downloaded from the Virginia CZM Program website at <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/MarineDebris.aspx>.



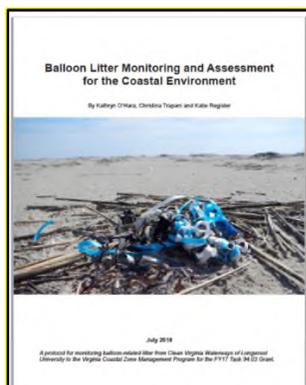
Balloon-related litter was the most frequently found type of debris on Virginia’s coastal beaches during five-years of monitoring conducted by Clean Virginia Waterways.

Balloon Litter on Virginia's Remote Beaches: To better understand the abundance, distribution, seasonality, types, accumulation and fate of balloon litter in coastal environments of Virginia, researchers monitored several barrier islands from 2013 to 2017. A total of 11,441 balloons and balloon-related pieces of litter (e.g., plastic ribbons) were recorded. An extensive report “*Balloon Litter on Virginia’s Remote Beaches*” reveals that, when compared to other trash, balloons ranked as the #1 top marine debris item on the beaches. Balloon litter density varied from 25.6 items per mile on Cedar Island in the winter, to more than 272 items per mile at Fisherman Island National Wildlife Refuge in summer and fall. Most of this litter accumulates on the highest portions of the beach, which is critical habitat for nesting diamondback turtles, sea turtles, and shorebirds. The research about the accumulation of balloon litter in coastal environments can help inform mitigation efforts to prevent

balloon releases through education and social marketing campaigns as well as changes in policies and laws. The report can be downloaded from the Virginia CZM Program website at <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/MarineDebris/MarineDebris-Balloons.aspx> and the Clean Virginia Waterways website at <http://www.longwood.edu/cleanva/publications.html>.



Balloon Litter Monitoring and Assessment for the Coastal Environment: A Protocol: In order to standardize monitoring and assessment of balloon-related litter, CVW developed a new protocol entitled *Balloon Litter Monitoring and Assessment for the Coastal Environment* (O'Hara, Trapani and Register, 2018) that is now being used in Virginia and other Mid-Atlantic states. These protocols will enhance the ability to determine where balloon litter is most prevalent in specific coastal areas and provide a basis for monitoring and assessment of balloon litter on a regional, national or international level. Per the protocol, surveys are conducted quarterly (when feasible) along a premeasured one mile of coastline at each site. CVW also created an instructional video for Mid-Atlantic partners on how to use the GPS units that were provided to them through a previous VA CZM Program grant (<https://www.youtube.com/channel/UC79VQJ1keGbKJDT-6owRyw>). The protocol can be downloaded from the Clean Virginia Waterways website at <http://www.longwood.edu/cleanva/publications.html>.



III. COASTAL NEEDS ASSESSMENTS

Wetlands Phase I Assessment

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

Note: For the purposes of the Wetlands Assessment, wetlands are “those areas that are inundated or saturated at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” [33 CFR 328.3(b)]. See also pg. 174 of the CZMA Performance Measurement Guidance¹ for a more in-depth discussion of what should be considered a wetland.

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

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

Resource Characterization:

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

Virginia requires wetlands that are impacted through permits to be replaced so that the overall benefits to people, aquatic wildlife and water quality remain unchanged. The Virginia Department of Environmental Quality (DEQ) requires compensation for wetland impacts to ensure “no net loss” of wetland acreage and function. DEQ may require compensation for other surface waters in order to protect the physical, chemical, or biological properties of state waters from activities that may have a detrimental effect on the public health, animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, or for recreation, or for other uses. The Virginia Marine Resources Commission oversees management of tidal wetlands in Virginia.

Consolidation of wetland data across Virginia, not only in coastal zone, remains a challenge due in part to concerns over privacy rights of property owners, difficulties in data meshing from various sources, and differences in wetland definitions.

¹ <https://coast.noaa.gov/czm/media/czmapmsguide2018.pdf>

² <https://coast.noaa.gov/digitalcoast/tools/lca.html>. Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state’s coastal county data. The reports will be available after all of the 2016 data is available.

A 2015 report from the Virginia Department of Environmental Quality – Office of Wetlands Stream Protection, summarizes trends in permitting, compensation and compliance activities. The report is on total wetland, open water and stream impacts from July 1, 2001, to June 30, 2015. During this period, impacts to 2,523 acres of wetlands and open water and approximately 1.8 million linear feet of streams were permitted or authorized. The wetlands and open-water impacts were compensated through a combination of creation, enhancement, restoration, and/or preservation of more than 10,500 acres of wetlands. The stream impacts were compensated through a combination of restoration, enhancement, and/or preservation of about 2.1 million linear feet of stream bed and 4,300 acres of riparian buffers. In addition to the area units of compensation received, approximately \$4.1 million was received for credits from in-lieu fee programs.

The Virginia Tidal Marsh Inventory, through 2018, has the total area of tidal marshes in Virginia as 200, 155 acres. Since a few localities are missing, this should be considered a conservative estimate. A comparison of Tidal Marsh Inventories, which have various dates of completion but were completed approximately 30 years apart, shows a net loss of approximately 267 acres of tidal wetlands. There were small losses and gains of marsh area throughout the Bay during this period, but the Virginia Institute of Marine Science has only been able to verify the large changes. Those amount to 1,958 acres of loss and 1,691 acres of gain. This ignores permitting losses, creation of living shorelines and that sort of small changes to fringe marshes and only focuses on erosional loss and gains due to marsh migration in extensive marsh systems.

Development activities in Northern Virginia, greater Richmond and Tidewater continue to be reflected in the amount of surface water impacts in these regions. Wetland impacts are particularly difficult to avoid in Tidewater, as this area of the Commonwealth has the highest proportion of wetlands to uplands. In general, wetlands are more common east of Interstate 95.

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

See #1 above.

Management Characterization:

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

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

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

A number of changes in wetlands management have occurred since the last assessment to promote the use of living shorelines.

- A fast-track permitting process for living shorelines was approved.
- An existing local government authorization to classify wetlands and riparian buffers separate from other classes of real property for local taxation was amended in 2016 to add living shorelines.
- Living shorelines were added to the list of activities eligible for Virginia Revolving Loan Funds in 2016. Local governments and small businesses in certain geographies are authorized to receive funds and provide low-interest loans for establishing living shorelines, including loan programs for individual citizens for living shoreline projects. A Virginia CZM-funded feasibility study of this initiative was critical to its adoption by the Virginia General Assembly.
- The Virginia Conservation Assistance Program (VCAP) was established in 2016 as a cost-share program in Virginia’s Chesapeake Bay Watershed. With the approval of living shorelines as BMPs, the program shares the cost of up to 75% of eligible living shoreline projects.

Changes to the 2015 definition of Waters of the United States (WOTUS) in 2019 could have minor impacts to Virginia’s wetlands management program implementation, although Virginia will continue to use the broader 2015 definition because it is one of three states with state laws for issuing wetland permits and is therefore not affected as much by changes to the federal definition.

Enhancement Area Prioritization:

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

High	
Medium	<u>X</u>
Low	

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

Wetland management is a critical component of Virginia’s climate adaptation efforts. As a result, the Virginia CZM Program has conducted most of its wetland management initiatives under the current Coastal Hazards Strategy. As such, CZM staff recommend a ranking of Medium with the understanding that wetlands protection work may occur under the Coastal Hazards topic.

Coastal Hazards Phase I Assessment

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

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

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

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

Resource Characterization:

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

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

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

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

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

The *Commonwealth of Virginia Hazard Mitigation Plan* (March 2018) includes a Hazard Identification and Risk Assessment section which characterizes flooding as a high hazard risk. The Plan’s section on flooding includes discussions of coastal storms, shoreline erosion, sea level rise and subsidence. Subsidence, when considered by itself, is ranked as a medium hazard risk, but is one of the contributing factors to relative sea level rise, which in turn compounds the serious flooding impacts being experienced in Virginia.

Management Characterization:

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

Significant Changes in Hazards Statutes, Regulations, Policies, or Case Law			
Topic Addressed	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Elimination of development/redevelopment in high-hazard areas ⁴	N	N	N
Management of development/redevelopment in other hazard areas	Y	Y	Y
climate change impacts, including sea level rise or Great Lakes level change	Y	Y	Y

Significant Changes in Hazards Planning Programs or Initiatives			
Topic Addressed	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Hazard mitigation	Y	Y	Y
Climate change impacts, including sea level rise or Great Lakes level change	Y	Y	Y

⁴ Use state’s definition of high-hazard areas.

Significant Changes in Hazards Mapping or Modeling Programs or Initiatives

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

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

While Virginia does not specifically define “high-hazard areas”, the Commonwealth has a number of laws that manage development on high-risk coastal lands such as dunes, beaches and wetlands. Virginia also recognizes the risks associated with development in floodplains in state and local floodplain management programs. State-level floodplain management efforts are coordinated by the Department of Conservation and Recreation.

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

- Describe the significance of the changes;
- Specify if they were 309 or other CZM-driven changes; and
- Characterize the outcomes or likely future outcomes of the changes.

Virginia CZM Program Natural and Community Resilience Initiatives funded through the 2016 – 2020 Section 309 Coastal Hazards Strategy and the 2017 - 2019 Coastal Resilience Focal Area have helped support significant changes in coastal hazards planning and policy at the state, regional and local levels.

- Local RAFT Evaluations:** Virginia CZM-funded assessments of community resilience have been completed or are underway or planned for much of Virginia’s Coastal Zone through the Resilience and Adaptation Feasibility Tool. The assessments are completed through a collaboration of three universities and provide recommendations for building resilience to coastal hazards. Follow up assistance is also provided to communities that have been assessed.
- Local CRS Training and Evaluation:** Virginia CZM funded a cost/benefit analysis and research on local Community Rating System (CRS) position funding. This information was distributed to all coastal localities and locality-specific training and CRS evaluations were provided to twelve communities.
- Resilience Project Database:** A database template of potential resilience-building projects has been designed with Virginia CZM funding based on broad stakeholder input and partially populated. Additional projects are currently being added. The database will ultimately be housed on the ADAPVA website (below).
- Shoreline Management Policies and Living Shoreline Planning Support:** Guidance (still under development) and decision support tools (Shoreline Management Model data) to

assist local wetland boards in their decisions regarding the management of tidal wetlands and shorelines.

- **Beneficial Use of Dredged Material Analysis:** Provided data and legal analysis of opportunities to use dredged material as a resource for resilience-building projects.

Executive Order 24 (November, 2018): Issued to increase Virginia’s resilience to sea level rise and natural hazards, included directives to make the Commonwealth’s holdings more resilient and to develop a Virginia Coastal Resilience Master Plan (under development as of December, 2019)

Executive Order 45 (November, 2019): Detailed floodplain management requirements and planning standards for state agencies, institutions and property as a follow-up to Executive Order 24.

Special Assistant to the Governor for Coastal Adaptation and Protection: New cabinet position created by the 2018 Virginia General Assembly to help with planning and coordination of coastal resilience activities.

ADAPTVA Website: provides a gateway to information for individuals, local programs, and agencies engaged in climate adaptation. It focuses on the physical and social vulnerabilities by integrating the best available science, legal guidance, and planning strategies.

Commonwealth Center for Recurrent Flooding Resiliency: established by the 2016 Virginia General Assembly as a partnership between the College of William & Mary and Old Dominion University to conduct interdisciplinary studies and provide training, technical and non-technical services and policy guidance in the area of recurrent flooding resilience to the Commonwealth and its local governments, state agencies, industries, and citizens.

Virginia Flood Risk Information System (VFRIS): an online tool, developed by the Virginia Department of Conservation and Recreation in collaboration with the Virginia Institute of Marine Science that allows users to view and assess flood risk and help communities plan for resiliency.

Enhancement Area Prioritization:

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

High	<u> X </u>
Medium	<u> </u>
Low	<u> </u>

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

Projects that address coastal hazards issues are consistently given high rankings by the Virginia Coastal Policy Team, which represents a broad range of stakeholders including coastal localities. Virginia’s two Executive Orders related to this issue show its importance in the view of the current administration. Discussions at regional meetings of coastal planning district commissions have also highlighted the importance of this issue at the local government level. As such, CZM staff recommend a ranking of **High**.

Coastal Hazards Phase II Assessment

In-Depth Resource Characterization:

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

1. Based on the characterization of coastal hazard risk, what are the three most significant coastal hazards⁵ within your coastal zone? Also indicate the geographic scope of the hazard, i.e., is it prevalent throughout the coastal zone, or are there specific areas most at risk?

Most Significant Coastal Hazards in Virginia’s Coastal Zone		
	Type of Hazard	Geographic Scope (throughout coastal zone or specific areas most threatened)
Hazard 1	Coastal Storms	Coastal Zone-wide, but especially HR, A-N, MP and NN PDCs
Hazard 2	Shoreline Erosion/habitat loss	Coastal Zone-wide, but especially HR, A-N, MP and NN PDCs
Hazard 3	Sea Level Rise/precipitation-based flooding	Coastal Zone-wide, but especially HR, A-N, MP and NN PDCs

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

According to Governor Northam’s Executive Order 45 from November 2019, Virginia’s flood risk “comes in many forms, and is increasing because of climate change and increased development in flood-prone areas.” For coastal hazards planning purposes, the order states that Virginia will use the NOAA Intermediate-High scenario curve, which equates to nearly four feet of sea level rise by 2070.

Coastal storms remain the most significant coastal hazard because of the potential for widespread damage to the natural and built environments and the potential loss of human life. However, all three hazards are related and thus difficult to prioritize. Sea level rise is causing greater impacts from storm surge. The combined effects of coastal storms and sea level rise also appear to be accelerating shoreline erosion problems, including the loss of wetlands. Fringe marshes along the shoreline are especially vulnerable because of the combination of sea level rise and structurally hardened shorelines that block their upland migration.

Precipitation-based flooding is an increasingly important hazard for coastal areas, and the extent of this flooding is often amplified by sea level rise and tidal storm surges. All areas of Virginia’s Coastal Zone are affected by these hazards, however, the four planning districts located along the eastern half of the zone are more threatened than the more western districts. This is because eastern areas have more flood-prone lands and more extensive shorelines and wetlands.

⁵ See list of coastal hazards on pg. 24 of this assessment template.

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

Emerging Issues of Concern	
Emerging Issue	Information Needed
Compound flood events & (tidal & precipitation based).	Shallow water bathymetry with increased resolution needed to better model marginal increases in water level, etc. Also updated soil data.
Climate change driven heat increases – habitat & human communities	Update USDA habitat zones, NWS, NOAA, DOF
Socio-economic impacts: Water supply, saltwater intrusion to groundwater supply	Precipitation data, municipal water supply, minimum standards for flow from reservoirs, soil data, model potential for change (rates, extent). Groundwater withdrawal & vertical land motion (in progress). Human interaction. Population increase/loss (differing stressors). Economic shifts, workforce changes, public infrastructure maintenance.
Tide gauge data may not meet insurance industry standards	Spatial network seems acceptable, but output of data not accepted by industry.
Human health: diseases, vectors, seafood supply safety	Research and data

In-Depth Management Characterization:

Purpose: To determine the effectiveness of management efforts to address identified problems related to the coastal hazards enhancement objective.

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

Significant Changes in Coastal Hazards Statutes, Regulations, and Policies			
Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Change Since the Last Assessment (Y or N)
Shorefront setbacks/no build areas	Y	N	Y
Rolling easements	N	N	N
Repair/rebuilding restrictions	Y	N	N
Hard shoreline protection structure restrictions	Y	N	Y
Promotion of alternative shoreline stabilization methodologies (i.e., living shorelines/green infrastructure)	Y	Y	Y
Repair/replacement of shore protection structure restrictions	Y	N	N
Inlet management	N	N	N

Significant Changes in Coastal Hazards Statutes, Regulations, and Policies

Protection of important natural resources for hazard mitigation benefits (e.g., dunes, wetlands, barrier islands, coral reefs)	Y	Y	N
Repetitive flood loss policies (e.g., relocation, buyouts)	Y	N	N
Freeboard requirements	Y	N	Y
Real estate sales disclosure requirements	Y	N	N
Restrictions on publicly funded infrastructure	Y	N	Y
Infrastructure protection (e.g., considering hazards in siting and design)	Y	N	Y

Significant Changes to Coastal Hazard Management Planning Programs or Initiatives

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

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

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

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

A report from the Commonwealth Center for Recurrent Flooding Resilience “Future Sea Level and Recurrent Flooding Risk for Coastal Virginia” was completed in February, 2020.

<https://www.floodingresiliency.org/wp-content/uploads/2020/03/Future-Sea-Level-and-Recurrent-Flooding-Risk-for-Coastal-Virginia-Final-Version.pdf>

Studies on the Economic Impacts of Conserved Lands were completed for the Eastern Shore and Lower Chickahominy regions.

Resilience and Adaptation Feasibility Tool (RAFT) reports were completed for Eastern Shore localities. Reports are currently being developed for Northern Neck localities and are planned for Middle Peninsula localities.

Community Rating System (CRS) evaluations have been completed for 12 coastal localities and are planned for more.

The Virginia Coastal Resilience Master Plan is currently being developed by the Special Assistant to the Governor for Coastal Adaptation and Protection. When completed, the plan will assist local governments in reducing flood risk through planning and implementing large-scale flood protection and adaptation initiatives.

Identification of Priorities:

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

Management Priority 1: Strengthen Virginia CZM enforceable policies with regard to coastal hazards and the impacts of climate change

Description: Virginia’s new narrative enforceable policies may provide a significant opportunity to address coastal hazard issues, including those related to climate change. Evaluating these policies and recommending resilience-building revisions was identified by stakeholders as a top priority issue.

Management Priority 2: Promote shoreline resiliency through enhanced shoreline planning

Description: Although Virginia has made great progress in promoting the use of living shorelines, the Commonwealth is still losing important shoreline features as a result of sea-level rise and waterfront development. Enhancing shoreline management plans to address more resilience-building opportunities and to provide greater detail and preliminary resilience project designs will help to protect existing resources and to identify opportunities to restore resources and help offset climate-related losses.

Management Priority 3: Promote community resilience

Description: Coastal storms and recurrent flooding are significant problems in coastal Virginia, and are likely to get worse in the future as a result of climate change. A number of opportunities exist for improving community resiliency and planning for this change. Coastal resiliency planning priorities for Virginia include local participation in the Community Rating System of the National Flood Insurance Program and other actions recommended through local RAFT evaluations.

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

Priority Coastal Hazards Needs		
Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	Living shoreline design standards for water quality credits
Mapping/GIS/modeling	Y	Wetland migration data, dredge material type and location
Data and information management	Y	First floor elevations for buildings in flood hazard areas; location of failing septic systems
Training/Capacity building	Y	Living shoreline certification; CRS training
Decision-support tools	Y	Enhanced shoreline management recommendations, prioritized areas for shoreline restoration projects
Communication and outreach	Y	Citizen outreach for building community resiliency

Enhancement Area Strategy Development:

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

Yes X

No

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

Stakeholders agreed that issues associated with coastal hazards were a significant issue for Virginia’s Coastal Zone and that developing Section 309 strategies to address these issues should be a priority. The Phase II Assessment process also showed that stakeholders further agreed that promoting resiliency through the Virginia CZM Program’s new enforceable policies, through enhanced shoreline management plans, and in coastal communities should be the areas of concentration.

Public Access Phase I Assessment

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

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

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

Resource Characterization:

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

Public Access Status and Trends			
Type of Access	Current number ⁶	Changes or Trends Since Last Assessment ⁷ (, ↓, -, unkwn)	Cite data source
Beach access sites	36	Decrease, but believe that data used in last assessment was outdated.	https://www.vims.edu/research/departments/physical/programs/ssp/beaches/public_beaches/index.php
Shoreline (other than beach) access sites	355 (plus 16 beach access areas)	Roughly there has been 6 access sites added per year since 2010; therefore 30 sites since 2015	http://consapps.dcr.virginia.gov/dnh/vop/vopmapper.htm
Recreational boat (power or nonmotorized) access sites	355 + 70 DGIF = 425 total	DCR does not track DGIF access but tracks all other water access. This tracking is done at on a reporting basis from local governments; therefore; is not exact.	VOP Mapper
Number of designated scenic vistas or overlook points	0	The State of Virginia does not have scenic views legislation at this time.	n/a
Number of fishing access points (i.e. piers, jetties)	14	Not very accurate but taken from notes in the VOP water access database, unknown trend	Virginia Outdoors Plan water database

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

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

Public Access Status and Trends			
Coastal trails/boardwalks <i>(Please indicate number of trails/boardwalks and mileage)</i>	3, since 2015	Have increased since 2015 <ul style="list-style-type: none"> • Hopewell Boardwalk – 2019 • Neabsco Creek Boardwalk- 2019 • Dutch Gap Boardwalk – 2018 • Seaside Boardwalk repairs – 2018 	Personal comment by R. Rhur (DCR)
Number of acres parkland/open space	409,488.85	Since 2015, publically accessible parkland/open space has increased by 14,745.13 acres.	DCR Natural Heritage Program staff (David Boyd) measured this acreage in GIS, sorting by parcels publically owned, but excluding military bases.
Access sites that are Americans with Disabilities Act (ADA) compliant⁸	5	This is an estimate since 2015. DCR does not specifically track ADA compliance at water access sites, this number includes the 3 boardwalks and known ADA compliance due to specific reporting. Increase since last assessment.	Comment by Robbie Rhur (DCR)
Other (please specify)	n/a	n/a	n/a

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

The Virginia Department of Conservation and Recreation (DCR) conducts an outdoor recreation survey every five years. The University of Virginia Center for Survey Research (Weldon Cooper) conducted the Virginia Outdoors Demand Survey (VODS) in 2017 to inform the 2018 Virginia Outdoors Plan (VOP). The VODS showed an increase across the state in the importance of outdoor recreation access. 70% of Virginians consider it very important to have access to outdoor recreation. This is an increase of 15% since the 2011 survey. In addition, natural areas, trails, and water access rank as the most needed activities statewide and in most regions. Over 35% of those answering the survey agree that urban and rural areas need more trails, water access, and historic areas.

⁸ For more information on ADA see www.ada.gov.

⁹ Most states routinely develop “Statewide Comprehensive Outdoor Recreation Plans”, or SCROPs, that include an assessment of demand for public recreational opportunities. Although not focused on coastal public access, SCROPs could be useful to get some sense of public outdoor recreation preferences and demand. Download state SCROPs at www.recpro.org/scorp-library.

¹⁰ The National Survey on Fishing, Hunting, and Wildlife Associated Recreation produces state-specific reports on fishing, hunting, and wildlife associated recreational use for each state. While not focused on coastal areas, the reports do include information on saltwater and Great Lakes fishing, and some coastal wildlife viewing that may be informative and compares 2016 data to 2011, 2006 and 2001 information to understand how usage has changed. See www.wsfprprograms.fws.gov/subpages/nationalsurvey/national_survey.htm

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

The network of water trails in Virginia continues to grow, especially within the coastal zone. Relaxing on a beach was ranked as the second most popular water-related activity in the 2017 VODS. However, outside of cities situated on the Chesapeake Bay or Atlantic Ocean, the vast majority of Virginia’s shoreline remains privately owned. As such, beach access remains limited in these other areas.

Management Characterization:

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

Significant Changes in Public Access Management			
Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	N	Y – Development of Public Access Authorities has been funded by CZM.	Y – Hampton Roads PDC has developed a strategic plan in 2018 for public access with funding from CZM (FY2016, Task 51).
Operation/maintenance of existing facilities	Y – The Virginia Outdoors Foundation grant encourages public entities not to sell land.	N	Y - Declining maintenance budgets have led to access issues such as silting in of boat ramps.
Acquisition/enhancement programs	Y	Y – please see narrative below.	Y

Since 2015, CZM has funded 3 land acquisitions: Beautiful Woods (FY14, completed 2015), the Medlin Tract (FY15, completed 2018), and the Spady Tract (FY16, completed 2019), all on the Eastern Shore. CZM has also funded enhancements at Captain Sinclair’s Recreation Area in Gloucester County (FY18, completed 2019) and Brown’s Island in the City of Richmond (FY14, completed 2015). Furthermore, CZM has funded the following public access sites:

- Captain Sinclair Pier in Gloucester County (FY14, completed 2015)
- Nike Park Boat Ramp in Isle of Wight County (FY 15, completed 2015)
- Port Royal Pier Extension in Port Royal (FY15, completed 2016)
- Lavalette Kayak Launch in Norfolk (FY15, completed 2015)

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

- a. Describe the significance of the changes;
Please see response to Question 2 under the Resource Characterization section regarding the VODS and VOP. ConserveVirginia, DGIF Boating Access Plan.
 - b. Specify if they were 309 or other CZM-driven changes; and
None were 309 driven changes. The CZM-funded Seaside Water Trail was highlighted as a success story demonstrating the growth of water trails under Section 306/306A.
 - c. Characterize the outcomes or likely future outcomes of the changes.
The 2018 VOP will facilitate and improve recreation planning in the Commonwealth, thereby identifying opportunities for additional public access sites and enhancement of existing public access areas and facilities.
3. Indicate if your state or territory has a publically available public access guide. How current is the publication and how frequently it is updated?¹¹

Publically Available Access Guide			
Public Access Guide	Printed	Online	Mobile App
State or territory has? (Y or N)	Y VA Water Trails Interpretive Signage Ecotourism guides	Y https://virginiawatertrails.org/	FishSwimPlay.com (HRPDC) Go Outdoors VA app (DGIF)
Web address (if applicable)	n/a	PlanRVA has added the James River Association's public access mapper to the PlanRVA website. DCR has Natural Area Preserve Public Access Guide https://www.dcr.virginia.gov/natural-heritage/document/napbook4web.pdf Northern Neck PDC https://www.northernneck.org/parks-nature-trails/ Crater PDC Appomattox River Trail map housed within GIS portal	Unknown
Date of last update	n/a	2018	Unknown
Frequency of update	n/a	Every 5 years	Unknown

There is also a Chesapeake Bay Public Access Guide available at <https://www.cbf.org/join-us/more-things-you-can-do/on-and-around-the-bay/resources-for-exploring-the-chesapeake.html>.

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

Enhancement Area Prioritization:

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

High	<u> </u>
Medium	<u> X </u>
Low	<u> </u>

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

Funding of policy development is not needed. What’s needed is funding for acquisition and construction. Appropriate programs supporting public access already exist within the Commonwealth so the medium ranking is consistent with the pursuit of projects using other CZMA funds to bolster public access in the coastal zone. In addition, the ability of local and regional governments to acquire or accept donated waterfront property, made possible by the creation of laws allowing the creation of Public Access Authorities (PAA), has led to an increase in public access sites and preservation of working waterfronts. The Middle Peninsula Chesapeake Bay PAA (MPCBPAA) was created in 2002 and has been instrumental in this process while the Northern Neck Chesapeake Bay PAA (NNCBPAA) was created in 2005 and has helped to preserve similar sites. CZM also funded the creation a PA plan by HRPDC in FY2016. Furthermore, elements of public access issues may be addressed in other Enhancement Areas (EA’s). For example, increasing the resiliency of PA sites in the face of sea level rise and increasing storm intensity can be a focus of the Coastal Hazards EA. As such, CZM staff recommend a ranking of **Medium**.

Marine Debris Phase I Assessment

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

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

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

Resource Characterization:

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

Status and Trends of Marine Debris			
Existing Status and Trends of Marine Debris in Coastal Zone Source of Marine Debris	Significance of Source (H, M, L, unknown)	Type of Impact ¹² (aesthetic, resource damage, user conflicts, other)	Change Since Last Assessment (↑, ↓, -, unknown)
Beach/shore litter	H	Resource damage to wildlife (through ingestion and entanglement and habitat impacts; economic loss due to aesthetic degradation and clean-up costs; human health and safety	No change
Land-based dumping	M	Resource damage to wildlife (through ingestion and entanglement and habitat impacts; economic loss due to aesthetic degradation and clean-up costs; human health and safety	No change
Storm drains and runoff	H	Resource damage to wildlife (through ingestion and entanglement and habitat impacts; economic loss due to aesthetic degradation and clean-up costs as well as high cost of interception and prevention measures; and human health and safety	No change
Land-based fishing (e.g., fishing line, gear)	M	Damage to habitat and wildlife (fish, birds, marine mammals, sea turtles, diamondback terrapins) from ingestion and entanglement; economic; human health and safety; and aesthetic.	No change
Ocean/Great Lakes-based fishing (e.g., derelict fishing gear)	H	Damage to habitat and wildlife (fish, birds, marine mammals, sea turtles, diamondback terrapins) from ghost traps, lost clam nets, ropes and lines; economic (esp. reduced crab harvest); human health and safety; and aesthetic.	No change, although when VIMS receives funding, substantial numbers of crab pots are removed.

¹² You can select more than one, if applicable.

Status and Trends of Marine Debris			
Derelict vessels	M	Boating safety; aesthetics; resource damage (leaking, toxics, smothering substrates, items from boats become debris)	No change
Vessel-based (e.g., cruise ship, cargo ship, general vessel)	Unknown	Wildlife, habitat and aesthetics	No change
Hurricane/Storm	Low (no major hurricanes since last assessment) but high when hurricanes occur	Economic; wildlife/habitat damage; human health and safety; and aesthetics	↓
Tsunami	Unknown	Economic; wildlife/habitat damage; human health and safety; and aesthetics	No change
Other (please specify) Balloon-related litter	H	Damage to wildlife (fish, birds, marine mammals and sea turtles) through ingestion and entanglement in balloon ribbons; economic; human health and safety; and aesthetic.	↑

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

International Coastal Cleanup in Virginia - Virginia Waterways Cleanup: The Virginia Waterways Cleanup is part of the Ocean Conservancy’s International Coastal Cleanup (ICC). Clean Virginia Waterways (CVW) of Longwood University organizes this annual statewide cleanup event of streams, rivers, bays, and coastal waters throughout Virginia. More than 110,000 volunteers removed nearly 5 million pounds of litter and debris from Virginia’s waterways between 1995 and 2019.

Volunteers act as citizen scientists by using data forms to tally the number of cigarette butts, beverage containers, food-related wrappers, balloons, plastic bags, and other common marine debris items – information that CVW has used to build a comprehensive database of litter and marine debris found in Virginia’s waterways. Many of the “Top 20” items found during the ICC are mentioned as items of concern in Virginia in the VMDRP. Data can be downloaded from <https://www.coastalcleanupdata.org/>

Monitoring Marine Debris in Virginia’s Coastal Zone Project Report - April 2014 through June 2018. Researchers from the Virginia Aquarium & Marine Science Center teamed up with Clean Virginia Waterways to conduct monthly monitoring of marine debris on four coastal beaches in Virginia in 2014-2018. This report documents the 15,276 pieces of debris that were found--the vast majority of which (83.0%) were made of plastic. The study, funded by Virginia CZM through grants from NOAA, sought to understand the scope of the marine debris problem in coastal Virginia by identifying hotspots of debris accumulation and understanding the products and material types that are most frequently found on beaches. The report can be downloaded from:

<https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/MarineDebris.aspx>

Balloon Litter on Virginia's Remote Beaches. More than 11,400 balloons, balloon pieces and attachments were found on Virginia's most remote beaches by Clean VA Waterways' researchers as part of a five-year study of balloon litter in coastal environments of Virginia. Balloon litter was the #1 most frequently found type of marine debris on these beaches. The report can be downloaded from: <http://www.longwood.edu/cleanva/publications.html>

Balloon Release Research in Virginia & Reducing Balloon Debris through Community-Based Social Marketing. This report summarizes 3 years of research on WHO plans balloon releases, WHY they do it, and ALTERNATIVES that are litter-free. Using the principles of Community-Based Social Marketing, partners developed a pilot campaign to reduce the mass releases of balloons during weddings and other "happy" events. The report can be downloaded from: <http://www.longwood.edu/cleanva/publications.html>

Effects of Derelict Gear on Blue Crab Production in the Chesapeake Bay. In this 2015 report, the authors (Scheld, Bilkovic & Havens of the VA Institute of Marine Science) discuss several factors that currently threaten blue crab (*Callinectes sapidus*) in the Chesapeake Bay, including derelict gear which has recently been recognized as a significant source of mortality for this economically and culturally significant species. From 2008 through 2014, commercial watermen in Virginia were hired during their winter off season to locate, document, and remove derelict gear as part of a larger research effort to determine the biological impacts of marine debris in the Chesapeake Bay. Data on derelict gear removal generated by this research was subsequently paired with spatially resolved catch and effort data and entered into a translog production model used to estimate the economic effects of derelict gear on commercial blue crab production. Model results indicate removal significantly improved pot production and economic profits, a finding which had been previously confounded by concurrent blue crab management action. This research builds on previous work through explicit acknowledgment of important spatial production differences and incorporation of derelict gear removal.

Examining derelict pot impacts on harvest in a commercial blue crab *Callinectes sapidus* fishery. VIMS researchers DelBene, Bilkovic and Scheld report that a significant proportion of pot fishing gear becomes derelict each year. Derelict pots induce detrimental ecological and economic impacts, and more recently were found to reduce blue crab harvests in the Chesapeake Bay commercial fishery. Researchers simulated the presence of derelict pots near actively fished pots in seasonal field experiments to quantify the effect derelict pots have on blue crab harvest. Derelict pots reduced harvests by 30% during the summer, but not during the fall. Female blue crab capture rates were consistently lower when derelict pots were present, while capture rates of the less abundant males were not negatively affected by derelict pots. (<https://www.sciencedirect.com/science/article/pii/S0025326X18308658>)

The Effects of Ghost Fishing on Crab and Fish Populations. J Mitchell – 2019 commons.vccs.edu: In this experiment conducted in Perrin Creek in Hayes, Virginia, the researcher found that derelict crab pots affected crab and fish populations more than derelict nets and hooks. (https://commons.vccs.edu/student_writing/38/)

The Dilemma of Derelict Gear – Datasets. AM Scheld, DM Bilkovic, KJ Havens – 2016. This file contains data used to estimate a statistical harvest model and evaluate the economic impacts of the Virginia Marine Debris Removal Program.

The dilemma of derelict gear. AM Scheld, DM Bilkovic, KJ Havens - Scientific reports, 2016 - nature.com; <https://www.nature.com/articles/srep19671>. Every year, millions of pots and traps are lost in crustacean fisheries around the world. Derelict fishing gear has been found to produce several harmful environmental and ecological effects, however socioeconomic consequences have been investigated less. (<https://scholarworks.wm.edu/data/38/>)

Experiments with by-catch reduction devices to exclude diamondback terrapins and retain blue crabs. OR Trani, K Angstadt, DM Bilkovic, KJ Havens – 2017. Experiments were completed in SE Virginia during June–July 2014 and 2015 to examine the responses of blue crabs (*Callinectes sapidus*) and diamondback terrapins (*Malaclemys terrapin*) to commercial-style crab pots modified in visual and other ways. (<https://link.springer.com/article/10.1007/s12237-017-0223-4>)

Management Characterization:

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

Significant Changes in Marine Debris Management			
Management Category	Employed by State/Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Marine debris statutes, regulations, policies, or case law interpreting these	Y	Y (CVW grantee responds to requests for policy development advice and supporting data)	Y (increased requests for assistance coming from localities, state agencies universities, Governor’s Office and state legislators)
Marine debris removal programs	Y	Y (grants to VA Aquarium, CVW, NVRC)	Y (Virginia efforts expanding to the Mid-Atlantic region – Mid-A Work Group and Balloon Grant and FY20 LOI)

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

Since the Virginia CZM Program began working on the issue of marine debris back in 2013, the topic has gained momentum. Concerns among local and state government officials have increased dramatically, the media has covered the issue extensively and often, and public awareness has been elevated far beyond previous Section 309 cycles.

Some, but of course, not all, of this attention can be traced to Virginia CZM’s Section 309 efforts and its major grantee, Clean Virginia Waterways. The VA CZM Program has been at the forefront of the issue and provided leadership in developing the first state marine debris reduction plan on the Atlantic Coast and likely the most in-depth social marketing campaign to reduce balloon releases – one of the top most harmful forms of marine debris for wildlife.

Some outcomes of this leadership: Virginia CZM was able to ensure that reducing marine debris was a key action in the 2016 Mid-Atlantic Ocean Action Plan, and Virginia has led the Mid-Atlantic Marine Debris Work Group established under that plan since 2016. That group has gone on to secure additional funding from NOAA’s Marine Debris Program to expand Virginia’s balloon release reduction campaign to the entire Mid-Atlantic and is now working toward development of a Mid-Atlantic regional marine debris reduction plan.

Five new laws were passed during the 2020 General Assembly Session which are further detailed in the Marine Debris Strategy:

- Establishment of a Plastic Waste Prevention Advisory Council,
- Allowance of local government enactment of fees on single-use plastic shopping bags,
- Raising of the Virginia Litter Tax for the first time in 43 years from \$10 to \$20 annually for most businesses that sell soda, beer and related items. Awareness of the need to raise this tax came about as part of research done in the development of the VMDRP. A fact sheet was developed and disseminated to key policy makers and groups that were interested in lobbying for the change. The proceeds of the VA Litter Tax support various litter prevention projects in VA’s counties and municipalities.
- Increase of the fine for businesses that do not pay the annual Litter Tax.
- Additionally, a bill to prohibit the use of expanded polystyrene food service containers starting in 2023 was passed by the General Assembly in 2020 and signed by the governor, but will need to be reenacted during the 2021 General Assembly session to remain in effect.

A new resource, LitterFreeVA.org, was established in 2019 to facilitate tracking of legislation and policy in Virginia related to litter prevention and source reduction of single-use plastics. It provides a summary of bills, fact sheets and talking points. It is supported by Clean Virginia Waterways through its CZM section 309 grant.

Enhancement Area Prioritization:

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

High	<u> X </u>
Medium	<u> </u>
Low	<u> </u>

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

The global problem of accumulating plastics in the ocean has become severe, with little sign of diminishing. The Commonwealth of Virginia has been considering legislation at local and state levels and may be on the cusp of enacting significant legislation. This topic remains a high priority,

especially given the current receptivity at the local, state and regional levels to capitalize on this momentum and the amount of work that remains to be done.

A recent poll of awareness and concerns on environmental issues revealed that plastics in the ocean ranked of higher concern than climate change. See <https://sheltongrp.com/work/circularity-2019-special-report-waking-the-sleeping-giant>

The Marine Debris Summits which the Virginia CZM Program held in 2016 and 2019 with Section 309 funding attracted several hundred stakeholders (non-profit groups, local and state government officials, academics, businesses and private citizens) who presented work they are doing and the huge need for additional resources to combat this problem. Each year these summits grow in participation and in 2019, participants came from throughout the Mid-Atlantic. The need for larger regional approaches is also critical to this issue. A continued 309 strategy for marine debris would allow Virginia to help bring to fruition several multi-state efforts.

In addition, the Mid-Atlantic Regional Council on the Ocean's (MARCO's) Marine Debris Work Group, led by Virginia CZM, received notification that the Letter of Intent (LOI) submitted by MARCO for an FY2020 grant was accepted for a full proposal. Although it was not selected for funding, the project would have created a social marketing campaign aimed at Clean Beaches and MARCO was encouraged to re-apply in the future. Below are several remarks from reviewers of the application:

"This applicant has demonstrated success on past and current marine debris projects. This project would complement ongoing efforts."

"Very strong collection of partners who have demonstrated very positive efforts over the years in the mid-Atlantic region. Applicants have been motivated and take initiative to lead projects using a variety of resources and working toward a common strategic vision for the mid-Atlantic region. LOI is thoughtful and builds upon several very successful efforts that have been piloted in Virginia and the applicants have become regional experts in community based social marketing."

For all of the above reasons, CZM staff recommend this topic be ranked as **High**.

Marine Debris Phase II Assessment

In-Depth Resource Characterization:

Purpose: To determine key problems and opportunities to improve the CMP’s ability to effectively manage marine debris in the coastal zone.

1. What are the three most significant **existing or emerging challenges** related to marine debris within your coastal zone? Indicate the geographic scope of the challenge, i.e., is it prevalent throughout the coastal zone, or are specific areas most threatened? Challenges can be land- or ocean-based marine debris reduction (e.g., behavior change to reduce waste, increase recycling, or litter less); catastrophic event-related debris; marine debris identification and removal; research and monitoring; education and outreach; or other (please specify). When selecting significant challenges, also consider how climate change may exacerbate each challenge.

Existing or Emerging Challenges Related to Marine Debris		
	Challenges	Geographic Scope (throughout coastal zone or specific areas most threatened)
Challenge 1	Disconnect among inland populations about their downstream and cumulative impacts.	Throughout the coastal zone and all of Virginia.
Challenge 2	Preventing and removing derelict fishing gear.	Throughout the coastal zone.
Challenge 3	Increasing use of plastics.	Throughout the coastal zone and all of Virginia.

2. Briefly explain **why** these are currently the most significant challenges related to marine debris in the coastal zone. Cite stakeholder input and/or existing reports or studies to support this assessment.

Disconnect in Public Understanding: The majority of marine debris is from inland sources, and 13 of the top 20 littered items found on Virginia’s shorelines are food packaging and beverage-related items according to data collected by volunteers during the 2018 International Coastal Cleanup in Virginia. In addition, balloon-related litter was the #1 and #2 most commonly found types of debris on Virginia’s remote barrier islands in two recent reports (see reports on the CZM Program website - <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/MarineDebris.aspx> and Clean Virginia Waterways website - <http://www.longwood.edu/cleanva/publications.html>). Based on surveys conducted in fall of 2019 by the Virginia CZM Program through contracts to OpinionWorks and Clean Virginia Waterways, we know that many people surveyed still did not connect their inland littering (or balloon releasing) behaviors to downstream impacts. For example, during interviews on the George Mason University campus, a number of students said that they would never release balloons in the future now that they had learned that 100% of balloons return to Earth as potentially harmful litter. For some, simply becoming aware is enough to modify their behavior.

Derelict Fishing Gear: This is the most deadly form of marine debris to seabirds, sea turtles and marine mammals in terms of entanglement according to a 2016 [paper in the Journal of Marine Policy](#) by Wilcox et al. While a good deal of work has been conducted to minimize the abandonment of crab pots and the improper disposal of monofilament fishing line, the problem persists. Preventing the purposeful release of fishing gear requires ingrained behavior changes which creates

a major challenge. It is also difficult, time-consuming and expensive to remove derelict gear from the marine environment. And finally, storms and other natural events can exacerbate the problem.

Increased Plastics Use: Production and use of single-use plastics (including COVID19-related such as gloves, masks, plastic bags) is expected to increase while recycling opportunities nationwide are decreasing. See the Marine Debris Strategy for more information.

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

Emerging Issues of Concern	
Emerging Issue	Information Needed
Threat to human and wildlife health of microplastics	Pathology studies (airborne and water borne), toxin biotransfer and accumulation, sources, monitoring. See report by Robert Hale, et al in the Journal of Geophysical Research: Oceans also referenced in the Marine Debris Strategy.
Warming winters causing greater mortality in derelict pots – animals not hibernating	More monitoring and experiments –Better understanding of how climate change (including changes in temperature and acidity) in conjunction with derelict pots are impacting crabs and other species.
Recurrent flooding and increasing storm frequency & intensity	Other states’ procedures for preparation for flooding and storm events.

In-Depth Management Characterization:

Purpose: To determine the effectiveness of management efforts to address identified problems related to the marine debris enhancement objective.

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

Significant Changes to Management of Marine Debris			
Management Category	Employed by State (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (2015) (Y or N)
Marine debris research, assessment, monitoring	Y	Y	Y
Marine debris GIS mapping/database	Y (mapping & database)	Y	Y – people can enter data using an app for where they find derelict crab pots
Marine debris technical assistance, education, and outreach	Y	Y	Y
Marine debris reduction programs (litter control, recycling, etc.)	Y	Y	Y significant decrease in funding for derelict crab pot removal
Other (please specify)			

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

- a. **Describe significant changes** since the last assessment;
- b. Specify if they were 309 or other CZM-driven changes; and
- c. **Characterize the outcomes** or likely future outcomes of the changes.

Monitoring and Research: Monitoring of four coastal beaches by the VA Aquarium, funded by grants from the NOAA Marine Debris Program and supported by CVW through VA CZM Program Section 309 grants, was completed in 2018. Research on developing a Community-Based Social Marketing campaign to stop intentional balloon releases (partly funded by a NOAA Marine Debris Program Grant) concluded in 2018, and resulted in the Joyful Send-off campaign. Monitoring balloon-related debris on remote barrier islands (supported by CZM/NOAA funding) has concluded, but monitoring of Fisherman Island National Wildlife Refuge continues to be supported by 309 funds as part of the Mid-Atlantic collaborative project to reduce intentional balloon releases (partly funded by a NOAA Marine Debris Program Grant). Outcomes: The results of these monitoring efforts will serve as a baseline, help evaluate effectiveness of campaigns to reduce littering behaviors, and assist communities as they craft policies and behavior-change campaigns to reduce the amount of litter and trash that ends up becoming marine debris in rivers, coastal waters, and on beaches. Reports can be found on the [CZM web site](#) and the [CVW web site](#). These research projects resulted in raising awareness through significant coverage on traditional media and social media outlets.

Mapping: Mid-Atlantic beach monitoring sites and data are to be added to the MARCO Portal.

Marine debris technical assistance, education, and outreach: Over the last five years, 309 funding has supported the creation of a significant number of reports, publications, fact sheets, and proceedings from workshops and summits in addition to a robust presence on the web including www.JoyfulSendoff.org, www.PreventBalloonLitter.org and their companion Facebook Pages - <https://www.facebook.com/preventballoonlitter.org/>.

Reduction programs: See Phase I strategy for description of programs.

3. Identify and describe the conclusions of any studies that have been done that illustrate the effectiveness of the state’s management efforts to reduce marine debris since the last assessment. If none, is there any information that you are lacking to assess the effectiveness of the state’s management efforts?

See the Phase 1 assessment, item #2 under Resource Characterization for papers on effect of derelict gear on blue crab production, examining derelict pot impacts on blue crab harvest, and other documents that discuss state management efforts to reduce marine debris. One study, which included a cost-benefit analysis, showed that removing derelict gear from certain locations was more effective than removing it from other places – related to fishing pressure.

More research is needed to tie cause and effect to specific management efforts in Virginia and the Mid-Atlantic region.

Identification of Priorities:

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

Management Priority 1: Reducing Land-based Sources of Debris – mainly plastics

Description: 83% of debris collected on beaches is plastic and the majority of it is single-use food and beverage containers. Reduction of this debris can be approached from many angles including laws, regulations, enforcement, social marketing to change behavior and innovations in packaging.

Management Priority 2: Preventing and Removing Derelict Fishing Gear

Description: Derelict fishing gear remains the #1 most harmful marine debris for ocean wildlife (Wilcox et al., 2016; <https://www.sciencedirect.com/science/article/pii/S0308597X15002985>). Although good work has been undertaken to remove abandoned crab pots and educate recreational fishers about proper disposal of fishing line, more remains to be done. Some derelict gear is a result of accidents, which are difficult to avoid, but some still result from human carelessness. This issue can also be addressed by some of the techniques mentioned above and also through more public education efforts and gear removal funding.

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

Priority Needs and Information Gaps		
Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	Quantification/evaluation of management effectiveness; microplastics risk assessments; behavior preferences for bottled water versus tap water
Mapping/GIS	Y	Mapping debris flow (VIMS working on maps that could provide basis to build upon)
Data and information management	Y	Connecting litter monitoring apps and synthesizing data
Training/Capacity building	Y	Need more capacity for CBSM
Decision-support tools	Y	Identifying and prioritizing hot spots which then allow managers and decision-makers to target where litter controls are needed
Communication and outreach	Y	More research (including focus groups) to develop effective messaging for behavior change
Other (specify)		

Enhancement Area Strategy Development:

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

Yes X
No

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

Please see Phase I Assessment for rationale for high ranking and the need for a strategy. Briefly, the issue of marine debris, and particularly plastics in the ocean, has gained a great deal of media attention as well as attention by Virginia’s General Assembly, making the prospects for change quite good. Additionally as flooding and storm intensity increase and as the improper disposal of personal protective equipment resulting from the COVID19 pandemic have increased, it is even more urgent that we continue our efforts to reduce marine debris.

Cumulative and Secondary Impacts Phase I Assessment

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

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

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

Resource Characterization:

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

Trends in Coastal Population and Housing Units			
	2012	2017	Percent Change (2012-2017)
Number of people	5,189,095	5,383,379	3.74%
Number of housing units	2,082,389	2,153,378	3.41%

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

¹³www.oceaneconomics.org/Demographics/PHresults.aspx. Enter “Population and Housing” section and select “Data Search” (near the top of the left sidebar). From the drop-down boxes, select your state, and “all counties.” Select the year (2012) and the year to compare it to (2017). Then select “coastal zone counties.”

¹⁴www.coast.noaa.gov/digitalcoast/tools/lca.html. Note that the 2016 data will not be available for all states until later Summer 2019. NOAA OCM will be providing summary reports compiling each state’s coastal county data. The reports will be available after all of the 2016 data is available. The data in table below came from VGIN’s Land Use Cover Dataset for 2016.

Distribution of Land Cover Types in Coastal Counties		
Land Cover Type	Land Area Coverage in 2016 (Acres)	Gain/Loss Since 1996 (Acres)
Developed, High Intensity	447,488	Unknown
Developed, Low Intensity	Unknown	Unknown
Developed, Open Space	1,094,670	Unknown
Grassland	139,564	Unknown
Scrub/Shrub	37,483	Unknown
Barren Land	30,794	Unknown
Open Water	1,912,309	Unknown
Agriculture	693,179	Unknown
Forested	2,480,126	Unknown
Woody Wetland	<u>Unknown, total Wetlands are 853,521</u>	Unknown
Emergent Wetland	<u>Unknown, total Wetlands are 853,521</u>	Unknown

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

Development Status and Trends for Coastal Counties			
	1996	2016	Percent Net Change
Percent land area developed			
Percent impervious surface area			

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

How Land Use Is Changing in Coastal Counties	
Land Cover Type	Areas Lost to Development Between 1996-2016 (Acres)
Barren Land	
Emergent Wetland	
Woody Wetland	
Open Water	
Agriculture	
Scrub/Shrub	
Grassland	
Forested	

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

4. Briefly characterize how the coastal shoreline has changed in the past five years due to development, including potential changes to shoreline structures such as groins, bulkheads and

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

other shoreline stabilization structures, and docks and piers. If available, include quantitative data that may be available from permitting databases or other resources about changes in shoreline structures.

According to a 2018 report by the Virginia Institute of Marine Science, “Implementing Sustainable Shoreline Management in Virginia: Assessing the Need for an Enforceable Policy” legislation passed in 2011 stating that living shorelines (LS) are to be the Commonwealth’s preferred shoreline stabilization method has not significantly altered the continued trend of using hardened structures – the traditional method of stabilization. The study found an inconsistency between guidance provided and/or the projected feasibility of LS and the actual implementation of such methods. Specifically, shorelines with low fetch and wave intensity have been consistently over-armored through the use of hardened structures when LS would have been sufficient to prevent erosion. The armoring of shorelines continues to be a threat to long-term tidal wetland resiliency by preventing the landward migration of such habitats in the face of sea level rise (SLR) and the study estimated that approximately 751 miles of shoreline are likely to be lost in this manner.

While the study found that the number of permitted LS projects had increased by 5% since the 2011 legislation, the majority (65%) of shoreline stabilization projects since then still used traditional methods compared to only 6% classified as a non-structural LS. In order to reverse this trend and promote LS, the VIMS study suggests strengthening the disincentives toward traditional methods by increasing scrutiny and consistency in regulatory permit reviews and by increasing the incentives to use the LS methods. Several examples of the latter approach have already been implemented since the 2015 Needs Assessment:

- Fast-tracking permit review and approval for LS
- Adding LS to the same local tax assessment category as wetlands and riparian buffers
- Adding LS to the list of activities eligible for the Virginia Revolving Loans Fund
- The establishment of the Virginia Conservation Assistance Program (VCAP), which allows for up to a 75% cost-share by the state for eligible LS projects

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

Miles of Living Shoreline* Permitted Across Coastal Planning District Commissions (2011-2018)			
Planning District Commission	Total Miles of Shoreline Permitted (2011-2018)	Miles of Living Shorelines Permitted* (2011-2018)	Percent Miles of Living Shorelines Permitted (2011-2018)
Accomack-Northampton	15.36	3.13	20.3%
Crater	0.72	0.13	18.74%
George Washington	2.49	0.16	6.33%

Miles of Living Shoreline* Permitted Across Coastal Planning District Commissions (2011-2018)			
Hampton Roads	53.54	12.38	23.12%
Middle Peninsula	32.06	9.23	28.80%
Northern Neck	40.21	6.30	15.68%
Northern Virginia	1.10	0.54	48.95%
PlanRVA	2.47	0.71	28.92%

*Living shorelines as defined by the Center for Coastal Resources Management, Virginia Institute of Marine Science.

Management Characterization:

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

Significant Changes in Management of Cumulative and Secondary Impacts of Development			
Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Y	Y	Y
Guidance documents Used by DEQ Local Govt. Assistance Program for administration of the Chesapeake Bay Preservation Act; available and shared with local governments implementing the program	Y – a series of 11 documents, ranging from a Riparian Buffer Manual to delineation of, and exceptions for development in Resource Protection Areas.	Y	N
Management plans (including SAMPs)	Y – Please see Ph. I Assessment for SAMPs.	Y	Y

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

Land & Water Quality Protection: Growth and development in Virginia’s coastal zone continues at a rate that is disproportionate to the rest of the Commonwealth. Water quality impacts associated with urban growth are magnified by development trends characterized by increasing impervious cover. Rural land use patterns have also been impacted by recent changes in state regulations.

Chesapeake Bay TMDL: In July 2018, the EPA issued State-Basin Planning Targets for nitrogen and phosphorus in Virginia’s five river basins draining to the Chesapeake Bay. These targets for the Shenandoah/Potomac River, Eastern Shore, Rappahannock River, York River, and James River basins cumulatively represent Virginia’s portion the assimilative capacity of the Chesapeake Bay to meet the dissolved oxygen water quality criteria. In addition to the planning targets, EPA also specified expectations that the states account for climate change in their nutrient reduction modeling and targets. Other expectations include:

- Engage local partners in planning goal development and implementation
- Develop comprehensive local, regional, and federal government strategies and commitments
- Specify the programmatic and numeric commitments needed to achieve the 2025 targets

From April to July 2019, DEQ utilized as comprehensive stakeholder engagement process, involving collaboration among localities, Planning District Commissions (PDC’s), Soil & Water Conservation Districts (SWCD’s), agriculture and conservation communities, citizens, and numerous state agencies involved with nutrient and sediment reductions. In particular, PDC’s and SWCD’s responded to the challenge of identifying best management practices (BMP’s) and programmatic actions that are necessary to restore the Chesapeake Bay. Suggested actions included:

- Increase DEQ’s Stormwater Local Assistance Fund
- Expand use of the Virginia Conservation Assistance Program
- Conduct more urban nutrient management planning
- Enhance promotion of living shoreline techniques to address shoreline erosion
- Expand septic pump out and other maintenance programs statewide
- Improve coordination of local reporting of BMP’s by DEQ

Financial incentives to facilitate cost-effective implementation included:

- Additional incentives for a variety of buffer widths and lifespans
- New incentives for extended BMP lifespans
- Bundle BMP’s into single cost share contracts to increase reporting of BMP’s

Stormwater Management (and Erosion & Sediment Control): Chapters 758 and 68 of the 2016 Acts of Assembly (House Bill 1250 and Senate Bill 673) combine the existing Virginia Stormwater Management Act (VSMA) and Virginia Erosion and Sediment Control Law (VESCL) to create the

Virginia Erosion and Stormwater Management Act (VESMA), and directs the State Water Control Board (the Board) to permit, regulate, and control both erosion and stormwater runoff. In order for this legislation to become effective, the Board is required to initiate a regulatory action to consolidate and clarify program requirements, eliminate redundancies, and correct inconsistencies between the erosion and sediment control and stormwater management program regulations. Affected regulations may include 9VAC25-830 – Chesapeake Bay Preservation Area Designation and Management Regulations, 9VAC25-840 – Erosion and Sediment Control Regulations, 9VAC25-850 – Erosion and Sediment Control and Stormwater Management Certification Regulations, 9VAC25-870 – Virginia Stormwater Management Program Regulation, 9VAV25-880 – General VPDES Permit for Discharges of Stormwater from Construction Activities, and 9VAC25-890 – General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems. In addition, HB 1307 & 1308 created a 2-tiered approach to stormwater management, one for rural and another for urban areas, recognizing the difference in impervious surface.

Chesapeake Bay Preservation Act: Virginia Code and Virginia Administrative Code amendments in 2015 added a definition for “daylighted stream” and specified that when the State Water Control Board develops the criteria for a Resource Protection Area (RPA) under the Act, the Board shall not require a daylighted stream to become an RPA. Additionally, if a locality does not designate an RPA adjacent to a daylighted stream, the locality must use a water quality impact assessment to ensure that development adjacent to the stream does not result in degradation. <http://lis.virginia.gov/cgi-bin/legp604.exe?151+ful+CHAP0674+hil>; <http://register.dls.virginia.gov/details.aspx?id=5052>.

Also see Virginia Code amendments in 2016 relating to Stormwater Management and Erosion & Sediment Control, summarized above.

Wetlands Act: No changes to tidal Virginia Code since 2015.

Coastal Primary Sand Dunes and Beaches: Virginia Code amendments in 2017 authorized the Virginia Beach Wetlands Board to adopt a General Permit for Sand Management and Placement Profiles for properties in the Sandbridge Beach Subdivision of Virginia Beach and authorized the Norfolk Wetlands Board to adopt such a permit for properties in the City of Norfolk. The bill required the General Permit and Placement Profiles to include the permissible cost-effective sand management practices that property owners shall implement to protect and enhance the value of their property and to protect coastal primary sand dunes and public beaches. Any sand that is to be removed by the owner from his property must be judged to be "clean beach" sand prior to being transferred and placed in a spreading zone location. <http://lis.virginia.gov/cgi-bin/legp604.exe?171+ful+CHAP0338+hil>.

Submerged Lands Act: Virginia Code amendments in 2016 added language directing the Virginia Marine Resources Commission to develop an expedited process for issuing a permit for emergency sand restoration activities on a publicly owned beach when the erosion is caused by a discrete, identifiable weather event that was the subject of a local or state declaration of emergency. The bill exempted the permit process from certain provisions of the Administrative Process Act. <http://lis.virginia.gov/cgi-bin/legp604.exe?161+ful+CHAP0009+hil>.

Marine Fisheries: The Atlantic States Marine Fisheries Commission (ASMFC) Atlantic Striped Bass Management Board approved an Addendum to reduce all state commercial quotas by 18%. The Virginia Marine Resources Commission (VMRC) approved a 7.66% reduction in the Chesapeake Bay area commercial quota and a 9.81% reduction in coastal area commercial quota for the 2020 fishing year.

Due to the uncertainty of tidal wetland loss totals to shoreline development, dredging, or erosion, it is unclear how habitat loss has affected marine fisheries. Water quality has improved in the Chesapeake Bay overall, but eutrophication and the ensuing algal blooms and dead zones continue to be a threat to estuarine fish species.

Chesapeake Bay Watershed Agreement: No changes since most recent signing in 2014.

EPA/Waters of the United States Rule: On October 22, 2019, the Environmental Protection Agency and Department of the Army (the agencies) published a final rule (“Step One”) to repeal the 2015 Rule defining “waters of the United States” and re-codify the regulatory text that existed prior to the 2015 Rule. With this final rule, the agencies are implementing the pre-2015 Rule regulations nationwide as informed by applicable agency guidance documents and consistent with Supreme Court decisions and longstanding agency practice. This final rule became effective on December 23, 2019. <https://www.epa.gov/wotus-rule/about-waters-united-states>. In Virginia, this proposed federal rulemaking will not replace or supersede the authority given to DEQ under the Code of Virginia and the Virginia State Water Control Law for permitting impacts to state waters (see Title 62.1). DEQ is currently considering what effects, if any, the federal proposed rulemaking may have on applicable agency functions, roles and/or staffing.

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

None of the changes were specifically tied to 309-funded strategies.

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

Virginia is committing to have all practices and controls in place by 2025 to achieve the final Phase III WIP nutrient and sediment planning targets in accordance with the timelines and goals developed by the Bay Program partnership and included in the 2014 Bay Watershed Agreement. By fulfilling their commitment to reducing nutrient and sediment pollution from all five major watersheds, Virginia will play an important part in creating a healthier Chesapeake Bay.

Enhancement Area Prioritization:

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

High	<u> X </u>
Medium	<u> </u>
Low	<u> </u>

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

As demonstrated in their participation in the Phase III WIP review process, inland coastal PDC's such as NVRC, GWRC, PlanRVA, and Crater understand that the effects of their development area keenly felt by the PDC's downstream of them in their respective watersheds and ultimately the Chesapeake Bay in terms of water quality. By its very definition, CSI links the inland coastal PDC's with those farther downstream due to the trickle-down effect their growth and development have on habitat and water quality.

Managing stormwater runoff by better land use management and planning for the future environmental challenges posed by development are critical issues in the coastal zone. Also, increasing the amount of green infrastructure that is preserved, restored, or created has become a priority across the coastal zone as using nature-based approaches to buffer critical habitats and filter nutrients is often the most cost-effective solution. In addition, adjusting planning horizons to incorporate increased population growth is another critical issue that dovetails well with the resiliency efforts associated with the existing and future Coastal Hazards strategy.

Furthermore, the effects of growth and development do not have to all be negative. Encouraging the development of eco-tourism business opportunities and leveraging the benefits of land conservation at the local level are part of the current Section 309 CSI strategy and are anticipated to play a significant role in the next five-year strategy. Preservation and promotion of working waterfronts also represents a critical need for rural PDC's and will continue to be considered under the CSI policy "umbrella."

CSI has long been a broad category that has housed diverse policy strategies that often compliment other Enhancement Areas and will likely continue to play a crucial role in Section 309 planning. At the January 15, 2020 CPT meeting, this topic was discussed at length and opportunities for synergy with other funding sources was proposed so long as the projects were separate and distinctly associated with a CZM strategy. Environmental justice was also proposed as a topic to fit within CSI. Taking this discussion into account, the CPT agreed to rank this enhancement area as **High**.

However, it is important to note that, unlike the Marine Debris, Ocean Resources, and Coastal Hazards enhancement areas, CSI does not currently have a strategy in place that can continue into the next 5-year cycle. As such, a workgroup drawn from the CPT membership will be meeting on February 24, 2020 to attempt to create a list of needed policy outcomes, a framework to achieve them, and projects that will sustain the strategy.

Cumulative and Secondary Impacts Phase II Assessment

In-Depth Resource Characterization:

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

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

Stressors to Coastal Resources			
	Stressor/Threat	Coastal Resource(s)/Use(s) Most Threatened	Geographic Scope (throughout coastal zone or specific areas most threatened)
Stressor 1	Increased rainfall runoff storage from coastal development (impervious surface)	Water quality, infrastructure, and coastal habitats	Throughout Coastal Zone
Stressor 2	a) Flooding b) Septic failure c) Straight Pipe Discharges	Disproportional effects on human health and water quality safety (underserved communities – environmental justice)	Throughout Coastal Zone
Sub-stressor under #2	Extractive development	Rural local government	Rural Planning District Commissions (PDC’s)
Stressor 3	Lack of communication and coordination, awareness, process to resolve	All natural resources and socio-economic categories	Throughout Coastal Zone

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

Since the previous (2015) Needs Assessment, Virginia’s coastal population grew by approximately 9.3% (<https://demographics.coopercenter.org/virginia-population-estimates>) and the stressors listed in that Assessment continue to be significant issues – an increase in impervious surfaces across watersheds, shoreline hardening, sea level rise (SLR), and invasive species have all negatively affected communities and natural habitats in the coastal zone. However, during this Needs Assessment process, stakeholders identified more specific issues within several of those topics as

well as several new areas of need during a workshop on February 24, 2020. The stressors listed in the table above are described in more detail below:

- **Stressor 1:** Managing increased stormwater runoff from climate-related larger precipitation events combined with less vegetative cover in both urban and agriculturally dominated watersheds continues to be a challenge for meeting water quality goals associated with Chesapeake Bay cleanup efforts. BMP structural designs need to be revamped to account for the larger volume of rainfall predicted. Shoreline hardening prevents marsh migration in the face of SLR and reduces flood storage capacity. Furthermore, living shoreline policies need to be revised so that all ecosystem benefits are quantified and then valued in a way that incentivizes increased use versus traditional hardened structures. Water quantity (flood storage) has thus far not been elevated to the status of water quality (nutrient credits, etc.) in the ecosystem services market.
- **Stressor 2:** SLR also threatens critical infrastructure such as roads, public utilities, and military bases. An emerging issue is the vulnerability of rural septic systems on private property to SLR. Solutions such as managed retreat, replacement of failing septic systems with tanks of innovative design, or covering the systems with earth are costly and controversial, respectively. The issue of septic failure is also very tangible and has been termed a public health crisis by some. Negative effects on water quality may result in the closures of bodies of water containing oyster reefs or aquaculture operations. Septic is also an environmental justice issue as many rural residents with failing systems suffer negative health effects from leakage, property damage from SLR, and potential fines for non-compliance while being unable to afford system repairs or replacement. Lack of public utility infrastructure and services such as central sewer and roadside ditch maintenance further contribute to the underserved nature of these communities.
 - **Sub-Stressor 2:** Segueing from the discussion of rural coastal communities being especially vulnerable to SLR, the issue of natural resource extractive industries, whether “green” or not, siting operations in rural or underserved communities was discussed. In many of these areas, local governments lack the power to review and influence the permitting process due to Virginia being a Dillon Rule state – localities cannot create policies without being enabled to do so by the General Assembly (with a few exceptions). The environmental and financial costs of these industries (e.g. solar farms causing erosion and sediment releases and the strained local government budgets for site inspection staff) are borne by the locality, but the benefits (clean energy and returns to investors) leave the community. The result is an environmental justice deficit for the local community. However, since the February 24, 2020 stakeholder meeting, the General Assembly passed and the Governor signed HB 1675, which will become effective July 1, 2020. The bill provides new authorities to rural localities as the host of a solar project, including the ability to negotiate a financial package that is fair to local governments. Other extractive industries remain a concern, but solar development appears to be better managed going forward.
- **Stressor 3:** The issue of lack of communication between state agencies, local governments, and academic institutions continues to hold back collaborative efforts, information sharing,

and policy evaluation. More effective and frequent use of Memorandums of Understanding (MOU’s), training opportunities for staff to learn what other agencies do, and more easily accessible data would all improve transparency, collaboration, and reduce redundant efforts. Furthermore, training agency staff reviewing grant applications to better understand the context of the applicant’s request and adjusting guidance for applications may improve the chance of the funds being awarded.

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

CSI Emerging Issues and Information Needed to Address Them	
Emerging Issue	Information Needed
Failing BMP’s using old design criteria	Rainfall/storage/efficiencies modelling. Baseline data, mapping.
Reoccurring flooding (tidal & riverine), lack of financial incentives to invest in green infrastructure	Modelling of living shoreline co-benefits, examples from other regions (literature review). Baseline data.
Rural septic system management	Mapping, transfer of paper records to digital ones.
Natural Resource Extractive Industries	Policy options to give local governments increased influence in project review process and to ensure that some economic benefits stay in the local community vs. going to outside parties.

In-Depth Management Characterization:

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

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

Significant Changes to Management of Cumulative and Secondary Impacts of Development			
Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Methodologies for determining CSI impacts	Y - ConserveVirginia (DCR)	Y - Lower Chickahominy watershed project	Y – Positive
CSI research, assessment, monitoring	Y - DEQ Bay Program TMDL based on publically available data, have watershed modelling capacity for whole state	Y - Funding to assess working waterfronts, natural resources (LC)	Y – Positive
CSI GIS mapping/database	Y - VGIN 2016 land use/land cover database	N - (Living Shoreline inventory done under Coastal Hazards strategy)	Y – Positive
CSI technical assistance, education and outreach	Y - ConserveVirginia (DCR)	Y - Rural Coastal Summit, Working Waterfronts Video, (ANPD/MPPDC/NNPDC)	Y – Positive

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

- a. Describe significant changes since the last assessment;

Each of the management categories employed by the state listed in the table above were developed or have significantly expanded since the 2015 Assessment.

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

See “CMP Provides Assistance to Locals...” column in table above.

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

For working waterfronts, outcomes have included legislation (MPPDC), a Rural Coastal Virginia Summit (ANPDC), and a video promoting waterfront industries and their positive relationship with the local community (NNPDC).

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

No studies have been done to illustrate the effectiveness of the Commonwealth’s CSI management efforts as the CSI Strategy has served as a “catch-all” for projects that fit best there. For example, the Lower Chickahominy Watershed project (FY2016-2020) and the Working Waterfronts projects (FY2016-2018) are both in the current CSI Strategy. The diversity of projects within the CSI Strategy makes it difficult to track their effectiveness beyond the successful creation of enforceable policies.

Identification of Priorities:

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

Management Priority 1: Advance More Resilient Stormwater Design Policy

- **Description:** The goal will be to improve BMP design in order to increase water retention capacity in the face of increased precipitation. This effort will require precipitation data collection, inventorying existing BMP infrastructure, determining gaps between current storage capacity and modelled future capacity needs, designing the a new capacity standard, and determining which BMP locations are priorities for upgrades.
- **Potential Partners:** VDOT/CTB, DEQ, Ann Phillips (and DCR TBD) and local governments.

Management Priority 2: Promoting Living Shorelines: Certification Requirements & Ecosystem Services Co-benefits

- **Description:** To promote living shorelines, efforts should be made to quantify and promote financial benefits of water quality improvement, flood storage capacity, habitat creation in addition to erosion management. The industry should be expanded to drive costs down, but also ensure that contractors and engineers understand design criteria and correctly install the project. Increase training of local government staff for inspections should improve compliance and increase confidence in the supply of ecosystem services being credited.
- **Potential Partners:** VIMS, PDC’s, VMRC, USACE, and local government (Wetland Boards)

Management Priority 3: Environmental Justice – SLR & Septic

Description: Septic would be issue regardless of climate change, but exacerbated by SLR. Existing services must be improved, but should not incentivize further development. More data is needed to understand geographical extent of the problem and predict water quality issues. Agencies (DEQ, VDH) need to work together and align regulatory and planning expectations to produce transparent and consistent policies. CZM might be able to use the VCPC October 2020 meeting to bring the issue to the forefront and educate coastal stakeholders.

- **Potential Partners:** Environmental Justice Commissioner, Department of Health, PDC’s, local government, General Assembly could revise regulatory jurisdictions of state agencies if needed.

Management Priority 4: Environmental Justice – Retaining Natural Resource Extraction Benefits at the Local Level

- **Description:** Prevent the one-way flow of benefits out of the underserved community by empowering the local government to negotiate a fair financial compensation package in return for approval of the industry’s operation. These funds can then be invested in the community to increase public services such as schools, emergency personnel, and transportation.
- **Potential Partners:** Local government, General Assembly

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

CSI Priority Needs		
Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap
Research	Y	Economic benefits of living shoreline co-benefits, inventory of existing agency partnerships to prevent redundant work.
Mapping/GIS	Y	Location of septic systems, VDOT roads (where ditch maintenance required to improve drainage), locations of failing or predicted to fail stormwater BMP’s. 3D polygons of living shorelines’ flood storage capacity.
Data and information management	Y	Make the aforementioned data sets available to the public or at least agency staff making policy recommendations. Make agency MOU’s or partnership documents readily available to public and agency staff to reference.

CSI Priority Needs		
Training/Capacity building	Y	Grant reviewers could use some more background information on the projects and applicants that they are ranking. Beyond acronyms, there seems to be a disconnect on terms, program purposes, and performance metrics between different levels of govt. Same goes for the various "silos" of state agencies. It was suggested that state employees in environmental agencies likely to work together receive at least a brief overview on the missions of others like them, existing partnerships, and ways to collaborate fluidly across bureaucratic boundaries. Reinventing the wheel a concern. Standardization of living shoreline designs and courses that would certify contractors as competent in LS installation and local govt staff as compliance inspectors. This would increase confidence that LS are having the desired positive environmental effects consistently.
Decision-support tools	Y	Precipitation modelling, alternative septic systems.
Communication and outreach	Y	Native plants, educating contractors and waterfront property owners about living shorelines. Feature septic issues at October 30, 2020 Coastal Policy Clinic annual conference.
Other (specify)	-	-

Enhancement Area Strategy Development:

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

Yes _____
 No X

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

At a March 5, 2020 Coastal Hazards work group meeting, all of the Management Priorities listed above - with the exception of resource extraction - were discussed through the lens of resiliency. Living shorelines and septic issues in particular were discussed at length. As such, it appears that the resiliency policy needs of the Coastal Policy Team and both work groups can be met through a Coastal Hazards strategy and that a standalone CSI strategy is not needed.

Please also note that steps have been taken to address extractive industries - legislation (HB 1675) recently passed in the General Assembly (GA) to require utility-scale solar developers to negotiate siting agreements with localities. Furthermore, in accordance with the Governor's EO6, DEQ is in the midst of an agency review of ways to incorporate EJ into programs and community outreach. HB 1042 and HB 704 have also passed in the GA and establish an advisory council to the Governor on EJ issues and an interagency EJ working group, respectively. While this statewide initiative is much larger in scope than CZM's geographic focus, CZM staff look forward to addressing coastal EJ issues in our Coastal Hazards strategy as indicated in the Management Priorities above.

While not discussed at length by stakeholders during this evaluation, the issue of invasive species remains a problem across the coastal zone. CZM is committed to continuing its native plant marketing effort to prevent the introduction of non-native species by educating the public about native species commonly available and working with local partners to incorporate native plants in rain garden designs.

Special Area Management Planning Phase I Assessment

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

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

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

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

Resource Characterization:

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

Opportunities for New or Updated Special Area Management Plans	
Geographic Area	Major conflicts/issues
Lower Chickahominy River Watershed	Development from both the Richmond and Hampton Roads metropolitan areas is encroaching on important coastal habitats.
Piankatank River	Priority area for habitat restoration with numerous small watershed impairments

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

Although not a SAMP, work in this geographic area of the lower Chickahominy River has been undertaken through the Cumulative and Secondary Impacts section of Virginia’s 2016-2020 Section 309 Strategy. Since 2017, Virginia CZM has provided grant funding to project partners to update the inventory of the watershed’s unique natural resources, assess the economic value associated with land conservation, and further define stakeholder interests via interviews and workshops.

Virginia identified the Piankatank River as a priority sub-watershed for habitat restoration purposes in the U.S. Army Corps of Engineers (USACE) Chesapeake Bay Comprehensive Plan. Nearshore habitat restoration projects, including wetlands, oyster reefs, living shorelines, and SAV have been proposed in this area for Virginia CZM focal area funding by the Chesapeake Bay National Estuarine Research Reserve (CBNERR). The Virginia Department of Environmental Quality (DEQ) has also identified impaired tidal creeks along the Piankatank and proposed that Virginia CZM funding be used to address these impairments. Furthermore, the Virginia CZM Program has previously supported development of a SAMP for the Dragon Run watershed, which is the headwaters of the Piankatank.

Management Characterization:

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

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

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

Current efforts in the Lower Chickahominy are part of the Virginia CZM Program’s 5-year cumulative and secondary impacts strategy to establish a collaborative planning process to create a vision for land conservation priorities and sustainable industries for the watershed. The effort supports collaboration among natural resource agencies, local governments, businesses and non-profits to plan for the area’s future. The Lower Chickahominy has high ecological value and potentially high ecotourism value, but it is also vulnerable to development that could detract from its unique natural and cultural resources.

Enhancement Area Prioritization:

1. What level of priority is the enhancement area for the coastal management program?
 - High _____
 - Medium X
 - Low _____

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

Current projects funded through the Virginia CZM Program's cumulative and secondary impacts strategy have contributed important new information for coastal resource planning in the Lower Chickahominy Watershed and increased stakeholder knowledge and involvement in the planning process. When the strategy period is over (after FY 2020 projects are completed) new plans and policies should be in place to guide management decisions in the watershed. Although there will likely be a need for funding a number of implementation projects based on this work, stakeholders were in agreement that a SAMP for developing additional enforceable policies in the 2021 – 2020 timeframe was not necessary.

The Piankatank River is under consideration for Virginia CZM Program funding for habitat restoration and/or outreach projects to help address water quality issues. Although an important geographic area, the funding needs for the Piankatank area are more appropriate for other sources that do not relate to new enforceable policies. As such, CZM staff recommend a ranking of **Medium**.

Ocean and Great Lakes Resources Phase I Assessment

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

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

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

Resource Characterization:

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

Status of Ocean and Great Lakes Economy for Coastal Counties (2015)							
	All Ocean Sectors	Living Resources	Marine Construction	Ship & Boat Building	Marine Transportation	Offshore Mineral Extraction	Tourism & Recreation
Employment (# of Jobs)	126,812	4,255	2,086	34,683	21,317	359	64,110
Establishments (# of Establishments)	4,092	243	13	578	334	56	3,250
Wages (Millions of Dollars)	5,200	108.3	127.5	2,500	1,300	23.5	1,100
GDP (Millions of Dollars)	8,500	753.3	253.7	2,900	2,400	58	2,200

Change in Ocean and Great Lakes Economy for Coastal Counties (2005-2015)							
	All Ocean Sectors	Living Resources	Marine Construction	Ship & Boat Building	Marine Transportation	Offshore Mineral Extraction	Tourism & Recreation
Employment (# of Jobs)	7,162	299	-337	5,058	2,524	-77	-305
Establishments (# of Establishments)	-119	25	-26	1	-20	12	-111
Wages (Millions of Dollars)	1534	42.5	23.8	872	350.8	4.7	239.8
GDP (Millions of Dollars)	1953.3	371.3	65.9	654.8	469.3	.001	409.7

2. Understanding existing uses within ocean and Great Lakes waters can help reduce use conflicts and minimize threats when planning for ocean and Great Lakes resources. Using Ocean Reports¹⁶, indicate the number of uses within ocean or Great Lakes waters off your state. For energy uses (including pipelines and cables, see the “Energy and Government Facility Siting” template following). Add additional lines, as needed, to include additional uses that are important to highlight for your state. Note: The Ocean Reports tool does not include data for the Great Lakes states. Great Lakes states should fill in the table as best they can using other data sources.

Uses within Ocean or Great Lakes Waters	
Type of Use	Number of Sites or Species
Federal sand and gravel leases (Completed)	12
Federal sand and gravel leases (Active)	0
Federal sand and gravel leases (Expired)	0
Federal sand and gravel leases (Proposed)	0
Beach Nourishment Projects	7
Ocean Disposal Sites	101 (includes closed sites)
Principle Ports (Number and Total Tonnage)	1 (Port of Virginia: 54,047,937 tons/year)
Coastal Maintained Channels	196
Designated Anchorage Areas	23
Danger Zones and Restricted Areas	12
Other (wind lease areas)	2
Other (Essential Fish Habitat – 3 species)	10
Artificial Fishing Reefs	39
Other (Cetacean Biologically Important Areas)	3
Other (Audubon Important Bird Areas)	3
Other (Deep Sea Coral and Sponge Species)	131

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

Changes in Threats to and Use Conflicts for Ocean Resources	
Significant Changes to Ocean and Great Lakes Resources and Uses Resource/Use	Change in the Threat to the Resource or Use Conflict Since Last Assessment (↑, ↓, -, unknown)
Benthic habitat (including coral reefs)	↓ (due to MAFMC action to protect canyons from bottom dredging)
Living marine resources (fish, shellfish, marine mammals, birds, etc.)	↑
Sand/gravel	↑
Cultural/historic	↑
Other (please specify)	
Transportation/navigation	↑
Offshore development ¹⁷	↑
Energy production	↑
Fishing (commercial and recreational)	↑
Recreation/tourism	↑
Sand/gravel extraction	↑
Dredge disposal	-
Aquaculture	-
Other (please specify)	-

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

Major Contributors to an Increase in Threat or Use Conflict to Ocean and Great Lakes Resources												
	Land-based development	Offshore development	Polluted runoff	Invasive species	Fishing (Comm and Rec)	Aquaculture	Recreation	Marine Transportation	Dredging	Sand/Mineral Extraction	Ocean Acidification	Ocean Warming
<i>Example: Living marine resources</i>		X	X	X	X	X		X	X			
Living marine resources (fish, shellfish, marine mammals, birds, etc.)		X	X		X			X			X	X
Transportation/navigation		X										
Offshore development					X			X				
Energy production					X			X				
Fishing (commercial and recreational)	X	X	X								X	X

¹⁷ Offshore development includes underwater cables and pipelines, although any infrastructure specifically associated with the energy industry should be captured under the “energy production” category.

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

The Mid-Atlantic Regional Council on the Ocean’s Ocean Data Portal (<https://portal.midatlanticocean.org/>), was initiated by and initially funded by the Virginia CZM Program for its first two years beginning in 2008. Subsequent funding for a few years was from NOAA through Regional Ocean Partnership funds and then subsequently and currently by the Gordon and Betty Moore Foundation. The portal now provides, well over 6,000 data layers describing a variety of ocean uses (fishing, shipping, offshore wind, recreation, security, etc.), natural resources (marine mammals, sea turtles, birds, fish, corals and canyons, etc.) and oceanographic data (sea surface temperatures, wind speed, etc.). Recently “slider tools” have been added that animate data over time for fisheries, temperature and shipping. The Virginia CZM Program received Project of Special Merit funding under Section 309 to contract with the Virginia Aquarium to conduct whale surveys. These data were incorporated into the portals’ marine mammal data layers.

Management Characterization:

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

Significant Changes to Management of Ocean and Great Lakes Resources			
Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	Grid Act, Energy Plans, CVOW commercial lease COP	No	Yes
Regional comprehensive ocean/Great Lakes management plans	Yes	No	Yes
State comprehensive ocean/Great Lakes management plans	No	No	No
Single-sector management plans	Yes (Blue Crab)	No	No

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

Regional comprehensive ocean plan – In 2016 the National Ocean Council approved the Mid-Atlantic Regional Ocean Action Plan. This and the Northeast’s plan were the first regional ocean plans in the U.S. The Mid-Atlantic plan laid out a multitude of actions to reach its two major goals of ensuring healthy ocean ecosystems and sustainable ocean uses. The Regional Planning Bodies that created these plans were abolished under a new Executive Order in 2018. However, in 2019 the Mid-Atlantic Regional Council on the Ocean (MARCO) established the Mid-Atlantic Committee on the Ocean (MACO) which continues to bring federal state, tribal and fishery management council members to the table to continue to implement most of the actions in the 2016 plan. Virginia’s input to these activities were CZM Section 309 driven and have led to a host of benefits including leadership in creating MACO and continued development of the ocean data portal, development of a social marketing campaign to reduce marine debris, an assessment of ocean acidification monitoring needs, and many other outcomes.

State energy policy – the Grid Transformation and Security Act of 2018 (<https://lis.virginia.gov/cgi-bin/legp604.exe?181+sum+SB966>) and EO 43 of 2019 (<https://www.governor.virginia.gov/media/governorvirginiagov/executive-actions/EO-43-Expanding-Access-to-Clean-Energy-and-Growing-the-Clean-Energy-Jobs-of-the-Future.pdf>) are significant changes. The biggest impact is the zero carbon goal. These were not CZM-driven changes. These changes are significant in that they will catalyze major efforts to speed up and increase development of renewable energy – including offshore wind. In addition, Governor Northam announced in December 2019 his intent to create an Office of Offshore Wind in state government.

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

Type of Plan State Has		
Comprehensive Ocean/Great Lakes Management Plan	State Plan	Regional Plan
Completed plan (Y/N) (If yes, specify year completed)	No	Yes, 2016
Under development (Y/N)	No	No
Web address (if available)		https://www.boem.gov/sites/default/files/environmental-stewardship/Mid-Atlantic-Regional-Planning-Body/Mid-Atlantic-Regional-Ocean-Action-Plan.pdf
Area covered by plan		Virginia through New York

Enhancement Area Prioritization:

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

High X
 Medium _____
 Low _____

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

The Commonwealth of Virginia and Dominion Energy recently announced their intent to develop 2600 megawatts of electricity from offshore wind by 2026. It is imperative that Virginia have capacity and scientific data to help ensure appropriate construction of these turbines while ensuring the health of important ecological resources. In addition, the Virginia Department of Mines, Minerals & Energy seeks to identify one or two additional potential commercial lease areas for offshore wind. Demands on the ocean waters adjacent to Virginia continue to increase due to increasing demand for renewable energy, recreation, shipping and other uses. Many natural ocean resources face increasing threats (e.g. dwindling right whale and sea bird populations, increasing ocean acidity, shifts in fish distributions, etc.). Therefore it is critical to maintain a funding stream through the Virginia CZM Program to address these issues which do not fall squarely within any other program in Virginia. For these reasons, CZM staff recommend a ranking of **High**.

Ocean Resources Phase II Assessment

In-Depth Resource Characterization:

Purpose: To determine key problems and opportunities to enhance the ability of state CMP to better address ocean resources.

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

Three Most Significant Stressors to Ocean Resources		
	Stressor/Threat	Geographic Scope (throughout coastal zone or specific areas most threatened)
Stressor 1	Offshore Energy	Throughout Mid-Atlantic Ocean
Stressor 2	Marine Transportation	Throughout Mid-Atlantic Ocean
Stressor 3	Climate-induced Changes: Species Shifts, Ocean Acidification and Sea Temperature	Throughout Mid-Atlantic Ocean
Others	Telecommunication cables	Sea bottom
	Military operations	Throughout Mid-Atlantic Ocean
	Pharmaceuticals?	Throughout Mid-Atlantic Ocean

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

Offshore Energy: The Commonwealth is moving quickly ahead to install over 2600MW of offshore wind energy by 2026 within its current commercial lease area and is also looking to identify additional areas (stated by the VA Offshore Wind Development Authority at its January 2020 meeting) for additional offshore wind energy production. Virginia’s 2020 Clean Energy Act (<https://www.governor.virginia.gov/newsroom/all-releases/2020/april/headline-856056-en.html>) signed in April 2020 calls for 5,200 MW of offshore wind generation. It is imperative to ensure that turbines are sited in areas with the least impact on existing ocean resources and uses.

Marine Transportation: The Port of Virginia is a major shipping destination on the East Coast adding 6+ billion to Virginia’s economy and currently has the deepest draft and least overhead restrictions for the ever-larger ships bringing goods into the East Coast (<http://www.portofvirginia.com/about/port-stats/>). The Port has a 2065 Master Plan that envisions growth and expects to become a major hub for offshore wind development and support. It is imperative that this industry is maintained and shipping lanes and traffic are safe – both for ships

and other users and wildlife. Ship strikes are a common cause of marine mammal deaths and ship traffic is a major factor in sound pollution of the ocean that can affect ocean wildlife.

Climate-induced Changes: Rising ocean temperatures, increasing ocean acidification and other climate-induced changes threaten our lucrative shellfish industry (Virginia’s shellfish aquaculture industry is valued at \$53+M), fishing industry and ecosystem health and stability. Recent efforts, such as analysis of data showing shifts in the core abundance of 18 Mid-Atlantic fish species decadal since the 1970’s (funded by Virginia CZM), document the reality of these changes (see <https://portal.midatlanticocean.org/> and click on the Marine Life Theme and then “Fish Species Through Time”). These changes begin to pose extremely difficult fisheries management issues, particularly the development of fair quotas for each state.

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

Emerging Issues of Concern	
Emerging Issue	Information Needed
Offshore Aquaculture	With what other uses might it be compatible and where are appropriate places to locate it. What would the secondary and cumulative impacts be?
Ongoing modifications in fisheries management to ensure sustainability.	Best practices for managing species (e.g. for undergoing range shifts, changes in distribution due to habitat). Understanding ecosystem interactions.
Managing species shifts for wildlife (marine mammals, sea birds, turtles)	Best practices for managing species in light of range shifts and ecosystem changes

In-Depth Management Characterization:

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

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

Significant Changes in Management of Ocean Resources			
Management Category	Employed by State (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Ocean research, assessment, monitoring	Y (sturgeon, wind, shifts in fish species, marine mammal/sea turtles research)	Y to local fishermen, higher education	Y
Ocean GIS mapping/database	Y via MARCO	Y via MARCO	Y

Significant Changes in Management of Ocean Resources			
Ocean technical assistance, education, and outreach	Y via MARCO, VA's Collaborative Fisheries Planning project and VA CZM magazine	Y via MARCO and VA CZM grants	Y
Other (please specify): Ocean Planning	Y via Mid-Atlantic Regional Planning Body until its dissolution in June 2018 and subsequently through the new Mid-Atlantic Committee on the Ocean formed in 2019.	N/A	Y

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

Ocean research, assessment, monitoring, GIS, technical assistance and outreach: The following efforts funded by Virginia CZM in support of the FY16-FY20 Ocean Resources Strategy:

- FY16 -20 Task 49 – Grants each year to the Virginia Aquarium which continue to show impacts of ship strikes and fishing gear entanglement on marine mammals and sea turtles.
- FY16 Task 94.01 – Grant to VCU for ocean stakeholder coordination resulted in printing and posting of a fact sheet on the electromagnetic effects of underwater electrical transmission cable on sturgeon and other fish.
- FY16 Task 94.04 = Grant to VA Dept. of Game & Inland Fisheries which established a Piers Partners Program to address the issue of sea turtles being hooked from fishing piers. Data were collected and analyzed, and improved policies and protocols for rescuing hooked sea turtles were developed.
- FY17 Task 94.02 – Grant to MARCO was designed to identify Ecologically Rich Areas of the Mid-Atlantic and choose one to pilot a report on ecological function, trends and current management of that area. However, this task was cancelled by NOAA in accordance with a June 2018 Executive Order prohibiting federal involvement in the identification of ERAs.
- FY18 Task 94.01 – Grant to VCU to research available data on the value of offshore fisheries landed in Virginia to Inform a Geographic Location Description. Grants is scheduled to be complete in October 2020.
- FY18 Task 94.02 – Grant to The Nature Conservancy to develop a visualization tool to show shifts in core abundance of ocean species. Grant resulted in animations of 18 fish species now available on the MARCO Ocean Data Portal.

- FY19 Task 94.02 – Grant to The Nature Conservancy to update marine mammal and benthic and pelagic habitat data on the portal, and to update a wind energy planning decision support tool that uses available ocean wildlife and habitat data from the portal to ensure this tool is connected to the Mid-Atlantic Ocean Data Portal.

In addition to these Virginia CZM funded efforts, as a Management Board member of the Mid-Atlantic Regional Council on the Ocean (MARCO), the Virginia CZM Program assisted MARCO with a multitude of efforts including development of a story map about lesser-known Mid-Atlantic submarine canyons, a variety of marine debris efforts (see Phase I and II Assessments for Marine Debris), and leadership of MARCO’s Ocean Mapping and Data Team to guide continued development of the Mid-Atlantic Ocean Data Portal. The portal now contains over 6,000 data layers and is used by a wide variety of government, industry, non-profit, academic and general public stakeholders from across and outside the region. Through recent Regional Ocean Partnership funding from NOAA, MARCO and its counterpart in the northeast have pooled these funds to improve fisheries data (FY19) and marine mammal data (FY20 in development).

Ocean Planning:

- In December of 2016 the National Ocean Council approved the Mid-Atlantic Ocean Action Plan (OAP). Development of the actions under its Healthy Ocean Ecosystem goals was led by Virginia CZM.
- In June 2018 a new Executive Order was issued that discontinued the Mid-Atlantic Regional Planning Body through which the OAP was developed.
- In 2019 MARCO formed the Mid-Atlantic Committee on the Ocean to re-create a forum for federal and state agencies, tribes and the Mid-Atlantic Fisheries Management Council to continue to coordinate ocean planning efforts. Virginia CZM served as the first Chair of MACO, helping to create a framework for operations: <https://www.midatlanticocean.org/wp-content/uploads/2019/05/MACO-Framework-4-26-19.pdf>.
- MACO held annual Ocean Forums in 2019 and 2020 to continue to share progress made by various topical work groups and to engage stakeholders in ocean planning efforts.

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

Virginia is preparing a document to request NOAA approval of Geographic Location Descriptions of important fishing areas for federal consistency purposes, but the value of that effort cannot yet be assessed.

The US Coast Guard recently analyzed shipping and other data from the Mid-Atlantic Ocean Data portal and other sources to identify new anchorage and quarantine areas in lower Chesapeake Bay because some existing sites had to be vacated due to DoD needs. The Coast Guard identified an area just offshore of Cape Charles (a revitalized Victorian-era town now experiencing a tourist boom and the location of a major shellfish hatchery). The state formally objected to the Coast Guard’s negative determination.

The May 2016 report on the DMME/BOEM/CZM collaborative fisheries study (<https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/Virginia-Wind-Energy-Area-Collaborative-Fisheries%20Planning-Final-Report.pdf>), developed in collaboration with the VA commercial and for-hire recreational fishing industries, identified best practices for minimizing impacts from offshore wind development on fisheries. Dominion Energy, the developer of Virginia’s offshore wind farm verbally pledged to use the document. Dominion instituted at least one of the recommendations, which was to hire local fishermen to assist in scouting the export cable corridor during pre-construction survey activities.

To date Dominion has implemented the recommendation for hiring commercial fishermen but so far only for the development of the research lease. A definitive approach for the commercial lease has not yet been disclosed. Dominion has also not yet published a communications or fisheries impacts mitigation/compensation plan as recommended. Dominion has hired a fisheries liaison for outreach on both the research and commercial lease but results have yet to be analyzed.

Because Virginia has yet to enact any specific ocean management plan, it is too soon to identify assessment information that may be lacking.

Identification of Priorities:

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

In addition to the Virginia’s CZM Program’s involvement in MARCO and MACO as regional approaches to ocean planning, the following management priorities could be addressed:

Management Priority 1: Development of a Virginia Ocean Management Plan

Description: Although the Mid-Atlantic Ocean Action Plan developed in 2016 is still recognized by the Mid-Atlantic States, federal agencies are no longer required to adhere to it as of June 2018. Research on other state ocean plans could help Virginia determine the best approach for implementing its goals for the ocean off Virginia’s coast. Virginia CZM could investigate and build upon reports such as https://www.scdhec.gov/sites/default/files/docs/HomeAndEnvironment/Docs/Ocean_Mgt_Plans_Policies.pdf and <https://oceanactionagenda.org/story/ocean-planning/> and <http://keeptheoceanworking.com/regional-ocean-plans/>. Models and lessons may emerge that would be useful in developing a Virginia Ocean Plan. Virginia CZM could investigate options for how to adopt the plan, such as:

- Secretary-level approval of plan directing DMME, MRC, DGIF, DEQ, etc. to coordinate actions according to the plan
- Gubernatorial executive order
- MOU(s) with federal agencies to follow actions outlined in the plan (e.g. military missions in Hampton Roads,
- Attempt codification through General Assembly

Management Priority 2: Identification of Additional Offshore Wind Lease Areas (as part of a Virginia Ocean Plan)

Description: In order to meet Virginia’s renewable energy goals as described in Virginia’s 2020 Clean Energy Act, the Commonwealth needs to identify a second potential commercial lease area(s) off Virginia that could supply about another 2,000 MW of electricity. Virginia CZM could work with BOEM, DOE, NOAA, USFWS, DoD, NASA/Wallops, USCG, state agencies and all stakeholders (including fishermen from neighboring states) to identify areas for offshore wind where use conflicts would be minimal.

Management Priority 3: Identification and Improved Protection of Ecologically Rich Areas (as part of a Virginia Ocean Plan)

Description: Virginia CZM could draw upon the data posted in the MARCO Ocean Data Portal to identify ecologically rich areas and then better describe them through communication tools such as story maps on the Virginia CZM webpages, webinars, printed materials, etc. The goal would be to strengthen stakeholders’ understanding of the value of these areas to Virginians and Virginia’s “blue economy” and then to investigate management tools to better protect these areas.

Management Priority 4: Investigation of the Feasibility of and Identification of Potential Areas for Offshore Aquaculture (as part of a Virginia Ocean Plan)

Description: Given that NOAA has been directed by the May 2020 federal Executive Order on Promoting American Seafood Competitiveness and Economic Growth, Virginia CZM could work with NOAA, Virginia agencies, academics and stakeholders to identify potential areas off Virginia and aquaculture techniques that would pose minimal use conflicts and environmental impacts.

Management Priority 5: Development of Actions to Minimize Ocean Acidification (as part of a Virginia Ocean Plan)

Description: In September 2018, Governor Northam announced that Virginia is taking steps to fight climate change and ocean acidification (<https://www.governor.virginia.gov/newsroom/all-releases/2018/september/headline-829610-en.html>). He stated that, “Through the OA Alliance, Virginia will develop an Ocean Acidification Action Plan and work with other governments to raise the visibility and importance of the ocean acidification issue in public discourse and policy development.” A Virginia Ocean Plan is currently under development in 2020 by staff at the Virginia Marine Resources Commission and Department of Environmental Quality. Some actions to minimize or mitigate ocean acidification outlined in that plan could be incorporated into this plan and further developed.

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

Priority Needs and Information Gaps		
Priority Needs	Need? (Y or N)	Brief Explanation of Need/Gap beginning Oct 2021
Research	Y	What organisms will colonize offshore wind structures (apron of riprap around turbines, habitat around and within wind farms – may be thousands of them throughout Mid-Atlantic) The research list is long, but Virginia should collaborate with the newly formed Responsible Offshore Science Alliance (ROSA: https://rodafisheries.org/portfolio/responsible-offshore-science-alliance/) and the to be formed Regional Science Entity for Wildlife (https://nyfisheriestwg.ene.com/Content/files/JulyMeetingMaterials/Presentations/Update%20on%20Regional%20Science%20Entities.pdf) to identify regional research needs.
Mapping/GIS	Y	Finer scale recreational area mapping Studies of the distribution and abundance of corals on the shelf Updating of marine mammal sea turtle maps and range shifts Environmental impacts of offshore aquaculture Identifying areas of ecological richness and potential areas of aquaculture, and additional offshore wind leases
Data and information management	Y	Monitoring needed as wind farms are constructed. Build on MARCO/RODA and NEFSC efforts to continue to improve fisheries data. Confidentiality factor (rule of 3 –doesn't allow for making some important data public if 3 or fewer fishers are involved in the fishery) is a barrier in Virginia.
Training/Capacity building	Y	Need greater state capability to conduct ocean science and planning. VIMS recently acquired an ocean-going research vessel but will need funds and perhaps additional scientists to conduct more research. State agencies (except DMME) generally do not address ocean management and planning issues outside state waters.
Decision-support tools	Y	Ensure that the wind-siting tool is incorporated into the MARCO ocean data portal and updated as needed (see VCZM grant FY19 Task 94.02 mentioned above).
Communication and outreach	Y	Need to communicate ocean needs, planning and economic value more effectively.
Other (specify)		

Enhancement Area Strategy Development:

- Will the CMP develop one or more strategies for this enhancement area?
 Yes X
 No

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

The Virginia CZM Program will develop a strategy for Ocean Resources. Demands on the ocean waters adjacent to Virginia continue to increase due to renewable energy, recreation, shipping and other uses. Many natural ocean resources face increasing threats (e.g. dwindling right whale and sea bird populations, increasing ocean acidity, shifts in fish distributions, etc.). Therefore it is critical to maintain a funding stream through the Virginia CZM Program to address these issues which do not fall squarely within any other program in Virginia.

Making space for additional ocean uses such as renewable energy and aquaculture requires input from a vast variety of stakeholders including military, NASA, fishermen, shipping, recreational fishers and boaters, undersea cables, wildlife watchers, etc. It is also critical to understand and know where ocean resources (e.g. marine mammals, sea turtles, fish, corals, seabirds) are located and how they may be impacted by new human uses of the Mid-Atlantic Ocean. Without a funding stream to address these issues, Virginia is ill-equipped to ensure its goals are met.

The Commonwealth of Virginia and Dominion Energy recently announced their intent to develop 2600 megawatts of electricity from offshore wind by 2026. It is imperative that Virginia have capacity and scientific data to help ensure appropriate placement and construction of these turbines. In addition, the Virginia Department of Mines, Minerals & Energy and the Virginia Offshore Wind Development Authority seek to identify one or two additional potential commercial lease areas for offshore wind.

Finally, Section 7 of the May 7, 2020 Executive Order on Promoting American Seafood Competitiveness and Economic Growth (<https://www.whitehouse.gov/presidential-actions/executive-order-promoting-american-seafood-competitiveness-economic-growth/>) directs the Secretary of Commerce in consultation with other Secretaries, state governments and others to identify a certain number geographic areas each year in federal waters and complete programmatic EIS's for commercial aquaculture sites. In identifying these sites, "unnecessary use conflicts" are to be minimized. Again, it is critical that Virginia secure funding to ensure potential offshore aquaculture areas are appropriately sited and their spatial/use conflicts and environmental impacts minimized.

Energy and Government Facility Siting Phase I Assessment

Section 309 Enhancement Objective: Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and Government facilities and energy-related activities and Government activities which may be of greater than local significance. §309(a)(8)18

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

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

Resource Characterization:

1. In the table on the next page (page 92), characterize the status and trends of different types of energy facilities and activities in the state’s or territory’s coastal zone based on best-available data. If available, identify the approximate number of facilities by type. For ocean-facing states and territories, Ocean Reports¹⁹ includes existing data for many of these energy facilities and activities.

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Type of Energy Facility/Activity	Exists in Coastal Zone (# or Y/N)	Change in Existing Facilities/Activities Since Last Assessment (↑, ↓, -, unknown)	Proposed in Coastal Zone (# or Y/N)	Change in Proposed Facilities/Activities Since Last Assessment (↑, ↓, -, unknown)
Pipelines	1	-	1	+1
Electrical grid (transmission cables)	Y	Increase	Y	Increase
Ports	5	-	0	-
Liquid natural gas (LNG)	0	-	0	-
Other (please specify)	n/a	n/a	n/a	n/a
Oil and gas	0	-	0	Currently none proposed in Governor’s Energy Plan
Coal	5	-7	0	7 coal power plants shut down since 2015
Nuclear	4	-	0	-
Wind	0	-	0	Construction activities associated with installation of 2 test offshore turbines started summer 2019 & completion expected by summer 2020.

¹⁸ CZMA § 309(a)(8) is derived from program approval requirements in CZMA § 306(d)(8), which states: “The management program provides for adequate consideration of the national interest involved in planning for, and managing the coastal zone, including the siting of facilities such as energy facilities which are of greater than local significance. In the case of energy facilities, the Secretary shall find that the State has given consideration to any applicable national or interstate energy plan or program.” NOAA regulations at 15 C.F.R. § 923.52 further describe what states need to do regarding national interest and consideration of interests that are greater than local interests.

¹⁹ www.coast.noaa.gov/digitalcoast/tools/ort.html. Select “Quick Reports” and then enter your state. Select the Quick Reports for “coastal waters” off of your state. Depending on the size of the state, there may be more than one “coastal waters”. If so, you will need to add the data from all reports to complete the table. Click on the wind turbine icon on the left (“Energy and Minerals”) for information on energy facilities. While outside your coastal zone, you may also want to consider facilities/activities in “Federal Waters” that may have effects on your coastal zone.

Status and Trends in Energy Facilities and Activities in the Coastal Zone				
Wave	0	0	0	0
Tidal	0	-	0	-
Current (ocean, lake, river)	0	-	0	-
Hydropower	5	+1	0	-
Ocean thermal energy conversion	0	-	0	-
Solar	43	+42	5	+5
Biomass	1	+1	0	-
Other (please specify)	n/a	n/a	n/a	n/a

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

Solar has dramatically accelerated since the 2015 Needs Assessment, especially in the rural coastal zone. The Commonwealth’s Permit by Rule (PBR) has enabled fast tracking of DEQ’s regulatory review process, but local governments and Planning District Commissions (PDC’s) have raised concerns about their ability to comply with erosion and sediment control (ESC) laws and other construction and maintenance issues during installation of the panels and over the life of the facility.

In an effort to improve vegetative stabilization practices and habitat quality within the solar farm footprint, CZM will continue to promote the practice of planting native species at these locations as well as continuing its Plant Natives campaigns across the Coastal Zone. DEQ also receives funding for from fees generated by the Coastal Aviation Protection Zone, which it is using to promote native plants.

3. Briefly characterize the existing status and trends for federal government facilities and activities of greater than local significance²⁰ in the state’s coastal zone since the last assessment.

There has been no increase in the building of Federal government facilities, either military or civil, since the 2015 Needs Assessment. However, the Fort Monroe Authority has continued its redevelopment initiatives with local partners. In November 2019, the Fort Monroe Authority Board of Trustees affirmed the donation 35 acres of shoreline to the Fort Monroe National Monument.

Management Characterization:

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

²⁰ The CMP should make its own assessment of what Government facilities may be considered “greater than local significance” in its coastal zone, but these facilities could include military installations or a significant federal government complex. An individual federal building may not rise to a level worthy of discussion here beyond a very cursory (if any at all) mention).

<https://www.governor.virginia.gov/media/governorviriniagov/secretary-of-commerce-and-trade/2018-Virginia-Energy-Plan.pdf>

Significant Changes in Energy and Government Facility Management			
Management Category	Employed by State or Territory (Y or N)	CMP Provides Assistance to Locals that Employ (Y or N)	Significant Changes Since Last Assessment (Y or N)
Statutes, regulations, policies, or case law interpreting these	N	N	N
State comprehensive siting plans or procedures	Y - Permit By Rule (PBR) for utility-scale solar projects	N	N – PBR regulation came into effect in 2012, not since 2015 Needs Assessment

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

- a. Describe the significance of the changes;

The Northam Administration has continued the trend of increasing renewable energy in the Commonwealth by articulating it as a priority in its Energy Plan. However, no significant land-based regulatory changes have occurred since the Solar Permit by Rule (PBR) was approved in 2012.

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

None of the Commonwealth’s energy initiatives were a result of CZM funding, projects, or policies.

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

Virginia is looking to become a leader in clean energy production through a diverse portfolio of sources across the state, especially within the coastal zone.

Enhancement Area Prioritization:

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

High _____
 Medium X
 Low _____

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

As outlined in the Governor’s Energy Plan, Virginia is prioritizing a transition to a cleaner and carbon-free energy industry. However, both major sources of alternative energy – solar and wind – are either not directly related to coastal issues (solar) or are nested under another enhancement area (offshore wind in Ocean Resources). In addition, conditions raised by rural localities among the PDC stakeholder groups about land use and environmental issues, while valid, are not directly related to coastal resources. As such, CZM staff recommend a ranking of **Medium**.

Aquaculture Phase I Assessment

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

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

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

Resource Characterization:

1. In the table below, characterize the existing status and trends of aquaculture facilities in the state’s coastal zone based on the best-available data. Your state Sea Grant Program may have information to help with this assessment.²¹

Status and Trends of Aquaculture Facilities and Activities			
Type of Facility/Activity	Number of Facilities	Approximate Economic Value	Change Since Last Assessment (Increase, Decrease, or Unknown)
Private Hatcheries	About 8	n/a	Since 2015 Assessment, # of private hatcheries has decreased from 9 to “about 8” per the 2015 and 2019 Shellfish Aquaculture Situation & Outlook Reports.
Public Hatcheries	Two research hatcheries are owned and operated by VIMS. The Gloucester Point facility is specifically focused on oyster genetics and breeding. The facility produces improved oyster broodstock strains for the industry oyster hatcheries. Each year the improved broodstock is offered to privately owned industry hatcheries for use in commercial production. The Eastern Shore facility is focused on production of bay scallops for local restoration efforts and aquaculture techniques, and is establishing a hard clam breeding program.	n/a	No change

²¹ While focused on statewide aquaculture data rather than just within the coastal zone, the *Census of Aquaculture* (www.agcensus.usda.gov/Publications/Census_of_Aquaculture/) may help in developing your aquaculture assessment. The census is conducted every 10 years and the last report was released in 2013. The report provides a variety of state-specific aquaculture data to understand current status and recent trends.

Status and Trends of Aquaculture Facilities and Activities			
	DGIF’s King & Queen hatchery near Stevensville, VA produces striped bass to supplement wild stocks.		
Finfish Aquaculture	See above – DGIF striped bass. The Virginia Seafood Agriculture Research & Extension Center, led by Virginia Tech, continues to actively engage industry and research partners to address issues associated with finfish aquaculture. These efforts currently include researching ornamental finfish cultures, marketing of seafood products, and the economic/regulatory barriers to industry expansion.	Unknown	Unknown
Crayfish Aquaculture	Unknown	Unknown	Unknown
Spat-on-shell oyster growing	Approximately 36 There are approximately 36 facilities in Virginia that have remote setting capability. Spat on shell aquaculture is expanding and is ultimately limited by the available supply of oyster eyed larvae from commercial hatcheries. To support the current demand, larval needs are estimated to be 2-3 billion. Facilities vary in capacity and range from the ability to set 200 bushels of oyster shell at a time to setting upwards of 1,200 bushels at a time.	Unknown	Unknown
Oyster aquaculture	352 operations Intensive culture continues to expand in Virginia. The industry is diverse and methodology continues to evolve. The increase in oyster sales documents what has become a long-term positive growth trend. There are no expected market limitations for the foreseeable future.	Per 2018 survey data included in the 2019 Situation & Outlook Report, \$14.5M farm gate estimate.	Farm gate value decreased by \$2.6M, from 17.1M in 2014 to \$14.5M in 2018, per the 2015 and 2019 Virginia Shellfish Aquaculture Situation & Outlook Reports. Sales decreased by 7.7M, from 39.8M in 2014 to 32.1M in 2018, per the 2015 and 2019 Virginia Shellfish Aquaculture Situation & Outlook Reports. Planting decreased by 3.2M, from 107.1M in 2014 to 103.9M in 2018, per the 2015 and 2019 Virginia Shellfish Aquaculture Situation & Outlook Reports.

Status and Trends of Aquaculture Facilities and Activities			
			<p>Much of on-bottom cage aquaculture is done on leases and allowed by regulation for structures up to 12-inches in height. VMRC does not capture such numbers. For structures greater than 12-inches a General Permit # 4 is required and for structures on non-leased bottom or for floating apparatus a permit is issued. In 2014 VMRC issued 0 General Permit # 4 permits and 5 regular aquaculture permits. In 2019, VMRC issued 0 General Permit # 4 permits and 1 regular aquaculture permit. VMRC has issued a total of 11 GP#4 permits and 91 regular aquaculture permits. Some may no longer be active.</p>
<p>Hard Clam aquaculture</p>	<p>108</p> <p><i>Virginia produces more cultured hard clams than any other state. The slight changes in sales and plantings year to year reflect more typical annual variability of a more mature agricultural industry.</i></p>	<p><i>Per 2018 survey data included in the 2019 Situation & Outlook Report, \$38.8M farm gate estimate.</i></p>	<p><i>Farm gate value from remained the same in 2018 as in 2014 at \$38.8M, per the 2015 and 2019 Situation & Outlook Reports.</i></p> <p><i>Sales decreased by 65.3M, from 243M in 2014 to 177.7M in 2014, per the 2015 and 2019 Virginia Shellfish Aquaculture Situation & Outlook Reports.</i></p> <p><i>Planting increased by 12.7M, from 491M in 2014 to 503.7M in 2018, per the 2015 and 2019 Virginia Shellfish Aquaculture Situation & Outlook Reports.</i></p> <p><i>VMRC doesn't usually permit clam aquaculture as most net protected clam aquaculture is done on leased bottomlands and is allowed by regulation.</i></p>
<p>Shellfish aquaculture overall</p>	<p>460</p> <p><i>Growth of the industry continues to add value to the state's seafood marketplace.</i></p>	<p><i>Per 2018 survey data included in the 2019 Situation & Outlook Report \$53.3M farm gate estimate.</i></p>	<p><i>Total farm gate value decreased by \$2.6M from \$55.9M in 2014 to \$53.3M in 2018, per the 2015 and 2019 Situation & Outlook Reports.</i></p>

Status and Trends of Aquaculture Facilities and Activities			
			<p>Total sales decreased by 73M from 282.8M in 2014 to 209.8 in 2018, per the 2015 and 2019 Virginia Shellfish Aquaculture Situation & Outlook Reports.</p> <p>Total planting increased by 9.5M, from 598.1M in 2014 to 607.6M in 2018, per the 2015 and 2019 Virginia Shellfish Aquaculture Situation & Outlook Reports.</p>
Bay Scallop cultivation	<p>1</p> <p>VIMS Eastern Shore Lab is producing Bay scallops for wild stock restoration on the seaside of the Eastern Shore, and working on techniques to research aquaculture potential for this species. Improved broodstock genetics is part of this effort.</p>		<p>One private hatchery, in addition to the VIMS ESL, has been working towards producing bay scallop seed.</p>
Algae production	<p>10 (8 private + 2 public)</p> <p>All shellfish hatcheries produce algae as a food source for the larval clams and oysters.</p>		<p>Since 2015 Assessment, # of private hatcheries has decreased from 9 to “about 8” so total algal production has been projected to decrease from 11 to 10 facilities.</p>
Oyster gardening	1,411	n/a	<p>Decrease in permits from 95 in 2014 to 66 in 2019. It’s unclear whether the decrease is due to lack of renewals and/or failure to secure permits. It would be interesting to see if float producers have experienced an increase or decrease in sales.</p>

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

Per the 2019 Virginia Shellfish Aquaculture Situation & Outlook Report, the across-the-board slight decreases in shellfish sales and in oyster plantings are attributed to above-average rainfall and record low salinities in the Chesapeake Bay in 2018. However, sales for oysters and clams have declined since hitting all-time highs in 2016 and 2014, respectively. Virginia continues to lead the nation in hard clam and Eastern oyster production.

Management Characterization:

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

Landowners along tidal shellfish growing waters continue to have concerns about intensive shellfish aquaculture activity. Some recent legislative changes (increased notice requirements and adding additional review criteria to include both the benefits and impacts of aquaculture) have provided the public more transparency and provided VMRC with additional management tools that may both facilitate siting but also may impede public and/or private aquaculture facilities at some locations.

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

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

Since 2015, there have been both regulatory and Code changes that affect aquaculture within the Commonwealth. Since then, VMRC no longer accepts oyster lease applications within restricted classification waters (by regulation). Notice requirements related to new lease applications were added to the Code of Virginia since 2015. Effective in 2019, the Code of Virginia was amended and fees for lease applications and lease transfers were considerably increased, and a fee was established for lease renewals (Code/Regulation). Additionally, the both the lease transfer and lease renewal laws were amended to provide VMRC with additional means to evaluate and deny leases and/or lease renewals if insufficient shellfish propagation or no aquaculture activity has occurred on a lease. For aquaculture regular permit requests, more robust operational and use plans are now being required for approval.

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

While none of these changes were driven by Section 309 funding, CZM has dedicated Section 306 funds to study ways to expand Virginia’s oyster industry while minimizing user conflicts over a 3-year period (FY 2017-2019) under Task 71. To date, the project has produced spatial data reflecting the uses of public and private oyster grounds, suitability of both areas for future use, and an assessment of the regulatory constraints to industry expansion.

In FY 2017 (Year 1) examined current and future productivity of the public oyster fishery as well as an analysis of current use of private leased subaqueous bottom for aquaculture purposes. Specifically, it was found that the future productivity of the public (wild) harvest has a significantly smaller footprint than the original boundaries established by the Baylor survey. Year 2 (2018-2019) examined the short-term sustainability of the public oyster fishery and the likely expansion of the oyster aquaculture production inclusive of mechanisms for transitioning waterman from wild harvest fishery to aquaculture. Several preliminary strategies to minimize user conflict and to promote regulatory reform were shared and discussed at the November 2019 Virginia Aquaculture Conference.

In FY 2019 (Year 3), the project team will draft the recommended guidance and strategy for moving the oyster industry forward and transitioning the public fishery to aquaculture. This will focus on the anticipated spatial demand for good growing areas, the adaptation of public bottom to accommodate the growth, as well as the global industry practices that may be applied to the region. The draft guidance and strategies will then be shared with key stakeholders during this third and final year of the project.

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

Going forward, those who lease state-owned bottom for shellfish aquaculture will be required to demonstrate to a higher standard that they are productively using the leased area for shellfish propagation. Although the reporting requirements and additional fees may in the short term appear as a burden to the industry, the long-term result is anticipated to add transparency and accountability to the system, thus preventing abuse of grounds e.g. using the lease area as a buffer to block actual aquaculture operations.

Enhancement Area Prioritization:

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

High	<input type="checkbox"/>
Medium	<input checked="" type="checkbox"/>
Low	<input type="checkbox"/>

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

The use of cages, floats, and nets, for shellfish propagation, has resulted in increased public awareness of the leasing of bottomlands and highlighted the necessity for a more comprehensive review of lease application requests related to aquaculture activity. Such requests in populated areas raise issues regarding public trust lands to include user conflicts, property values, aesthetics, navigation impacts, and suitable bottom types. Stewardship of public trust lands, while weighing the public and private benefits versus detriments, requires a multifaceted review of shellfish lease application requests. Staff evaluates all protested applications on a case-by-case basis, considering all comments received concerning the area being requested. Given the continued successful growth of the industry, the scientific support system provided by VIMS, the extension efforts of VASG, and the legislative/regulatory changes enacted by VMRC (the latter without CZM funding support), the Virginia shellfish aquaculture industry and the policies associated with it can be deemed strong and

sustainable. Offshore aquaculture has not been a factor in this evaluation, but may be addressed under another EA ranked High such as Ocean Resources if CZM determines that it is an issue in need of attention in the 2020-2025 cycle. As such, CZM staff recommend a ranking of **Medium**.

IV. STRATEGIES BUDGET SUMMARY

5-YEAR BUDGET SUMMARY BY STRATEGY							
Strategy Title	Anticipated Funding Source (309 or other)	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total
Coastal Hazards	309	\$167,000	\$167,000	\$167,000	\$167,000	\$167,000	\$835,000
Ocean Resources	309	\$176,000	\$176,000	\$176,000	\$176,000	\$176,000	\$880,000
Marine Debris	309	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$800,000
Total Funding		\$503,000	\$503,000	\$503,000	\$503,000	\$503,000	\$2,515,000

Coastal Hazards Strategy

I. Issue Area(s)

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

- | | |
|--|---|
| <input type="checkbox"/> Aquaculture | <input type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting | <input type="checkbox"/> Wetlands |
| <input checked="" type="checkbox"/> Coastal Hazards | <input type="checkbox"/> Marine Debris |
| <input type="checkbox"/> Ocean/Great Lakes Resources | <input type="checkbox"/> Public Access |
| <input type="checkbox"/> Special Area Management Planning | |

II. Strategy Description

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

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

B. Strategy Goal:

Enhance state and local capacity to adapt to the coastal hazards anticipated from climate change by evaluating and strengthening laws and policies.

C. Strategy Description:

The Virginia Coastal Zone Management Program manages coastal resources through a range of enforceable policies implemented at the state, regional and local levels by its network partners. Coastal hazards are addressed through some of these policies, but there are opportunities for a more comprehensive and holistic response to the challenges of climate change and sea-level-rise. This strategy will evaluate those opportunities through: 1) an analysis of newly revised CZM narrative enforceable policies, 2) an enhanced process of shoreline management planning, and 3) evaluations of resilience-related actions of local governments. In all cases recommendations will be made for new or revised enforceable policies to better address coastal hazards. This process is particularly timely as it is critical for Virginia to have policies in place to assure that anticipated new

resilience-building funds are used in the most effective ways and priorities are identified and targeted.

III. Needs and Gaps Addressed

Resilience Concepts Should be Incorporated into Virginia's New Enforceable Policies

In June, 2020, Virginia submitted draft “narrative enforceable policies” to NOAA to replace the original enforceable policies used, and periodically updated, by Virginia since 1986. The new policies will provide a clear and concise statement of the Commonwealth’s coastal resource management structure under the Coastal Zone Management Act. The policies address management of:

- Tidal Wetlands and Non-Tidal Wetlands
- Subaqueous Lands
- Dunes and Beaches
- Chesapeake Bay Preservation Areas
- Marine Fisheries
- Wildlife and Inland Fisheries
- Commonwealth Lands
- Point Source Air Pollution
- Point Source Water Pollution
- Nonpoint Source Water Pollution, and
- Shoreline Sanitation.

While the policies provide a strong framework for protecting and managing coastal resources, they were not typically designed with coastal resilience issues in mind. Some may have only a minor connection to the Commonwealth’s resilience goals. Others, however, may provide a significant opportunity to address resilience goals if they are revised to better address coastal hazard issues, including those related to climate change.

As an example, stakeholders noted that the Chesapeake Bay Preservation Act, which affects land management in riparian areas, was not designed to accommodate resilience-building activities. Legislation passed by the 2020 Virginia General Assembly (HB 504) recognized this issue by adding the goal of promoting climate resiliency to the purpose of the Act and to adopt regulations to address this goal. Virginia has received a 2020 CZMA 309 Project of Special Merit Grant to help address this issue and incorporate resilience into land management components of the Act. The results of this grant will result in a future Virginia CZM program change, so this policy should be sufficiently addressed will not need to be evaluated further through this 309 coastal hazards strategy. It will, however, provide insights into how resilience issues can be better addressed through future Virginia CZM program changes to other enforceable policies.

Stakeholder feedback identified several other priority resilience needs related to the new enforceable policies. The Shoreline Sanitation policy, for example, includes the location, design and maintenance of on-site septic systems. These systems are often found in flood-prone areas, and stakeholders indicated that this was a major concern as water tables rise due to sea level rise and the frequency of flooding increases. Failing septic systems can cause significant water quality

and human health impacts. Stakeholders noted that this was of particular concern in underserved areas of Virginia's coastal zone. They were also concerned that changes to septic regulations had made it easier to build in some flood-prone areas where development should be minimized.

The 2020 General Assembly also added the goal of promoting climate resiliency to the purpose of the Virginia Department of Environmental Quality (HB 1164), which is responsible for five of the eleven enforceable policy areas of the Virginia CZM Program. The Department is responsible for developing and implementing policy and regulatory approaches to address this goal, and has already begun a process of self-evaluation.

In order to better integrate coastal resilience into the Virginia CZM Program's enforceable policies, this strategy will support an objective third party evaluation to:

- 1) Analyze the newly adopted policies through the lens of coastal resilience in order to identify opportunities to strengthen their coastal hazard-related components;
- 2) Work with the Virginia CZM Coastal Policy Team and the Special Assistant to the Governor for Coastal Adaptation and Protection to prioritize the opportunities by policy area;
- 3) Develop, in conjunction with the appropriate agency staff, a more detailed analysis for resilience-building actions for the highest priority policy areas;
- 4) Provide recommendations for regulatory changes to the state legislature or agency staff as appropriate.

Initially, reports on opportunities to incorporate resilience will be prepared for each of the eleven policy areas and then considered by agency staff responsible for that policy area. After the initial reports are developed and presented, policy areas will be prioritized for further analysis based on the relative importance of the issues identified and the likelihood of successful policy change implementation. More detailed analysis of the high priority areas may include studies of identified policy questions and stakeholder involvement. The intended results are program changes that will strengthen Virginia's enforceable policies with regard to coastal hazards and the impacts of climate change.

Local Shoreline Management Plans Should be Enhanced to More Effectively Build Natural Resilience

The Virginia CZM Program has supported the use of living shorelines to build natural resilience for a number of years through data development, policy analysis, training and education. Local plans were completed for all coastal localities that included shoreline management recommendations. In 2011, the Virginia General Assembly agreed that living shorelines were the preferred alternative for shoreline management and in 2020 strengthened state law to so that living shorelines were the required default option unless there was science-based documentation that they were not the best alternative.

Stakeholders suggested that current local shoreline management plans should be strengthened by adding additional information related to resilience issues. New data suggested include analysis of wetlands migration, beneficial use of dredge material for shoreline management, impacts of sea-level-rise on nearby development and infrastructure, and analysis of the water quality benefits of living shorelines. Stakeholders also stated the need for more detailed field analysis of priority areas and preliminary designs for living shoreline projects. The need for this more detailed analysis and

project design is particularly important given the significant expected increase in funds available for shoreline management projects as a result of Virginia's participation in the Regional Greenhouse Gas Initiative (RGGI).

Another gap identified was the lack of Living Shoreline Design Standards to qualify for water quality (and flood retention/quantity) credits and funding through sources such as the Virginia Conservation Assistance Program. This will require consideration of initial design criteria, as well as ongoing maintenance requirements. Standards would be adopted by an agency of the Commonwealth.

The Virginia CZM Program has supported living shoreline training opportunities through previous 309 strategies, but the need for a contractor certification or licensing program was noted by a number of stakeholders. The need for research on how such a program could be adopted and administered was highlighted.

This strategy will result in a model for new shoreline management plans that incorporate these suggestions. Demonstration plans will be developed in coordination with coastal localities and will consider the ultimate permitting needs of proposed projects. The strategy will also result in design and maintenance criteria for living shorelines that can be adopted by the Commonwealth and used as criteria for funding assistance and water quality/quantity credits. It will also include recommendations for a living shoreline contractor certification or licensing program to be adopted by the Commonwealth.

Localities Need to Build Community Resilience through RAFT and CRS Evaluations

Localities have the opportunity to address a wide range of coastal hazards issues, but many do not have the capacity or resources to evaluate their current status, let alone build community resilience through new policies and programs. Virginia's 2016-2020 Coastal Hazards Strategy helped address this issue by providing evaluations and technical support through two initiatives.

The Resilience and Adaptation Feasibility Tool (RAFT) was used by a project team of from the University of Virginia, the College of William and Mary, and Old Dominion University to evaluate three rural regions of the Commonwealth. The process included participation by local staff and resulted in recommended resilience-building actions that each locality should undertake. In the year after the initial evaluations, the RAFT team provided technical assistance to help localities with these actions. Feedback on the process was very positive, but stakeholders noted the need to reach additional regions and localities, as well as provide on-going technical assistance.

Local participation in the Community Rating System (CRS) of the National Flood Insurance Program provides also an excellent framework for resilience-building and is incentivized by discounts on flood insurance for property-owners. CZM-supported CRS evaluations and trainings during the previous Hazards Strategy were well received by localities, but most have not yet been evaluated.

This strategy will provide additional RAFT and CRS evaluations, training and technical support to localities.

IV. Benefits to Coastal Management

Benefits of this strategy include a more comprehensive and holistic response to the challenges of climate change and sea-level-rise by the Virginia CZM Program. It will evaluate opportunities through an analysis of: 1) newly revised CZM narrative enforceable policies, 2) the current format for shoreline management plans, and 3) the many resilience-related actions of local governments. Recommendations will be made for new or revised enforceable policies to better address coastal hazards.

Outcomes of the strategy will include:

- Strengthened Virginia CZM enforceable policies with regard to coastal hazards and the impacts of climate change
- More integrated shoreline management planning, with an increased emphasis on the use of living shorelines and adaptation to sea-level-rise
- Local government actions to improve resilience through changes to ordinances, policies and programs. This will be guided by a better understanding of current local preparedness with regard to coastal hazards, as well as the range of actions they can undertake to improve the resilience of their communities.

V. Likelihood of Success

The Virginia CZM Program's Coastal Hazards Strategy is particularly timely as it is critical for Virginia to have plans and policies in place to assure that anticipated resilience-building funds are used in the most effective ways and priorities are identified and targeted. An analysis of Virginia's resilience needs and priorities, as well as specific project designs, is particularly important given the significant expected increase in funds available for resilience-building projects as a result of Virginia's participation in the Regional Greenhouse Gas Initiative (RGGI), as well as new opportunities through FEMA's Building Resilient Infrastructure and Communities (BRIC) program.

The strategy is based on broad stakeholder input, including from the agencies from the Virginia CZM network of agencies involved in resilience and coastal hazard issues. This input should assure that these agencies remain engaged in the strategy process and participate in the full range of outcomes. The strategy also builds on previous successful efforts to improve shoreline management and community resilience, so there are partnerships already in place as well as a strong framework for further advancements.

Legislation passed by the 2020 Virginia General Assembly formalized the positions of Chief Resilience Officer and Special Assistant to the Governor for Coastal Adaptation and Protection as positions in state government with the goal of aligning government activities around resilience issues. This will provide a high-level forum for receiving recommendations of the 309 Hazards Strategy as well as a direct link to state priorities.

VI. Coastal Hazards Strategy Work Plan

Strategy Goal: Enhance state and local capacity to adapt to the coastal hazards anticipated from climate change by evaluating and strengthening laws and policies.

Total Years: 5

Total Budget: \$835,000 (\$167,000/year)

Years: 1-2

Description of activities:

An objective third party will evaluate each of the Virginia CZM enforceable policies and identify opportunities for strengthening resilience. Meetings will be held with agency personnel responsible for administering each of the policies and a list of mutually agreed upon recommended actions will be developed. These policy actions will be reviewed and prioritized by the Virginia CZM Coastal Policy Team in conjunction with the Chief Resilience Officer and Special Assistant to the Governor for Coastal Adaptation and Protection.

Opportunities will be evaluated to enhance local shoreline management plans to better address resilience and sea-level-rise issues. This will include opportunities for stakeholder input and selection of pilot localities. Work will begin on designing a living shoreline contractor certification process, as well as design criteria to qualify living shorelines for water quality/quantity credits and funding.

Localities will be evaluated for their resilience to coastal hazards, including the effects of climate change. The evaluations will be conducted through the RAFT and CRS programs and result in a better understanding of local resilience status as well as a list of recommended actions to improve that status. Technical assistance will be provided to help address those recommendations.

Major Milestone(s):

- Initial evaluation reports and recommendations for all enforceable policy areas
- Enhanced shoreline management plan design
- Living shoreline contractor certification process evaluated
- Living shoreline design criteria developed
- Local RAFT and CRS evaluations, training and technical assistance

Budget: \$334,000

Years: 3-5

Description of activities:

A more detailed analysis of enforceable policy resiliency recommendations will be undertaken for policy areas that have been prioritized. This phase will include additional stakeholder input and technical assistance to agencies to enhance the policies with respect to their resilience components.

Enhanced shoreline management plans, including detailed recommendations for priority shorelines and preliminary designs for shoreline management projects, will be completed for the selected pilot localities.

Local RAFT and CRS evaluations, training and technical assistance will continue.

Major Milestone(s):

- Detailed resilience enhancement plans for priority enforceable policy areas
- Enhanced shoreline management plans for pilot localities
- Local RAFT and CRS evaluations, training and technical assistance

Budget: \$501,000

VII. Fiscal and Technical Needs

A. Fiscal Needs:

Each component of this strategy will result in identification of additional data needs. Completely addressing all of these needs is likely beyond the scope of the resources available for the strategy, but documenting the need and refining the objectives of data acquisition projects will help position the Commonwealth to apply for other available resources.

New shoreline management plans with enhanced resilience components will be developed for pilot localities, but additional resources will be needed to develop plans for all coastal localities. The field analysis and preliminary shoreline management project designs are critical, but expensive, parts of the plans.

Evaluations and recommendations for strengthening local resilience efforts should be completed for all interested localities during the strategy period. On-going technical assistance to localities to help implement recommendations beyond this period will substantially increase the value of the work because of the limited capacity of localities.

B. Technical Needs: N/A

VIII. Projects of Special Merit

Virginia received a 2020 Project of Special Merit (PSM) that will analyze opportunities for incorporating provisions for sea-level-rise adaptation into the Chesapeake Bay Preservation Act and Regulations and develop policy for local implementation. Depending on the scope of recommendations that come from the analysis of Virginia’s other new enforceable policies, it is possible that Virginia may apply for another PSM to help with implementation.

Developing the next generation of shoreline management plans for the remaining coastal localities that were not involved in a pilot study may also be appropriate for PSM funding. Analysis of local needs through the RAFT and CRS evaluations may also identify common needs among localities that would be appropriately addressed through a PSM.

5-Year Budget Summary by Coastal Hazards Strategy Component

Title	FY2021	FY2022	FY2023	FY 2024	FY2025	TOTAL
Resilient Enforceable Policies	56,000	56,000	56,000	56,000	56,000	285,000
Enhanced Shoreline Plans	56,000	56,000	56,000	56,000	56,000	280,000
Community Resilience: CRS/RAFT	55,000	55,000	55,000	55,000	55,000	270,000
Total Funding	167,000	167,000	167,000	167,000	167,000	835,000

Ocean Resources Strategy

I. Issue Area(s)

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

- | | |
|---|---|
| <input type="checkbox"/> Aquaculture | <input type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> Coastal Hazards | <input type="checkbox"/> Marine Debris |
| <input checked="" type="checkbox"/> Ocean/Great Lakes Resources | <input type="checkbox"/> Public Access |
| <input type="checkbox"/> Special Area Management Planning | |

II. Strategy Description

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

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

D. **Strategy Goal:** Adoption of a Virginia Ocean Plan.

E. **Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above:**

The Virginia CZM Program proposes to develop a Virginia Ocean Plan that will further detail and build upon the Mid-Atlantic Ocean Action Plan completed in 2016. The Virginia plan will consider a variety of issues including identification of potential sites for additional offshore wind energy leases, aquaculture, shipping and military needs, protection of ocean wildlife and habitats. It may also address state actions to minimize ocean acidification and improve ocean health. A Virginia Ocean Plan, once developed could be implemented through a number of possible mechanisms including a gubernatorial executive order, MOUs among state and/or federal agencies, or formally adopted specific policies and guidelines. The plan will also strive to engage stakeholders from the neighboring states of North Carolina and Maryland.

III. Needs and Gaps Addressed

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

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

As laid out in the Phase I and II assessments, the Commonwealth of Virginia is working toward a significant reliance on renewable energy. According to a [summary](#) of Virginia's 2020 Clean Economy Act posted on Virginia's Legislative Information System, "The measure replaces the existing voluntary renewable energy portfolio standard program (RPS Program) with a mandatory RPS Program. Under the mandatory RPS Program, Dominion Energy and Virginia and American Electric Power are required to produce their electricity from 100 percent renewable sources by 2045 and 2050, respectively." Further, according to the Governor's April 12, 2020 press release, the Clean Economy Act, among other goals: "**Advances offshore wind**". The Act provides that 5,200 megawatts of offshore wind generation is "in the public interest." It requires Dominion Energy Virginia to prioritize hiring local workers from historically disadvantaged communities, to work with the Commonwealth to advance apprenticeship and job training, and to include an environmental and fisheries mitigation plan."

A Virginia Ocean Plan would be a comprehensive mechanism for addressing a variety of ocean issues that affect Virginians and neighboring states. These include but are not limited to protection and promotion of commercial and recreational fisheries, provision for adequate and safe shipping lanes for a growing Port of Virginia, identification and protection of ocean wildlife and habitats, development of measures to prevent and mitigate ocean acidification as well as identification of appropriate areas for additional offshore wind energy lease areas.

IV. Benefits to Coastal Management

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

Virginia's first Ocean Resources Strategy imagined a state-specific Virginia plan but was superseded by the development of a Mid-Atlantic Ocean Action Plan by the five Mid-Atlantic states, a plethora of a federal agencies, two federally-recognized tribes and the Mid-Atlantic Fisheries Management Council. That effort culminated in a federally approved plan in 2016. However, in 2018, a new federal Executive Order removed the requirement for federal agencies to adhere to that plan.

Although the Mid-Atlantic Regional Council on the Ocean has created a new intergovernmental body, the Mid-Atlantic Committee on the Ocean, to address regional ocean issues, the time has arrived for development of a more specific state plan in light of Virginia's needs mentioned above. Some years have passed since any state ocean plans have been adopted. While Virginia could benefit from the work and experience gathered through these plans, Virginia could also advance the state of ocean planning and provide a new, updated model for effective state-driven ocean plans. As the first state to have offshore wind turbines in federal waters, Virginia is well-placed to undertake such work.

It is critical as increased offshore energy, shipping and other ocean activities are advanced, that Virginia take a comprehensive look at its ocean resources and uses and develop a plan that can ensure the long-term sustainability and health of Virginia's ocean waters. Of course, Virginia's actions alone cannot guarantee that, but given Virginia's strong involvement in MARCO and

MACO, and those organizations' involvement with the Northeast Regional Ocean Council and the regional Ocean Observing Associations, Virginia is well situated to attempt this work. It will also be important to coordinate these efforts with North Carolina; particularly given that North Carolina's Kitty Hawk offshore wind project will be tying into Virginia's electrical grid. In addition, BOEM no longer uses individual state Wind Energy Task Forces but rather multi-state ones such as the VA/NC Task Force.

V. Likelihood of Success

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

Virginia has a proven record of accomplishment in ocean planning through its experience with MARCO, the Mid-Atlantic Regional Planning Body and now the Mid-Atlantic Committee on the Ocean. Virginia led the development of five of the six action items for the 2016 Mid-Atlantic Ocean Action Plan under the healthy ocean ecosystem goal (identification of ecologically rich areas, mapping species shifts, development of an ocean acidification monitoring network, development of a regional strategy for marine debris reduction and development of healthy ocean indicators).

For this Virginia Ocean Plan, CZM staff will continue to support the VCU Ocean Stakeholder Coordinator and bring in new players from the Virginia Coastal Policy Center with deep experience in Virginia state government and others from state agencies that previously have had only marginal involvement in ocean issues. Virginia staff over the years have developed strong relationship with federal agencies working in Virginia such as the Navy, Coast Guard, BOEM and NASA/Wallops, (and of course NOAA) as well as other key stakeholders such as commercial and recreational fishermen, the Port of Virginia, Virginia Aquarium, the Mid-Atlantic Fisheries Management Council and the federally recognized tribes in Virginia. These positive relationships will be relied upon to develop the plan and they bode well for the success of this endeavor. In fact, in discussions with Darryl Francois of BOEM, he has expressed his support of a Virginia Ocean Plan saying that a state-driven plan that lays out the state's preferences and also involves participation from North Carolina stakeholders would be of great assistance to BOEM.

The legal expertise of the Coastal Policy Center at the College of William & Mary will lend added expertise in researching and recommending the best mechanism(s) for adopting a Virginia Ocean Plan. The CPC also has access to top-notch law students who will be able to take on various legal research regarding the feasibility and appropriateness of various actions developed in the plan.

Although the gubernatorial administration will change in January 2022, just months after this strategy begins, development of a Virginia Ocean Plan that promotes both ocean protection and sustainable ocean industry development as well as energy security should have appeal to both political parties. This has proven true at the federal level throughout the change from the Obama to the Trump administration, albeit with different emphases.

The Virginia Offshore Wind Development Authority as well as the Department of Mines, Minerals and Energy have expressed strong support for development of this plan – particularly the

identification of additional offshore wind commercial lease areas. The Virginia Marine Resources Commission also has expressed support for a plan that will assist in the appropriate development of subaqueous permits needed for offshore wind transmission cables and aquaculture in state waters, as well as one that will address ocean acidification issues that are so important to Virginia's shellfish industry. The Virginia Aquarium, a major Virginia CZM partner and grantee, has long supported efforts to protect marine mammals and sea turtles as well as ocean habitats such as Norfolk Canyon.

To build future support for development and implementation of a Virginia Ocean Plan, the CZM Program will develop and undertake a variety of communication and outreach techniques. Webpages will be developed to build support for and ensure transparency of actions being developed for inclusion in the plan and to create a single location for information on plan development. Webinars will also be held to present progress on plan development and to solicit input from stakeholders on desired actions. Participatory GIS will be used to allow stakeholders to clearly map areas where they think various human activities should or shouldn't take place in both state and federal ocean waters. Public meetings will be held to provide a forum for public discussion and engagement (assuming physical distancing measures eventually allow for large public gatherings). The Virginia CZM Program's magazine will also provide updates on plan development. Given the challenges in engaging the fishing community, the VCU fisheries liaison/stakeholder coordinator will continue to be funded under the strategy to conduct one-on-one and other meetings with the fishing community, relying on the strong relationships he has built with them over the past few years.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For example, even if the final adoption of the program change is outside of the CMP's control, what steps will be included in the work plan so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.

Strategy Goal: Adoption of a Virginia Ocean Management Plan

Total Years: 5 Years

Total Budget: \$930,000

Year(s): One FY2021

Description of activities: In the first year, the Virginia CZM Program will contract with the William & Mary Coastal Policy Center to facilitate the ocean plan development process. The CPC and its students will research other state ocean plans and interview staff from other states to gather lessons learned as to the most effective and efficient ways to develop and adopt a *state* ocean plan.

A Virginia “Ocean Planning Committee” will be established comprised of key stakeholders as well as federal and state government representatives. An initial meeting of this group will be held to present to them this five year strategy and gather input on the proposed issues to be addressed by the plan. They will be asked to identify research needed for effective plan development. The group may decide to establish separate work groups (that would interact more frequently) based on the topics to be addressed in the plan.

A communications plan will be developed. Agreed upon techniques such as webpages, webinars, and public meetings will be established along with a time schedule for proposed events, taking into account whatever social distancing measures may be in place.

Major Milestone(s): First annual meeting; establishment of work groups as needed; selection and establishment of communication tools and a schedule for their use; and a draft outline of the plan.

Budget: \$176,000

Year(s): Two – Three (FY 2022 -23)

Description of activities: Develop contracts for additional data collection as needed and identified in Year One. Flesh out appropriate actions, through work groups or other means, related to identification of offshore wind and aquaculture leases, ecologically rich areas that may require additional protections and ocean acidification reduction or mitigation measures. Conduct participatory GIS meetings with key stakeholders.

Major Milestone(s): Complete a first draft of the plan including draft maps showing preferred locations for human uses and areas of high concentration of ocean resources, which may merit additional protection. Demonstrated use of the Virginia CZM and TNC-funded FY19 Task 94.02 offshore wind-siting tool.

Budget: \$176,000/yr for 2 years = \$352,000

Year(s): Four – Five (FY 2024 -25)

Description of activities: Finalize plan through series of meetings or other interactions with stakeholders. Post document for public comment. Continue communications and outreach efforts. Incorporate or address comments received and begin process for plan adoption.

Major Milestone(s): Final plan is made publicly available and adoption process is initiated.

Budget: \$176,000/yr for 2 years = \$352,000

VII. Fiscal and Technical Needs

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

Given previous work done on a Mid-Atlantic regional ocean plan, the Section 309 funds budgeted for this strategy are expected to be sufficient. There will always be a need for further research and better data however, the funds available should suffice for development of a solid Virginia Ocean Plan. Entities serving on the ocean planning committee may have access to additional funds if needed and the committee will be made aware of other potential federal or state funding opportunities such as NOAA Regional Ocean Partnership Data Sharing funds. This strategy will also involve the Virginia Sea Grant Program, which may have access to other NOAA funds if needed to carry out plan development, particularly with respect to offshore aquaculture.

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

The Virginia CZM Program and its partners do appear to have the knowledge, skills and equipment to carry out this strategy. The knowledge and skills embodied in CZM staff include experience in regional ocean planning, participatory GIS, website development, and social marketing. In addition, partners such as William & Mary's Coastal Policy Center bring extensive legal knowledge and understanding of the workings of Virginia state government. In addition, the Virginia Institute of Marine Science has acquired an ocean-going research vessel which is currently in the process of obtaining all of its certifications. The VCU fisheries liaison has developed strong relations with Virginia's fishing community. Agency staff at the Marine Resources Commission and the Department of Mines, Minerals and Energy also have years of experience in marine resources management and renewable energy development. All of these entities are also members of the Virginia Coastal Policy Team that advises the entire Virginia CZM Program.

VIII. Projects of Special Merit (Optional)

If desired, briefly state what projects of special merit the CMP may wish to pursue to augment this strategy. (Any activities that are necessary to achieve the program change or that the state intends to support with baseline funding should be included in the strategy above.) The information in this section will not be used to evaluate or rank projects of special merit and is simply meant to give CMPs the option to provide additional information if they choose. Project descriptions should be

kept very brief (e.g., undertake benthic mapping to provide additional data for ocean management planning). Do not provide detailed project descriptions that would be needed for the funding competition.

Project of Special Merit proposals under this strategy could include detailed or updated mapping products for a variety of data such as marine mammal and sea turtle distribution and abundance, benthic habitat data – particularly presence of corals on the continental shelf westward of the submarine canyons, and recreational use mapping – particularly recreational fishing.

5-YEAR BUDGET SUMMARY BY OCEAN STRATEGY COMPONENT						
Component	FY 2021 Year 1	FY 2022 Year 2	FY 2023 Year 3	FY 2024 Year 4	FY 2025 Year 5	Total
Facilitation By Coastal Policy Center	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
Stakeholder Coordination by VCU	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
Data Collection	\$76,000	\$76,000	\$76,000	\$76,000	\$76,000	\$380,000
Total Funding	\$186,000	\$186,000	\$186,000	\$186,000	\$186,000	\$930,000

Marine Debris Strategy

I. Issue Area(s)

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

- | | |
|--|---|
| <input type="checkbox"/> Aquaculture | <input type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy and Government Facility Siting | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> Coastal Hazards | <input checked="" type="checkbox"/> Marine Debris |
| <input type="checkbox"/> Ocean/Great Lakes Resources | <input type="checkbox"/> Public Access |
| <input type="checkbox"/> Special Area Management Planning | |

II. Strategy Description

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

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

B. *Strategy Goal: Development and Adoption of Specific Actions in Support of the Goals of the Updated 2021-25 Virginia Marine Debris Reduction Plan.*

Through this strategy, stakeholders at the local, state and federal level – including government and non-government organizations – will work together to develop the new policies/actions in the updated Virginia Marine Debris Reduction Plan (VMDRP) and to implement some of the actions from the previous VMDRP. The VMDRPs created in 2012-14 and updated in 2020, chart a course to measurably reduce marine debris in Virginia and Mid-Atlantic coastal waters focusing on specific actions (e.g., policies, procedures, outreach campaigns). These actions need to be politically, socially, and economically feasible in Virginia. Because an estimated 60 to 80% of debris items enter coastal waters from land-based sources, this strategy will include a focus on land-based sources and increased collaboration with both Virginia localities and the states in the Mid-Atlantic region (including D.C.).

C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above:

Just as there are multiple sources of marine debris, this strategy will have multiple approaches and reach multiple targeted audiences. The overarching goal of the updated Virginia Marine Debris Reduction Plan is to reduce the amount of trash and marine debris from land-based and water-based sources in Virginia through prevention, interception, innovation, and removal for ecological, social, and economic benefits.

Strategies to achieve this will require a coordinated approach that will focus on:

- Increasing knowledge to better understand sources, fates, impacts, and solutions to marine debris.
- Fostering collaboration among agencies, local governments, researchers, manufacturers, businesses, non-profits, and citizens.
- Securing adequate funding to support research, coordination, behavior change campaign development, infrastructure improvements, and grants to local governments.
- Influencing individual behaviors and choices that contribute to marine debris problems.
- Developing and improving policies and regulations, including incentives and disincentives, to prevent pollution.

III. Needs and Gaps Addressed

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

Increasingly, people and governments are recognizing the urgent need to decrease the sources of plastic pollution and marine debris through policies and behavior change. To accomplish this, increased collaboration (as presented in this strategy) is necessary. In addition, development of policy needs to be viewed through the understanding that marine debris issues are linked to climate change, overconsumption, and environmental injustice.

According to a paper by Robert Hale of the Virginia Institute of Marine Science (VIMS) and others in the [January 2020 Journal of Geophysical Research](#) “...the amount of microplastics in some oceanic compartments is predicted to double by 2030. The rate of plastic production has recently surpassed that for carbon emissions (Figure 1)...and if unchecked is projected to contribute 15% of global greenhouse gases by 2050 (Ellen MacArthur Foundation, McKinsey and Company, 2016).”

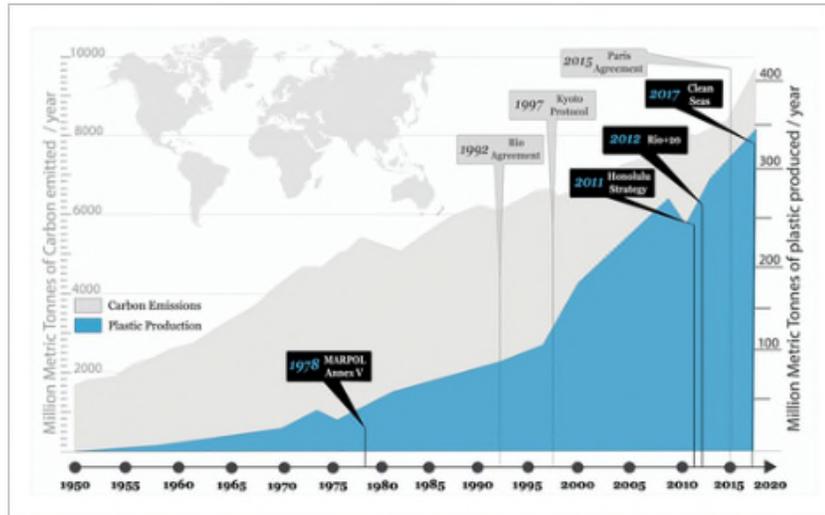
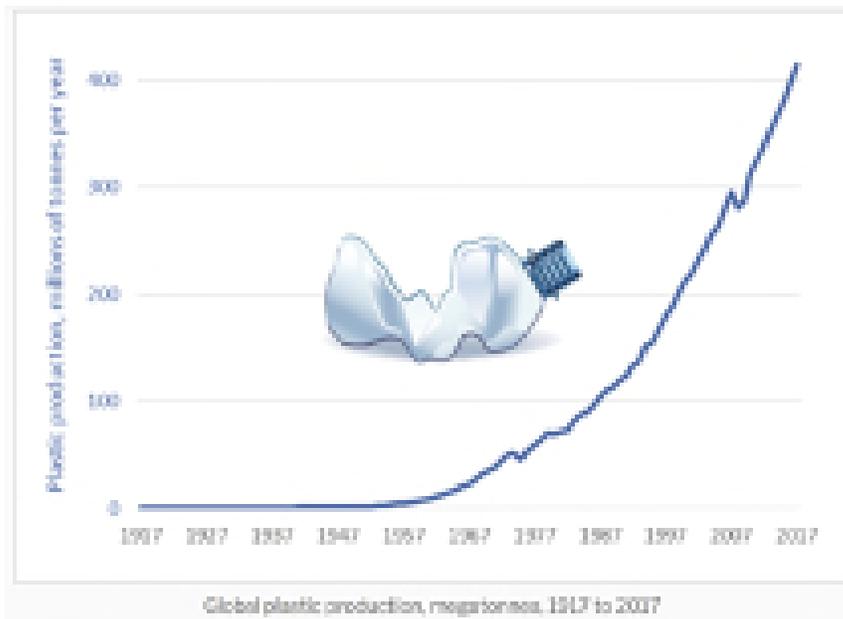


Figure 1 [Open in figure viewer](#) | [PowerPoint](#)

While the global emission of carbon exceeds that of plastic production, the rate of increase of the latter now exceeds that of the former. Figure from Borrelle et al. (2017).

In addition, plastic production--the majority of which is used for just a few minutes in single-use items such as food wrappers and beverage containers--is increasing at a rate that overwhelms communities' abilities to deal with the waste.



Research conducted on remote Virginia shorelines by the Virginia Aquarium & Marine Science Center and Clean VA Waterways (CVW) reveal that 83.0% of all littered items were made of plastics. Support for this marine debris monitoring project was provided by the NOAA Marine

Debris Program through two grants to the Virginia Coastal Zone Management Program subcontracted to the Virginia Aquarium & Marine Science Center Foundation (Grants #NA13NOS4190135, Task #81 and # NA16NOS4190171, Task #81).

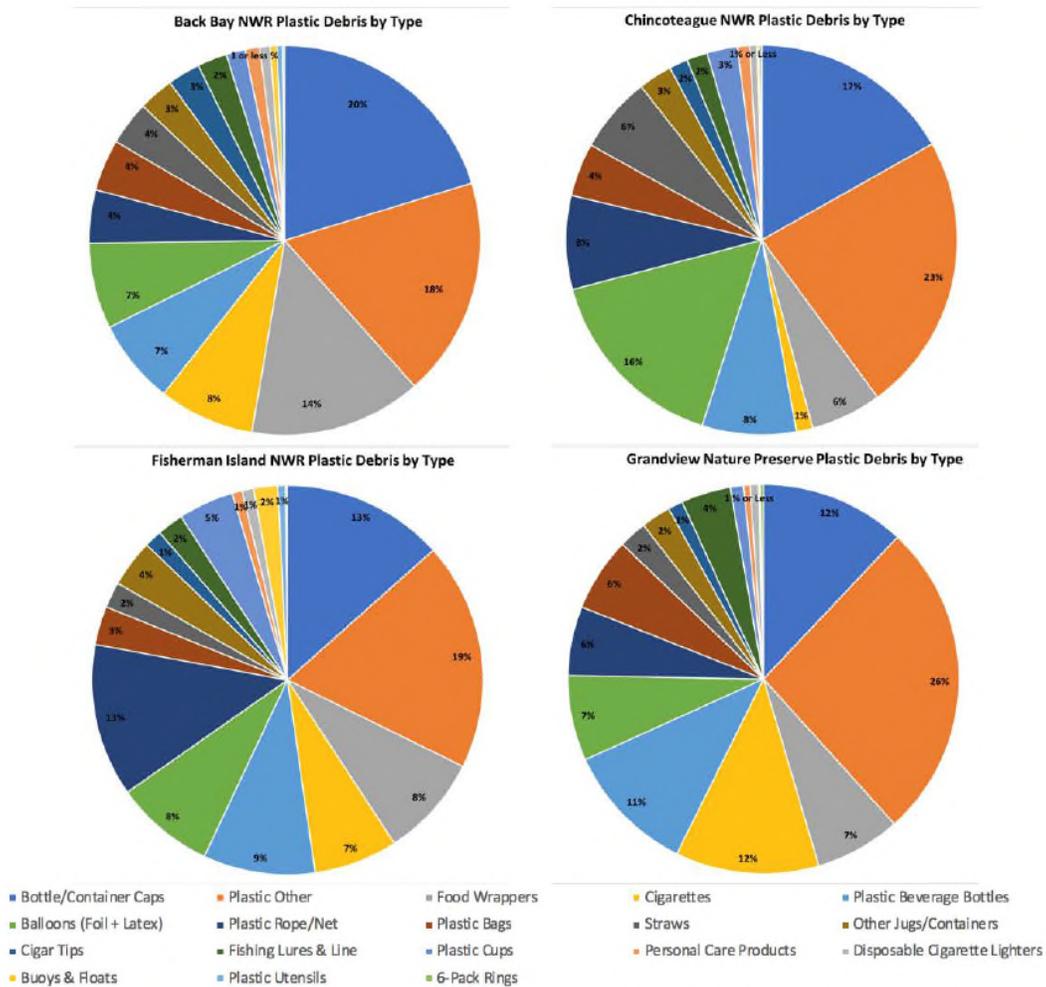


Figure 20. Percentages of total plastic debris items by type at four beach monitoring sites during the project survey period (April 2014–June 2018).

In writing this assessment, stakeholders identified three significant challenges related to marine debris within Virginia’s coastal zone:

- Land-based sources: Disconnect among inland populations about their downstream and cumulative impacts
- Ocean-based sources: Preventing and removing derelict fishing gear
- Increasing use of plastics

Decreasing land-based marine debris will require implementation of many actions within the VMDRP including source reduction (smarter packaging), increased use of reusable items (e.g., bags, beverage containers), and other behavior changes at scale including elimination of “intentional” littering events that include releasing helium-filled balloons and plastic confetti/glitter.

Virginia had an early start on a coordinated approach to decreasing marine debris under the 2011-2016 Section 309 Strategy that led to the first of three Marine Debris Summits, and creation of the VMGRP (the first of its kind on the East Coast). At the Virginia CZM Program's Coastal Partners Workshop/Coastal Policy Team meetings in 2014 and in 2020, reducing marine debris was determined to be a high priority as coastal partners agreed that there is an urgent need to continue implementation of actions outlined in the VMGRP.

This strategy calls for the development of policies to be outlined in the 2020 update of the VMGRP (to be completed by the end of 2020) as well as implementation of previously developed campaigns such as the work to decrease intentional balloon releases and the Kick the Straw campaign. This will be accomplished through continued and improved coordination among state natural resource agencies, local governments, researchers, and NGOs in Virginia. Further, the updated VMGRP is expected to call for new policies that will support waste minimization of the most common and harmful items found as marine debris (e.g., single-use plastic bags, food and beverage packaging, balloons, cigarette butts, and microplastics).

IV. Benefits to Coastal Management

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

As stated in Virginia's previous marine debris strategy, coordinated reduction of marine debris will have positive impacts on coastal resources, protected species such as marine mammals and sea birds, and economically important species such as blue crabs. Virginia's coastal communities continue to spend taxpayer dollars on beach cleanups, litter removal, street sweeping, and other methods to prevent or remove marine debris. Plastic tarps, abandoned nets and fishing gear, tires, and other debris can smother and crush sensitive ecosystems as far away from land as the deep sea corals found in the submarine canyons 50 miles off Virginia's coast. Boaters' safety can be compromised when debris items – fishing line, nets, plastic bags, and rope pieces – wrap around boat propellers or clog seawater intakes. This 2021-25 strategy aims to reduce marine debris, particularly plastics. Coordinated efforts such as those outlined in this strategy to reduce marine debris will make significant contributions to Virginia's coastal economy as well as protect coastal and ocean resources.

The scope of this strategy is from the western edge of Virginia's coastal zone to far out into the Mid-Atlantic Ocean. Virginia's work on marine debris issues has led to a leadership role among the Mid-Atlantic states through the Mid-Atlantic Marine Debris Work Group. The balloon release reduction social marketing campaign developed for Virginia has expanded to the entire Mid-Atlantic region through a grant from the NOAA Marine Debris Program. Additional efforts under this strategy will also be shared with the region.

V. Likelihood of Success

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

The likelihood of success is high given the current prominence of the marine debris/plastics in the ocean issue and the track record of success of the Virginia team that has been in place since 2013. For this round of a marine debris strategy, Virginia has the added support of the state government through establishment of a Plastic Waste Prevention Advisory Council which will include legislative members and citizen members to be appointed by the Governor <https://lis.virginia.gov/cgi-bin/legp604.exe?201+ful+CHAP0798>. The VA Department of Environmental Quality is directed to staff this Council.

By November 1, 2020, the Plastic Waste Prevention Advisory Council is directed to submit to the Governor and the Chairs of the House Committee on Agriculture, Chesapeake and Natural Resources and the Senate Committee on Agriculture, Conservation and Natural Resources an initial report that provides recommendations on legislation to accelerate the elimination of plastic bags and polystyrene packaging used or sold in the Commonwealth. This report will undoubtedly guide work undertaken through this 2021-25 strategy.

Additionally, in 2020 the VA General Assembly demonstrated willingness to address source reduction by passing a bill that will allow local governments to enact fees on single-use plastic shopping bags, and raising the Virginia Litter Tax for the first time in 43 years from \$10 to \$20 annually for most businesses that sell soda, beer and related items. Another new law will increase the fine for businesses that do not pay the annual Litter Tax. Finally, a bill to prohibit the use of expanded polystyrene food service containers starting in 2023 was passed by the General Assembly in 2020 and signed by the governor, but will need to be reenacted during the 2021 General Assembly session to remain in effect.

Furthermore, Virginia's continued leadership of the Mid-Atlantic Regional Council on the Ocean's Marine Debris Work Group has established a strong track record of accomplishment including that Virginia's Marine Debris Reduction Plan will be the basis for development of a regional marine debris reduction plan.

The VMDRP, in place since 2014, will be updated by December 2020 based on input from a broad and diverse group of stakeholders. The updated VMDRP will include mid- and long-term actions that will fit in the timeframe of this upcoming 309 cycle.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps that will lead toward or achieve a program change or implement a previously achieved program change. For example, even if the final adoption of the program change is outside of the CMP's control, what steps will be included in the work plan so the CMP ensures the program change is considered, reviewed, and hopefully adopted by the outside entity? Who are the other stakeholders or elected officials that need to be engaged, and how and when during the strategy development process? What is the decision-making or voting process that is involved in the adoption of the program change, and how will the CMP interact with this process to ensure that the proposed program change is considered? If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. The plan should identify a schedule for completing the strategy and include major projected milestones (key products, deliverables, activities, and decisions) and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual milestones are a useful guide to ensure the strategy remains on track, OCM recognizes that they

may change somewhat over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. Further detailing and adjustment of annual activities, milestones, and budgets will be determined through the annual cooperative agreement negotiation process.

Strategy Goal: *Development and Adoption of Specific Actions in Support of the Goals of the Updated 2021-25 Virginia Marine Debris Reduction Plan and the new Plastic Waste Prevention Advisory Council*

The preliminary report from the Plastic Waste Prevention Advisory Council (due in November 2020), along with the updated 2021-25 Virginia Marine Debris Reduction Plan (to be adopted in December 2020) will be the basis for developing policy. It is expected that these strategies will focus on preventing marine debris through source reduction, new policies, and behavior change campaigns in addition to targeting specific groups that are expected to accelerate pollution prevention, e.g., restaurants and retail businesses, gas stations, landscape managers, local governments (especially stormwater managers), consumers, marina and boat ramp operators, and event and memorial planners.

Total Years: 5 Years

Total Budget: \$800,000

Year: One FY2021 (October 2021 - September 2022)

Description of activities: In the first year, VA CZM Program staff, grantees, and stakeholders will develop detailed strategies for policy development based on the updated VMDRP and the Plastic Waste Prevention Advisory Council recommendations available in January 2021.

Major Milestone(s):

- Review interim report and meeting notes from the new Prevent Plastic Waste Prevention Advisory Council and determine what type of potential behavior change campaign or policy for specific debris sources or types we should address. Assist the Council in obtaining from federal, state, or local agencies any relevant data on plastic pollution and any associated costs of cleanup as it relates to eliminating plastic waste. Also assist as needed with any relevant analyses and development of a plan or recommendations as appropriate for the legislature, localities, or any other stakeholder;
- Creation of a process for supporting development of local policies through additional personnel at CVW. This person would be available to localities to assist in writing local plans and/or policies.
- Review legal and administrative barriers to 1) adopting alternative materials and practices; and 2) removal of lost or derelict gear and derelict vessels.
- Spring 2022 Virginia Marine Debris Summit to bring together marine debris experts, state and local resource managers, community educators, and potential funding sources (including the NOAA Marine Debris Program) to share progress on the updated plan, ongoing research, and identify additional priorities.

- Evaluate (through surveys, etc.) popular support for legislation and policies that support marine debris reduction. This will provide a baseline to help later (see Years 4-5) determine effectiveness of management efforts.
- Synthesize existing research on the costs incurred by communities, taxpayers, and individuals, and impacts on wildlife and targeted species due to littering.
- Coordinate with NOAA Marine Debris Program in the implementation of the Mid-Atlantic Regional Plan and efforts of the Mid-A Marine Debris Work Group.
- Continue monitoring marine debris accumulation on Fisherman Island National Wildlife Refuge and possibly additional coastal sites. Monitoring Fisherman Island offers continuity with previous studies including the VA Aquarium’s monitoring (2014-2018). Fisherman Island also has restricted access, providing an excellent location for understanding debris accumulation. Permits will be in hand prior to any monitoring.
- Continue updates on the coordination tool: CVW, in collaboration with other partners including the Virginia Conservation Network, created a clearing house/directory showing which groups are engaged in reducing marine debris through encouraging legislation, organizing volunteer cleanup events, collecting survey data, engaging fishers in removal of derelict fishing gear, implementing behavior change campaigns, and other actions.
- Support ongoing waste source reduction efforts, including continued implement of the Keep It Beachy Clean campaign to reduce litter on Virginia’s beaches.

Budget: \$160,000

Year(s): Two – Three (FY 2022 -23) (October 2022 - September 2024)

Description of activities: VA CZM Program staff, grantees, and stakeholders will conduct research and analyses in support of new policy development to implement the goals of the updated VMDRP and the Plastic Waste Prevention Advisory Council recommendations including behavior change campaigns and/or adoption of policies.

Major Milestone(s):

- Assist the Plastic Waste Prevention Advisory Council with any further needed development of state policies to *“eliminate plastic waste impacting native species and polluting the Commonwealth’s environment and to contribute to achieving plastics packaging circular economy industry standards ... coordinate the legislative recommendations of all other state entities having responsibilities with respect to plastic pollution issues.”*
- Begin and continue assistance to localities for local litter prevention plan development, developing strategies to improve behavior change campaigns, local ordinances and policies, interception infrastructure, and trash interception practices. Additional personnel at CVW would be available to localities to assist in writing local plans and/or policies.
- Develop strategies to reduce legal and administrative barriers to 1) adopting alternative materials and practices; and 2) removal of lost or derelict gear and derelict vessels.
- Pursue grants to support social marketing campaigns aimed at influencing behaviors that are associated with reducing marine debris.

- Collaborate with all groups that monitor or collect litter or marine debris data in Virginia, and explore how the data could be aggregated to inform future priorities and drive transformative change.
- Coordinate with NOAA Marine Debris Program in the implementation of the Mid-Atlantic Regional Plan and efforts of the Mid-A Marine Debris Work Group.
- Continue monitoring marine debris accumulation on Fisherman Island National Wildlife Refuge and possibly additional coastal sites.
- Continue updates on the coordination tool: CVW, in collaboration with other partners including the Virginia Conservation Network will maintain and update a clearing house/directory showing which groups are engaged in reducing marine debris through encouraging legislation, organizing volunteer cleanup events, collecting survey data, engaging fishers in removal of derelict fishing gear, implementing behavior change campaigns, and other actions.
- In Year 3, evaluation of progress made under the updated VMDRP.
- Support ongoing waste source reduction efforts, including continued implementation of the Beachy Clean campaign to reduce litter on Virginia’s beaches.
- Build popular support for legislation, policies and enforcement that will support waste minimization of the most common items found as marine debris, and engage existing statewide groups (e.g., Master Naturalists, counties’ litter control staff, etc.) on marine debris awareness and in implementing aspects of the Virginia Marine Debris Reduction Plan.

Budget: \$160,000/yr for 2 years = \$320,000

Year(s): Four – Five (FY 2024 -25) (October 2024 - September 2026)

Description of activities: VA CZM Program staff, grantees, and stakeholders will complete research and analyses in support of new policies and promote adoption of those policies. In addition, the team will continue to implement any previously adopted policies, programs and campaigns.

Major Milestone(s):

- Assist the Plastic Waste Prevention Advisory Council with any further implementation of state policies to eliminate plastic waste.
- Spring 2025 Virginia Marine Debris Summit to bring together marine debris experts, state and local resource managers, community educators, and potential funding sources (including the NOAA Marine Debris Program) to share progress on the updated plan, ongoing research, and identify additional priorities.
- Further engage local governments in developing and implementing strategies to improve behavior change campaigns, local ordinances and policies, interception infrastructure, and trash interception practices.
- Pursue grants to support social marketing campaigns aimed at influencing behaviors that are associated with reducing marine debris.
- Implement strategies to reduce legal and administrative barriers to 1) adopting alternative materials and practices; and 2) removal of lost or derelict gear and derelict vessels.

- Continue to build popular support for adoption of legislation and policies that will minimize the most common marine debris items. Engage existing statewide groups (e.g., Master Naturalists, counties’ litter control staff, etc.) on marine debris awareness and in implementing aspects of the Virginia Marine Debris Reduction Plan.
- Evaluation of progress of the VMDRP.
- Begin work on a 2026-2030 marine debris reduction strategy and assessment of accomplishments under this 2021-2025 strategy.

Budget: \$160,000/yr for 2 years = \$320,000

VII. Fiscal and Technical Needs

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

This strategy is proposed to provide a significant increase in funding from \$60,000 per year in the last strategy to \$160,000/year for this strategy. Considerable funding will be needed for many aspects of the updated Virginia Marine Debris Reduction Plan, including support for local and regional policy development and the continuation of social marketing approaches to changing behavior surrounding litter and debris that end up in our marine environments. NOAA’s Marine Debris Program grants are a possible source of additional funding. Virginia CZM Program’s academic and non-profit partners are also likely to seek funding for projects that align with the goals of the updated Virginia Marine Debris Reduction Plan. Foundations that have supported litter- and marine debris-related work include Keep America Beautiful (Cigarette Litter Prevention Program Grants), Boat U.S. Foundation, National Marine Sanctuary Foundation, and the Chesapeake Bay Restoration Fund.

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

The Virginia CZM Program has access to many technical experts in Virginia, other MARCO states, and the NOAA Marine Debris Program. Faculty and staff at VIMS, the Virginia Aquarium & Marine Science Center, and Clean Virginia Waterways (CVW) of Longwood University are engaged in innovative research, program development, marine debris monitoring, trend analysis, and education and outreach activities related to derelict fishing gear and consumer waste issues. In addition, the Virginia CZM Program staff and its partners (notably CVW) have strengthened their knowledge and skills in developing and piloting outreach campaigns based on social marketing principles. In fact, they have become regional experts in the field on whom others have begun to rely.

VIII. Projects of Special Merit (Optional)

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

For marine debris, if eligible, we may submit PSM proposals for specific research needs or economic analyses to support policy development. However, it is not expected that Marine Debris will be an eligible topic for PSM proposals.

5-YEAR BUDGET SUMMARY BY MARINE DEBRIS STRATEGY COMPONENT						
Components	FY2021	FY2022	FY2023	FY 2024	FY2025	TOTAL
Project Coordination by CVW (including subcontracts for data and analyses)	\$120,000	\$125,000	\$125,000	\$120,000	\$125,000	\$615,000
Beach Monitoring & Reporting	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$40,000
Locality Assistance	\$22,000	\$27,000	\$27,000	\$22,000	\$27,000	\$125,000
Summits	\$10,000	0	0	\$10,000	0	\$20,000
Total Funding	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$800,000

V. SUMMARY OF STAKEHOLDER AND PUBLIC COMMENT

This section provides a list of the stakeholder groups or individuals engaged during the assessment development process and a brief summary of their feedback. It also provides a summary of the public comments received during the public comment period and how the CMP responded to those comments.

Methodology

October 9, 2019: CZM staff had a kickoff phone call with John Kuriawa to review expectations, discuss methodologies, and confirm timelines for the stakeholder engagement process. While surveys to a broad audience were considered, CZM staff decided to utilize the expertise of Coastal Policy Team (CPT) members for the Needs Assessments and for prioritizing the nine Enhancement Areas before posting the evaluations and draft strategy for general public comment. The Program Manager and the 2 Coastal Planners would also give presentations at meetings of each of the 9 PDC's in order to leverage their broad network of environmental experts in both ranking the Enhancement Areas and providing specific project ideas to CZM via their PDC representative.

General Intro Meetings with PDC's

HRPDC – November 7, 2019: Virginia CZM staff gave a PPT presentation at the quarterly HRPDC Regional Environmental Committee (REC) meeting. Key attendees included The Chesapeake Bay Foundation, HRPDC staff, and local government environmental managers. Not many comments or project ideas were received from the audience, but Ben McFarlane of HRPDC had follow up discussions with local government staff on the REC and Coastal Resiliency Committee.

GWRC – November 13, 2019: Virginia CZM staff gave a PPT presentation at the quarterly Regional Stormwater Managers meeting. Key attendees included regional environmental managers, Soil & Water Conservation District staff, and GWRC staff. Comments received during the meeting and additional ideas were summarized in a Nov 18, 2019 email by Denise Nelson (on behalf of GWRC): CZM was asked to review past grant outcomes to see if policies were adopted to identify gaps in coverage, a Lake Anna SAMP suggested, CSI: healthy watersheds implementation, RPA identification/enforcement on private land, local policies to force real estate disclosure of floodplain issues, Energy: utility-scale solar issues with local land use, interest in native plants/pollinators.

ANPDC – November 14, 2019: Virginia CZM staff gave a PPT presentation in conjunction with DCR's stakeholder input meeting for the 2020 edition of the Virginia Outdoors Plan, but did not receive significant feedback regarding issues or needs.

PlanRVA & Crater PDC – December 12, 2019: Virginia CZM staff gave a PPT presentation to a joint meeting of PlanRVA and Crater PDC's local environmental planning staff, representatives from Soil and Water Conservation Districts from the regions, and the Friends of the Lower Appomattox River (FOLAR). Stakeholders suggested integrating the land conservation components of coastal hazards planning into the various public access planning efforts currently underway, such as a proposed Ashland to Petersburg bike trail. They also suggested linking 309 Hazards activities to the regional hazard mitigation plans

required by FEMA. In addition to coastal hazards issues, several representatives from rural areas expressed general concern over issues related to growth and development.

MPPDC – November 20, 2019: Virginia CZM staff gave a PPT presentation at the Monthly Commission Meeting. Key attendees were elected and appointed officials from the counties and towns within the PDC. Comments received from the audience focused on issues with energy facility siting, particularly solar farms in rural coastal areas. Concerns about the benefits of renewable energy going to others outside the locality, while local governments not compensated for added burden of maintenance and environmental compliance inspections (erosion and sediment control issues).

NNPDC – November 2019: Virginia CZM staff coordinated with NNPDC staff, but after consulting with local government contacts, the PDC declined the invitation for a presentation by CZM. Shep shared a Powerpoint presentation about the 309 Assessment process for distribution to Northern Neck localities, but no feedback was received.

NVRC – January 30, 2020: As a meeting prior to the January 15, 2020 CPT meeting was unable to be scheduled for NVR, Jeff gave a PPT presentation at the quarterly Clean Water Partners (CWP), and emphasized strategy framework for CSI, Ocean Resources, Marine Debris, and Coastal Hazards, the 4 Enhancement Areas receiving the highest ranking by the CPT. The CWP asked for a comprehensive list of outcomes for the 4 strategies to become more familiar with typical scopes of work. Some project ideas discussed included 1) Hazards: a study on new increased precipitation trends in region to inform NVRC resiliency design standards, 2) Hazards: continued use of CRS and new use of RAFT, and 3) CSI: promoting increased collaboration between state (DEQ) and local government to educate residents about issue of salt (has become a groundwater contamination issue). No specific project ideas were mentioned for Ocean Resources and Marine Debris, although the group was pleased with how the Little Hunting Creek cleanup project (FY17, Task 50) was going. Following the meeting, no project ideas or policy needs were submitted to CZM, but the precipitation/resiliency topic was later discussed at the February 24, 2020 CSI Workgroup Meeting.

NVRC – February 20, 2020: Virginia CZM staff also presented a shorter version of the PPT at a NVRC Regional Resiliency Team webinar meeting. No questions or comments were received from the audience or following the meeting.

Coastal Policy Team Engagement

September 12, 2019 CPT Meeting: CZM staff gave a brief overview of the process

December 19, 2019: Virginia CZM staff emailed draft Phase I Assessments to the CPT to review before the January 15 meeting.

January 15, 2020 CPT Meeting: Virginia CZM staff reviewed each Ph. I Assessment form, suggested priorities, and the CPT ranked the 9 topics – 1) Coastal Hazards, 2) CSI, 3) Ocean Resources, and 4) Marine Debris ranked the highest. Laura asked for volunteers to serve on work groups for each of the 4 topics. See Work Group section below for more details on each topic discussed.

July 1, 2020: Virginia CZM staff emailed the draft Ph. II Assessments and Strategies to the CPT.

Enhancement Area Research & Experts' Comments

Aquaculture:

- Virginia CZM staff attended the **November 14-15, 2019** Virginia Aquaculture Conference, saw presentations by shellfish farmers on user conflict minimization best practices, disease/genetics updates from marine scientists, leasing regulations, & product marketing methods.
- Virginia CZM staff attended a **November 21, 2019** CZM Aquaculture grant meeting at VIMS with VMRC and VIMS (Tony Watkinson, Ben Stagg, Marcia Berman, Roger Mann, Andrew Button, Jim Wesson). Laura asked whether there were any needs regarding aquaculture management that might rise to the level of need for a 5-year grant strategy and the group agreed there was not at that time.
- Virginia CZM staff emailed draft Ph. I assessment to Karen Hudson (VASG) **November 18, 2019**, no feedback received as of 1/7/20.
- Virginia CZM staff emailed draft Ph. I assessment to Ben Stagg (VMRC) on **December 3, 2019**, received helpful data and text language **December 4, 2019**.
- Virginia CZM staff emailed draft assessment to Mike Oesterling (Shellfish Growers of VA) on **December 16, 2019**. No feedback received as of 1/7/20. However, Mike commented to Jeff at the VA Aquaculture conference that the industry is doing well, in part to past CZM funding, and that it could be ranked as a Medium priority for the next grant cycle.
- Virginia CZM staff emailed Dr. Richard Snyder of VIMS' Eastern Shore Lab about scallop cultivation **January 7, 2020**. Jeff received the requested information from Dr. Snyder in emails from **January 7 to January 10, 2020**.
- Virginia CZM staff briefed the CPT at the **January 15, 2020** meeting and received minimal feedback from audience. VMRC conceded that they do not need to rely on Sect. 309 funding to resolve water use conflict as shellfish aquaculture industry expands.

Cumulative & Secondary Impacts:

- Topic supported by GWRC and NVRC (see PDC engagement section above) – flexibility for “upper watershed” coastal PDC’s for topics like stormwater management.
- Virginia CZM staff email draft Ph. I assessment to John Kennedy (DEQ) **December 17, 2019**, received helpful text summary of Ph. III WIP status **December 18, 2019**.
- Virginia CZM staff emailed draft Ph. I assessment to Marcia Berman (VIMS) **December 17, 2019** and coordinated with Christine Tombleson (VIMS) to obtain living shoreline (LS) mileage for each PDC and percentage of shoreline permits that were LS vs. traditional structures.
- Virginia CZM staff emailed draft Ph. I assessment Joe Weber (DCR) on **December 16, 2019** and discussed GIS land use cover needs in lieu of NOAA’s dataset at **January 15, 2020** CPT meeting. However, assistance was not needed after John Kuriawa (NOAA) indicated at that meeting that the NOAA data would be available after all.
- Virginia CZM staff emailed draft Ph. I assessment to Angela King (W&M CPC) Dec 17, 2019 and received summary text **January 7, 2020**.
- Virginia CZM staff briefed the CPT at the **January 15, 2020** meeting and received feedback on assessment form and status updates – highlights included: CPT would like environmental justice to be considered within strategy, new WOTUS rule has caused uncertainty within DEQ regulatory program, and CPT wanted CSI to be ranked High instead of initial CZM-recommended Medium.

- Virginia CZM staff led the CSI workgroup meeting on **February 24, 2020**. *Please see Ph. II Assessment for comments and meeting outcome.*

Energy & Government Facility Siting:

- Virginia CZM staff briefed the CPT at the **January 15, 2020** meeting and did not receive significant feedback. Lewie Lawrence of MPPDC reiterated his point from the November 20, 2019 MPPDC PPT presentation Jeff gave that solar farms in rural coastal areas contributed to erosion and sediment control issues near sensitive coastal habitats, natural resource extraction with little compensation to local governments was an environmental justice issues, and that as the RPA moved landward as sea levels rise, long-term maintenance access will become an issue. The CPT noted this concern, but it was suggested that this issue could be addressed under the Coastal Hazards or CSI strategies. Ultimately, the General Assembly passed HB 1675, which allows local governments extensive freedom to negotiate with solar companies for compensation in return for site plan approval.

Wetlands:

- Virginia CZM staff contacted, and received feedback on the Phase I Wetlands Assessment from Pam Mason, Marcia Berman, Molly Mitchell and Tami Rudnicky at the Virginia Institute of Marine Science, Dave Davis, Michelle Henicheck and Brenda Winn at the Virginia Department of Environmental Quality Wetlands Program, and Skip Stiles from Wetlands Watch. Tony Watkinson from the Virginia Marine Resources Commission provided feedback at the January 15, 2020 Coastal Policy Team meeting after Shep's presentation of the Phase I Wetlands Assessment.

Coastal Hazards:

- Virginia CZM staff completed the Phase I Coastal Hazards Assessment based on feedback from a wide range of stakeholders involved in on-going discussions of climate change and resilience issues in Virginia. Stakeholders included the Special Assistant to the Governor for Coastal Adaptation and Protection, representatives from each of the eight Coastal Planning District Commissions, the Virginia Institute of Marine Science, the Virginia Department of Environmental Quality, the Virginia Department of Emergency Management, the Virginia Department of Conservation and Recreation, and Wetlands Watch. Feedback on local government coastal hazards issues received through Virginia CZM sponsored projects such as the Resilience and Adaptation Feasibility Tool (RAFT) and the Community Rating System (CRS) was particularly valuable. Participation in the Resilience Roundtable at VIMS and attendance at the Virginia Coastal Policy Center's resilience conference were also important opportunities to gain stakeholder feedback. Stakeholder input on coastal hazards issues was also received at the January 15 Coastal Policy Team meeting at DEQ, the February 24 Cumulative and Secondary Impacts meeting at DEQ and the March 5 Coastal Hazards meeting at VIMS (*Please see Ph. II Assessment for comments and meeting outcomes*).

SAMPs:

- Ideas for potential new Special Area Management Plans (SAMPs) were requested at the PDC 309 meetings. A Lake Anna SAMP was suggested at the GWRC 309 meeting, however much of the lake's shoreline and most of its watershed is outside of the coastal zone. The possibility of a SAMP for the Lower Chickahominy region as a follow-up to work under the current 309 strategy was discussed at the PlanRVA/Crater PDC meeting and in other meetings. Staff from PlanRVA, however, felt that the current projects will have developed an adequate framework for further actions in the region and that there was not a need for a SAMP there.

Ocean Resources:

- On **December 6, 2019** Virginia CZM staff met with DMME (Al Christopher and Jennifer Palestrant, Chief Deputy) to review Section 309 process and needs regarding ocean planning and offshore wind. DMME expressed strong interest in development of a 5 year strategy to create a Virginia Ocean Plan. They were particularly interested in having the CZM Program convene stakeholders to identify potential additional commercial offshore wind lease areas.
- On **January 10, 2020** Virginia CZM staff, as an appointee to the Virginia Offshore Wind Development Authority, presented the Section 309 process to VOWDA members at their public meeting. VOWDA voted to endorse the concept of development of a Section 309 Ocean Resources Strategy.
- On **February 12, 2020** VOWDA incorporated concepts of an ocean plan and identification of additional lease areas into their work plan. Given the results of the "high" ranking of ocean resources at the January 15 Coastal Policy Team meeting, Laura agreed to serve on the VOWDA work group responsible for those actions.
- On **June 8** a draft ocean strategy was emailed to Elizabeth Andrews (Virginia Coastal Policy Center), Todd Janeski (VCU), Ellen Bolen, Lewis Gillingham and Tony Watkinson (MRC), Al Christopher, Jennifer Palestrant (DMME), Troy Hartley (VA Sea Grant, Mark Luckenbach (VIMS), Becky Gwynn (DGIF), Chris Bruce (TNC), and Avalon Bristow (MARCO). It was also sent to Joan Bondareff (VOWDA Chair) on **June 19**.
- On a **June 26** call with Darryl Francois of BOEM, he noted that if Virginia could make its preferences known as to where it would like to see an additional offshore wind lease area, this would be of great use to BOEM. He also mentioned the utility of involving North Carolina stakeholders in a Virginia Ocean Plan given the collaboration between NC and VA on offshore wind development.

Marine Debris:

- On **November 19, 2019** Virginia CZM staff met with Katie Register, Clean VA Waterways (CVW) to draft the Phase I needs assessment.
- A needs survey was distributed in December to stakeholders to collect information on projects undertaken since development of the 2014 Virginia Marine Debris Reduction Plan and in February another survey was distributed to the Marine Debris Management Team to collect their thoughts on priorities for future work.
- On **March 4, 2020** Virginia CZM staff convened 15 stakeholders (see Google invite) to finalize the Phase I and complete the Phase II marine debris assessments and to begin drafting the marine debris 5 year grant strategy.

- On **March 17, 2020** Virginia CZM staff hosted and facilitated the VA Marine Debris Leadership Team meeting and presented progress on the Section 309 process.

Public Access:

- On **December 12, 2019** Virginia CZM staff received comments at the Plan RVA and Crater PDC joint meeting that public access ranked as a high priority. No comments received on this topic at other PDC meetings.
- Virginia CZM staff sent draft Ph. I assessment to Robbie Rhur (DCR) on **December 16, 2019** and received help filling out tables **December 17, 2019**.
- Virginia CZM staff briefed the CPT at the **January 15, 2020** meeting and received feedback on assessment form and status updates – highlights included: MPPDC to provide CZM with VDOT end-of-road public access site data and HRPDC to work with DCR to possibly update beach access inventory, changes to form to reflect role of Public Access Authorities, methods of preserving public access, and issue of maintenance funding.

General Public Comment Period:

<ul style="list-style-type: none"> Description & Boundary Funding CZM Issues & Initiatives Coastal GLIMS Geospatial Data Grantee Guidance Information Help Your Coast Laws, Regulations, & Guidance Public Notices Reports & Publications Forms Resources & Links Contacts 		 <p>Virginia Coastal Zone MANAGEMENT PROGRAM</p>
<p>Virginia Department of Environmental Quality Mailing Address: P.O. Box 1105 Richmond, VA 23218</p> <p>Street Address: 1111 East Main St., Suite 1400 Richmond, VA 23219</p> <p>Contact Us: 1-(804) 698-4000 1-800-592-5482 (Toll Free in VA)</p>	<p>Virginia CZM Program Overview Virginia CZM Program Accomplishments Page</p>	<p><i>Protecting, restoring, and strengthening our coastal ecosystems and economy.</i></p>
<p>View Department of Environmental Quality Expenses</p>	<p>The Virginia Coastal Zone Management (CZM) Program, established in 1986 through Executive Order, is a network of Virginia state agencies and local governments, that administers enforceable laws, regulations and policies that protect our coastal resources and fosters sustainable development.</p>	<p>FY 2021 - 2025 Coastal Needs Assessment and Strategies</p>
	<p>The Department of Environmental Quality (DEQ) serves as the lead agency of the network, and houses the Virginia CZM Program office in Richmond. This office works with the networked agencies to develop and implement coordinated coastal policies. To facilitate this work, the office established a Coastal Policy Team (CPT), which consists of representatives from each of the agencies, and provides a forum for discussion and resolution of cross-cutting coastal resource management issues. For a description of the progress the Virginia CZM Program is making in accomplishing its goals, go to the program's Goals and Accomplishments webpage</p>	<p>The Virginia CZM Program has begun the 2021 - 2025 Coastal Zone Enhancement Process.</p>
	<p>The Virginia CZM Program office at DEQ also administers the program's annual grant award from the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service. Office for Coastal Management. Since 1986, Virginia has received over \$61 million in federal Coastal Zone Management Act funding, matched by over \$51 million in state and local funds, to implement its Coastal Zone Management Program. As a 'maximum-funded state' Virginia receives about \$2.5 million annually.</p>	<p>The Program has completed a Phase 1 Assessment of the Commonwealth's coastal resources and management efforts.</p>
		<p>Comment on this Phase I Coastal Needs Assessment and the ranking of "High Priority" areas no later than March 16, 2020 to Laura.McKay@deq.virginia.gov.</p>
		<p>View the draft Phase 1 Assessment and learn more on the Coastal Needs Assessment 2021 - 2025 webpage.</p>

On **February 14, 2020** CZM posted draft Phase I Assessment and rankings on the website <https://www.deq.virginia.gov/Programs/CoastalZoneManagement.aspx>:

Coastal Needs Assessment: FY2000 - 2005	<h2 style="margin: 0;">Virginia CZM Program Coastal Needs Assessment and Strategies: FY2021-2025</h2> <p style="margin: 5px 0;">Back to Main Virginia Coastal Assessment and Strategy Page</p> <p style="margin: 5px 0;">In the fall of 2019, based on NOAA guidance, the Virginia CZM Program conducted a Phase I Coastal Needs Assessment as the first step in identifying topics--see below--of highest priority for FY 2021-2025 Section 309 funding from NOAA. Section 309 funding can be spent only for purposes of developing new enforceable policies to improve protection and management of coastal resources.</p> <p style="margin: 5px 0;">Download the full Virginia 2020 Coastal Needs Assessment - Phase I Draft (PDF)</p> <p style="margin: 5px 0;">Virginia CZM Program staff presented the Phase I Assessment and recommendations to the Virginia Coastal Policy Team (CPT) in January 2020. Based on feasibility and importance of developing new enforceable policies, the members of the CPT, ranked the nine areas, or topics, from highest to lowest priority.</p> <h3 style="margin: 0;">Virginia CZM Program: Coastal Enhancement Area (Section 309) Priority Voting Results</h3> <table border="1" style="margin-top: 10px; font-size: small;"> <caption>Priority Voting Results</caption> <thead> <tr> <th>Coastal Enhancement Area</th> <th>Votes</th> </tr> </thead> <tbody> <tr><td>Coastal Hazards</td><td>22,000</td></tr> <tr><td>Cumulative and Secondary Impacts</td><td>14,000</td></tr> <tr><td>Ocean Resources</td><td>11,000</td></tr> <tr><td>Marine Debris</td><td>8,000</td></tr> <tr><td>Wetlands</td><td>3,000</td></tr> <tr><td>Public Access</td><td>2,000</td></tr> <tr><td>Special Area Management Planning</td><td>1,000</td></tr> <tr><td>Energy & Government Facility Siting</td><td>1,000</td></tr> <tr><td>Aquaculture</td><td>1,000</td></tr> </tbody> </table> <p style="margin: 5px 0;">Ranking Results (Highest to Lowest):</p> <ol style="list-style-type: none"> 1. Coastal Hazards 2. Cumulative & Secondary Impacts of Coastal Growth & Development 3. Ocean Resources 4. Marine Debris 	Coastal Enhancement Area	Votes	Coastal Hazards	22,000	Cumulative and Secondary Impacts	14,000	Ocean Resources	11,000	Marine Debris	8,000	Wetlands	3,000	Public Access	2,000	Special Area Management Planning	1,000	Energy & Government Facility Siting	1,000	Aquaculture	1,000
Coastal Enhancement Area		Votes																			
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Aquaculture	1,000																				
Coastal Needs Assessment: FY2006 - 2010																					
Coastal Needs Assessment: FY2011 - 2015																					
Coastal Needs Assessment: FY2016 - 2020																					
Coastal Needs Assessment: FY2021 - 2025																					

Virginia Department of Environmental Quality
 Mailing Address:
 P.O. Box 1105
 Richmond, VA 23218

Street Address:
 1111 East Main St., Suite 1400
 Richmond, VA 23219

Contact Us:
 1-(804) 698-4000
 1-800-592-5482 (Toll Free in VA)

[View Department of Environmental Quality Expenses](#)

Virginia Coastal Zone
MANAGEMENT PROGRAM

For more information on Phase I Assessments:

- *Ocean Resources, Marine Debris, Public Access* - contact [Laura McKay @DEQ.Virginia.gov](mailto:Laura.McKay@DEQ.Virginia.gov)
- *Coastal Hazards, SAMPs, Wetlands* - contact [Shep Moon@DEQ.Virginia.gov](mailto:Shep.Moon@DEQ.Virginia.gov)
- *Aquaculture, Energy & Government Facility Siting, Cumulative & Secondary Impacts* - contact [Jefferson Flood @DEQ.Virginia.gov](mailto:Jefferson.Flood@DEQ.Virginia.gov)

- 5. Wetlands
- 6. Aquaculture
- 7. TIE - Energy & Government Facility Siting and Special Area Management Plans
- 8. Public Access

Next Steps: Phase II Assessment of High Priority Areas and Development of Strategies

During February - April, 2020, Virginia CZM Program staff will conduct a Phase II Assessment of the four topics ranked high as priorities (*Coastal Hazards, Cumulative & Secondary Impacts of Coastal Growth & Development, Ocean Resources and Marine Debris*). Staff also will meet with key stakeholders to complete the assessments and develop draft Section 309 Strategies. Strategies will only be developed for the high priority areas that are determined to be most appropriate for new enforceable coastal resource management policies.

Step 1: Comments Invited on Phase 1 Assessment

Comments on the Phase I Coastal Needs Assessment, the ranking of "High Priority" areas are invited now. ***Please send comments on the Phase 1 Assessment no later than March 16, 2020 to Laura.McKay@deq.virginia.gov.***

Step 2: Comments on Draft Strategies

Draft strategies will be posted on this site by May 1, 2020, as soon as the draft is submitted to NOAA. ***A second public comment period on these draft strategies will be open from May 1, 2020 to June 1, 2020.***

The Virginia CZM Program must submit a final Virginia Coastal Needs Assessment and Draft Strategies document to NOAA for approval on September 1, 2020.

VIRGINIA COASTAL NEEDS ASSESSMENT & STRATEGY DEVELOPMENT SCHEDULE

NOAA Office for Coastal Management issues final Section 309 guidance

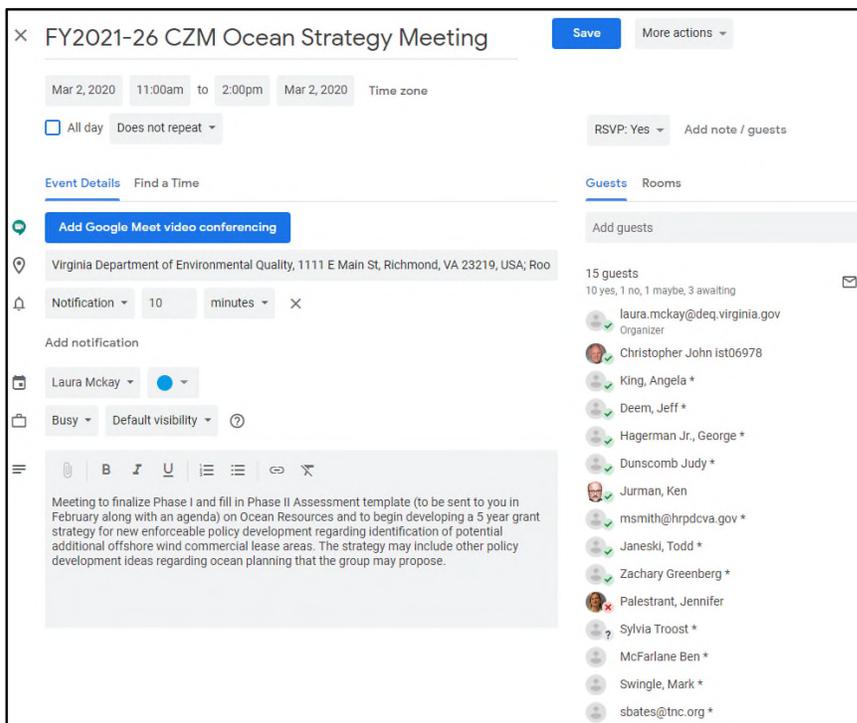
On or before June 30, 2019

Virginia CZM Program Begins Developing Phase I Assessment	October 1, 2019
Key Stakeholder Engagement	November - January
Virginia CZM Program Completes Phase I Assessment and Initial Ranking	January 15, 2020 Virginia Coastal Policy Team Meeting
Virginia CZM Program Completes Draft Phase II Assessments and Draft Strategies with Key Stakeholders and Invited Input	February - March
Draft Assessment and Strategy due to NOAA Office for Coastal Management	May 1, 2020
NOAA Office for Coastal Management Provides Comments on Virginia CZM Program's Draft Assessment and Strategy	July 1, 2020
Stakeholder Engagement Opportunities (TBD)	August 2020
Final Assessment and Strategy Due	September 1, 2020
NOAA Office for Coastal Management Approves Final Assessment and Strategy	November 1, 2020
Virginia CZM Program Begins Implementation of FY 2021-2025 Strategies	October 1, 2021

On **February 14, 2020** Virginia CZM staff sent the link displayed in the image above to Pew Charitable Trusts staff in preparation for a **February 20, 2020** conference call to review the 309 process and Pew’s input. On **March 11, 2020**, Virginia CZM staff received a letter from Zachary Greenberg, Conserving Marine Life in the United States Officer with Pew. The letter applauded Virginia CZM for ranking Coastal Hazards, CSI, and Ocean Resources as high priorities, while advocating the inclusion of the medium-ranked Wetlands enhancement area in each of the highly-ranked areas. Virginia CZM’s involvement in MARCO/MACO and promoting resiliency received praise, while Pew encouraged engagement in developing the Mid-Atlantic Fishery Management Council’s Northeast Regional Marine Fish Habitat Assessment. CZM will continued its resiliency work and partnerships in MARCO/MACO, while [XYZ regarding the Habitat Assessment](#). A copy of the letter is enclosed in Appendix D.

Work Group Meetings:

- On **February 24, 2020**, Virginia CZM staff led a CSI Ph. II and Strategy meeting. *Please see Phase II Needs Assessment form for outcome. [A list of attendees is included in Appendix B.](#)*
- On **March 2, 2020**, Virginia CZM staff led an Ocean Resources Ph. II and Strategy meeting. *Please see Phase II Needs Assessment form for outcome. [A list of attendees is included in Appendix B.](#)*



- On **March 4, 2020**, Virginia CZM staff led a Marine Debris Ph. II and Strategy meeting. *Please see Phase II Needs Assessment form for outcome. A list of attendees is included in Appendix B.*

The screenshot shows a Google Calendar event page for 'FY2021-26 CZM Marine Debris Strategy Meeting'. The event is scheduled for March 4, 2020, from 10:00am to 12:30pm. The location is 'Virginia Department of Environmental Quality, 1111 E Main St, Richmond, VA 23219, USA, Room 1111'. The event is organized by Laura McKay (laura.mckay@deq.virginia.gov). The guest list includes 15 people: Donna M. Bilkovic, Elizabeth Andrews, Hagerman Jr., George, Reiblich, Jesse, Jay Ruffa, Jessica Steelman, Lewis.campbell@vdem.virginia.gov, Register, Katie, Sarah Stewart, Witmer Virginia mfe27380, Pindilli, Elizabeth, Miles, Corey, Kirk J. Havens, and Swingle, Mark. The event description mentions finalizing Phase I and starting Phase II Assessment, with a meeting on March 17. A dial-in number is provided: PLEASE DIAL IN TO 712 775-7300 code= 589681#.

- On **March 5, 2020**, Virginia CZM staff led a Coastal Hazards Ph. II and Strategy meeting. *Please see Phase II Needs Assessment form for outcome. A list of attendees is included in Appendix B.*

VI. ACRONYMS

ANPDC - Accomack-Northampton Planning District Commission
 ARRA – American Recovery and Reinvestment Act of 2009 (“Recovery Act”)
 ASMFC – Atlantic States Marine Fisheries Commission
 BBNWR – Back Bay National Wildlife Refuge
 BLM – Bureau of Land Management
 BMP – Best Management Practices
 CBF – Chesapeake Bay Foundation
 CBGN – Chesapeake Bay Gateways Network
 CBLB – Chesapeake Bay Local Assistance Board
 CBPADMR – Chesapeake Bay Preservation Area Designation and Management Regulations
 CCB – Center for Conservation Biology
 CCI – Comprehensive Coastal Inventory Program
 CELCP – Coastal and Estuarine Land Conservation Program
 CESCOF – Cooperative Endangered Species Conservation Fund
 CINWR – Chincoteague Island National Wildlife Refuge
 CNHT – Chesapeake National Historic Trail
 CVW – Clean Virginia Waterways
 CWP – Center for Watershed Protection
 CZM – (Virginia) Coastal Zone Management (Program)
 CZMA – Coastal Zone Management Act
 DCR – Department of Conservation and Recreation (Virginia)
 DEQ – Virginia Department of Environmental Quality
 DFGP – Derelict Fishing Gear Program
 DGIF – Department of Game and Inland Fisheries
 DMA – Disaster Mitigation Act
 DMME – Department of Mines, Minerals and Energy
 DOI – Department of the Interior
 ECM – Ecological Core Model
 EIS – Environmental Impact Statement
 FEMA – Federal Emergency Management Agency
 FIRM – Flood Insurance Rate Maps
 GCCC – Governor’s Commission on Climate Change
 GEMS – Geospatial and Educational Mapping System
 GIS – Geographic Information Systems
 GWRC – George Washington Regional Commission
 HIRA – Hazard Identification and Risk Assessment
 HRPDC – Hampton Roads Planning District Commission
 ICC – International Coastal Cleanup
 INSTAR – INTERactive Stream Assessment Resource Healthy Waters Initiative
 JLARC – Joint Legislative Audit and Review Commission
 JST – John Smith Trail

KVB – Keep Virginia Beautiful
 LIDAR – Light Detection And Ranging
 LIDATF – Low Impact Development Assessment Task Force
 LNG – Liquefied Natural Gas
 LWCF – Land and Water Conservation Fund
 MACO – Mid-Atlantic Committee on the Ocean
 MAFMC - Mid-Atlantic Fishery Management Council
 MAPP – Mid-Atlantic Power Pathway
 MARAD – Federal Maritime Administration
 MARCO – Mid-Atlantic Regional Council for the Ocean
 MAWW – Mid-Atlantic Wetlands Workgroup
 MDNR – Maryland Department of Natural Resources
 MIBI – Modified Index of Biotic Integrity
 MMS – Minerals Management Service
 MPCBPAA – Middle Peninsula Chesapeake Bay Public Access Authority
 MPPDC – Middle Peninsula Planning District Commission
 MSRA – Magnusson-Stevens Reauthorization Act of 2006
 NASS – National Agricultural Statistics Service
 NEAMAP – Northeast Monitoring and Assessment Program
 NFWF – National Fish and Wildlife Foundation
 NIMBY – “Not In My Backyard”
 NNCBPAA – Northern Neck Chesapeake Bay Public Access Authority
 NOAA – National Oceanic and Atmospheric Administration
 NPDS – National Pollutant Discharge System
 NRC – Nuclear Regulatory Commission
 NVRC – Northern Virginia Regional Commission
 NWI – National Wetlands Inventory
 OCS – Outer Continental Shelf
 OCSLA – Outer Continental Shelf Land Act
 ODEC – Old Dominion Electricity Cooperative
 OSDS – Onsite Sewage Disposal System
 OTEC – Ocean Thermal Energy Conversion
 PAA – Public Access Authority
 PCA – Priority Conservation Areas
 PDC – Planning District Commission
 PWDCA – Priority Wildlife Diversity Conservation Areas
 QTP – Quality’s Waste Tire Program
 RPA – Resource Protection Area
 RPB – Regional Planning Body
 SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
 SAMP – Special Area Management Plan
 SAV – Submerged Aquatic Vegetation
 SCC – State Corporate Commission

SELC - Southern Environmental Law Center
 SMP – Shoreline Management Plan
 SWCD – Soil and Water Conservation District
 TMDL – Total Maximum Daily Load
 TMI – Tidal Marsh Inventory
 TNC – The Nature Conservancy
 TOGA – Tidewater Oyster Gardeners Association
 USDOI – U.S. Department of the Interior
 USEPA – U.S. Environmental Protection Agency
 USFDA – U.S. Food and Drug Administration
 USACE – U.S. Army Corps of Engineers
 USFWS – U.S. Fish and Wildlife Service
 VaNLA – Virginia Natural Landscape Assessment
 VASS – Virginia Agricultural Statistics Service
 VCERC – Virginia Coastal Energy Research Consortium
 VDACS – Virginia Department of Agriculture and Consumer Services
 VDEM – Virginia Department of Energy Management
 VDH – Virginia Department of Health
 VDOT – Virginia Department of Transportation
 VIMS – Virginia Institute of Marine Science
 VCLNA – Virginia Conservation Lands Needs Assessment
 VLPP – Virginia’s Litter Prevention Program
 VMRC – Virginia Marine Resources Commission
 VNEMO – Virginia Network for Education of Municipal Officials
 VOP – Virginia Outdoor Plan
 VRS3 – Virginia Renewables Siting Scoring Systems
 VRSFF – Virginia Recreation Saltwater Fishing Fund
 VSP – Virginia State Parks
 VTC – Virginia Tourism Corporation
 VWEC – Virginia Wind Energy Collaborative
 WW – Working Waterfront

VI. APPENDICES

Appendix A – Sample Section 309 PPT Presentations



5-Year Coastal Needs Assessment & Strategy Development

Invitation for Stakeholder Engagement

Jeff Flood

Virginia Coastal Zone Management Program

November 20, 2019

Middle Peninsula Planning District Commission

November Commission Meeting



What is the VA CZM Program?

- VA's laws & policies that protect its coastal resources
- Authorized under the federal CZMA (1972)
- VA CZM established as network of state agencies & local governments (1986)
- NOAA grant funds (~\$3 million/year) to address state & local coastal issues
- Guided by 33-member interagency (state & PDC) Coastal Policy Team (CPT)



Importance of Local Partners

- 8 coastal PDC's are CZM's link to local government:
 - Sharing expertise, lessons learned
 - Use NOAA money to increase local govt capacity:
 - Accelerates study of local issues & development of policy solutions by local govt
 - Helps local govt navigate state & federal regulations
 - MPPDC TA Grant (FY18)
 - PDC staff study regulatory constraints, propose (and pass) legislative solutions
 - Menu of policy options unique to rural local govt



Section 309 Background

- Section 309 of the CZMA requires a Coastal Needs Assessment every 5 years
- Process includes stakeholder engagement – YOU have a say in where funding goes!
- Once NOAA-approved, VA expected to receive ~\$500,000/year in match-free funds
- Separate competitive award for Project of Special Merit (PSM) \$50k-\$250k for ~18 mo



Enhancement Areas

- CZM staff evaluates each area & ranks it high, medium, or low with NOAA metrics, meetings with technical experts, & input from YOU, the stakeholder
- This is the best opportunity for you to rank which issues you want funded in the next 5-year cycle

Wetlands

Coastal Hazards

Public Access

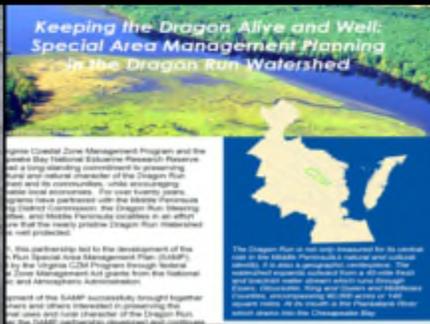


Enhancement Areas, contd.

Marine Debris

Special Area Management Plans

Cumulative & Secondary Impacts of Growth & Development



Enhancement Areas, contd.

Ocean Resources



Energy & Government
Facility Siting



Aquaculture



Current Section 309 Strategy (2016-2020)

Cumulative &
Secondary Impacts
of Growth &
Development



Coastal
Hazards



Ocean
Resources



309 Coastal Hazards Strategies in Your Backyard!

A. Community Resiliency Plans

- Community Rating System (CRS)
- Road Flooding (VIMS)

B. Shoreline Plan & Policy Development

- Beneficial Reuse of Dredged Material (MPPDC)
- Living Shoreline Studies (VIMS)

C. CBPA & Flooding Issues – PSM*



309 CSI & SAMP Strategies in Your Backyard!

A. Working Waterfronts (FY 2011-2015 & current FY 2016-2020 cycles)

- ✓FY 2015: WWF Master Plan created
- ✓FY 2016: Legislative solutions for protecting WWF's & promoting dredging as well as expanding knowledge of WWF inventory
- ✓FY 2018: worked with ANPDC to convene Rural Coastal Virginia Summit

B. Dragon Run (FY 2006-2010 cycle)

- ✓Developed baseline Dragon Run Watershed Aquatic Living Resources Inventory
- ✓Completed Dragon Run Watershed Management Plan, adopted by Essex, Gloucester, & King & Queen Counties
- ✓Revised King & Queen County zoning ordinance based on Watershed Management Plan recommendations.



Next Steps

1. CZM staff meets with technical experts and drafts a high-level assessment of all 9 areas
2. CZM staff propose rankings for consideration by the CPT
3. CPT votes on high priority areas at Jan 15 meeting



Next Steps, cont'd.

4. CZM staff prepares in-depth assessment of high priority areas
5. With teams of stakeholders CZM staff draft 5 year grant strategies for enhanced policies
6. CZM submits draft assessments & strategies to NOAA by May 1, 2020 & final by Sept 1, 2020
7. NOAA approves by Nov 1, 2020
8. New strategy grants begin Oct 1, 2021



What We Need from YOU

- Which are issues you are hearing about locally?
 - Flooding?
 - Dredging?
 - Working waterfronts?
- What is an outcome that could solve some of these issues?
 - MOU's are great, process does NOT necessarily mean more regulations
 - Legislative route, bills tailored to MPPDC
 - Study/data that can inform larger policy



When We Need to Hear from YOU

- Discuss w/ MPPDC staff and/or email CZM staff directly – comments to be included in CZM draft recommendations sent to CPT mid-Dec
- Comments received prior to January 15, 2020 CPT meeting will also be discussed as addendums to the draft recommendations
- Comments at later stages of strategy development welcome until April 15
- PSM process separate! Letters of support due January 6



Timeline: Stakeholder Input Opportunities



Questions?

- Reach out to your local government & MPPDC contacts
- Contact CZM staff with follow up questions or comments:
 - Program Manager - laura.mckay@deq.virginia.gov
For Public Access, Ocean Resources, Marine Debris
 - Coastal Planner - shep.moon@deq.virginia.gov
For Wetlands, Coastal Hazards, SAMPs
 - Coastal Planner - jefferson.flood@deq.virginia.gov
For Aquaculture, Energy & Facility Siting, CSI





Appendix B – Sign-In Sheets for Section 309 Meetings



COMMITTEE MEETING SIGN-IN SHEET
 Committee(s): Regional Environmental Committee
 Date: Thursday, November 7, 2019

Name	Representing	E-mail	Phone No.
<u>MIKE HOLLANS</u>	<u>Chancellor</u>	<u>mhollans@hrc.com</u>	<u>804-693-1277</u>
<u>Kevin Landry</u>	<u>Chancellor Co. Kianaly @ glaxo-actec.com</u>		<u>804-832-7825</u>
<u>Liz Schaeffler</u>	<u>Towans Group</u>	<u>liz.schaeffler@towans.com</u>	<u>757-213-0607</u>
<u>Sandra</u>	<u>HRDC</u>		
<u>KATHARINE BRUNO</u>	<u>HRDC</u>		
<u>DAVID THOMPSON</u>	<u>City of Hampton</u>	<u>dthompson@hampton.gov</u>	<u>757-723-5221</u>
<u>Melissa Lindgren</u>	<u>Isle of Wight</u>	<u>mlindgren@iowas.net</u>	
<u>Garrett Ferguson</u>	<u>City of Poquoson</u>	<u>Goffert.Ferguson@poquoson-va.gov</u>	<u>757-868-8030</u>
<u>Tyson Wilson</u>	<u>Virginia Beach</u>	<u>Tysonw@vbgov.com</u>	<u>(757) 345-8910</u>
<u>Diana St John</u>	<u>Va Beach</u>	<u>dstjohn@vbgov.com</u>	<u>385-8587</u>
<u>Yvonne Davis</u>	<u>York County</u>	<u>sdavis@yorkcounty.gov</u>	<u>(757) 890-3774</u>
<u>Missy Ketchum</u>	<u>HRDC</u>		

Page ___ of ___



Regional Stormwater Managers Technical Committee
FY 19 CZM Technical Assistance (TA) Grant

November 13, 2019
10:00 a.m. – 12:00 p.m.

GWRC
406 Princess Anne St, Fredericksburg, VA 22401

NOTES

Attendees: Ashley Hall (Stantec for VDOT), Bryan Hofmann (FOR), Pat Coady (Northern Virginia Conservation Trust), Jeff Flood (DEQ CZM), David Nunnally (Caroline), Marta Perry (TCC SWCD), and Denise Nelson (Berkley Group).

Training

- Coastal Zone Management 5-year strategy development, Jeff Flood
- Coastal Resilience Master Plan process, Denise Nelson
- CZM 3-yr Grant Application, Denise Nelson
- CZM TA Strategic Plan expectations, Denise Nelson
- WIP PIII FY20 expectations, Denise Nelson

Coastal Zone Management 5-year strategy discussion

- Cumulative and secondary impacts of growth and development recommendations
 - Healthy watersheds implementation – Support local adoption and regional EDAs
 - RPA identification/enforcement on private land – Farm focus / partner with SWCDs
 - Real estate disclosure on stormwater/floodplain/resilience issues, septic maintenance, etc. – Rumor has it, this will go nowhere as legislation thanks to real estate lobby. Can we work toward local policies?

Updates from other training events

- VESMP RAP Sept. 30
- VFMA Fredericksburg Seminar Oct. 17

Requests for future training topics: VESMP RAP results, legislative update, utility-scale solar topics, nutrient credits, state data and procedural resources, SWCD activities.

The next meeting will be in January 2020.

Nov. 14, 2019 @ VIMS; Sign In Sheet
Wichaprobeque Lab

Name	Sec. 309	CZM	Organization
Virginia Outdoor Party		(NOON)	
Shannon Alexander	✓	✓	A-NPDC
Zach Poyntis	✓	✓	TOWN OF OPELOUSEE
Grace Nair-Gervais	✓	✓	Town of Fern
Bob Mendels	✓	✓	LI PLANNING COMMISSION
Joy Marino	✓	✓	Oranokee Town Council
Dot Field	✓	✓	Dr. R. Michael Hogg
Laura McKay	✓	✓	VA CZM
Chamique Bountey	✓	✓	SEAFOOD FEDERATION
Kelley Parks	✓	✓	Northampton
Michael S. Nixon	✓	✓	MSFWS
Forrest Gladden	✓	✓	DCP
WAVE E. HUTTON	✓	✓	Acc. Co. Policy + Remediation
PAUL MUELLER	✓	✓	POB <small>provisional</small>

MIDDLE PENINSULA PLANNING DISTRICT COMMISSION
November 20, 2019
Saluda, Virginia

I. Welcome and Introductions

The monthly meeting of the Middle Peninsula Planning District Commission was held in the Regional Board Room at the Middle Peninsula Planning District Commission office in Saluda, Virginia on Wednesday, November 20, 2019, at 7:00 p.m. MPPDC Chairman Swartzwelder welcomed everyone in attendance.

Commissioners Present

Essex County: Edwin "Bud" Smith, Jr., John Magruder
King William County: Travis Moskalski, Eugene Rivara
King and Queen County: Tom Swartzwelder
Gloucester County: Ashley Chriscoe, Michael Winebarger
Mathews County: Mike Rowe, Tim Hill
Middlesex County: Gordon White, Wayne Jessie
Town of Urbanna: Holly Gailey

Commissioners Absent

Essex County: Michael Lombardo
King William County: David Hansen
King and Queen County: Sherrin Alsop, R.F. Bailey
Gloucester County: Dr. Willy Reay
Mathews County: Mindy Conner, G.C. Morrow
Middlesex County: Matt Walker, Kathy Swinehart
Town of Tappahannock: Monte "Roy" Gladding
Town of Urbanna: Dianne Gravatt
Town of West Point: James Pruett

Also in Attendance

Lewis Lawrence, MPPDC Executive Director
Beth Johnson, MPPDC Finance Director
Heather Modispaw, MPPDC Chief Finance Officer
Dawn Mantell, MPPDC Secretary
Jessica Roy, MPPDC Emergency Management Planner
Guests

II. Approval of October Minutes

Chairman Swartzwelder asked whether there were any corrections or changes to the October Minutes. There being no corrections to the Minutes, Chairman Swartzwelder requested a motion to approve the October Minutes. Mr. Smith moved that the October Minutes be approved. Mr. Chriscoe seconded the motion; motion carried.

III. Approval of October Financial Report

Chairman Swartzwelder asked whether there were any questions regarding the October financial report before being approved subject to audit. There being no questions, Chairman Swartzwelder requested a motion to approve the October financial report subject to audit. Ms. Gailey moved to approve the October financial report subject to audit. Mr. Chriscoe seconded the motion; motion carried.

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VIII. Public Comment

None.

IX. Coastal Zone Management Project Discussion

The Coastal Zone Management Program (CZM) established in 1986 through Executive Order, is a network of Virginia state agencies and local governments that administers enforceable laws, regulations and policies that protect our coastal resources and fosters sustainable development. Jeff Flood, Coastal Planner for the Virginia Coastal Zone Management Program provided a PowerPoint presentation and the following topics were discussed: Importance of Local Partners; Section 309 Background; Enhancement Areas; Current Section 309 Strategy (2016-2020); 309 Coastal Hazards Strategies in Your Backyard; 309 CSI & SAMP Strategies in Your Backyard; Projects of Special Merit; Next Steps; What and When We Need to Hear from You; and Timeline: Stakeholder Input Opportunities. The Coastal Zone Management Program includes everything from wetlands laws to public access to sustainable economic development. Virginia's network of natural resource agencies shares responsibility for implementing Virginia's coastal resources management laws and policies. Facilitating cooperation among these agencies is the Coastal Policy Team (CPT). The CPT provides a forum for discussion and resolution of cross-cutting coastal resource management issues. MPPDC Executive Director, Lewie Lawrence is currently a member of this team.

X. Sanctuary County Second Amendment Discussion

Chairman Swartzwelder opened the floor. There was a lengthy discussion about localities passing a 2nd Amendment Gun Sanctuaries Resolution and how to make the General Assembly aware of their local position. Each locality was asked to submit their draft or already approved 2nd Amendment Gun Sanctuaries Resolution to Executive Director, Lewie Lawrence for circulation amongst themselves so each locality can see what the other has proposed.

XI. Annual CEDS Update

The Middle Peninsula Comprehensive Economic Development Strategy (CEDS) is a continuing economic development planning process developed with broad-based and diverse public and private sector participation that has set forth important goals and objectives necessary to solve the economic problems of the region and clearly define the metrics of success. MPPDC Executive Director, Lewie Lawrence reminded the Commission that each year the CEDS has to be updated in order to be in compliance. Mr. Lawrence contacted local EDA's and County Administrators for their feedback and presented the Commission with their responses. Chairman Swartzwelder requested a motion to approve the updates to the plan as presented. Mr. Rivara moved to approve the updates to the plan as presented. Mr. Chriscoe seconded the motion; motion carried.

Richmond-Crater Environmental Joint Meeting

Coastal 309 Needs Assessment, Waters of the US Rule

Thursday, December 12, 2019

10:00 A.M. – 12 Noon

Crater Planning District Commission Conference Room

Name	Organization	Phone	E-Mail Address
1. STEPHEN EDWARDS	DINWIDDIE	804 205-41615	Sedwards@dinwiddie.va.us
2. BRANWILLE MATHIAS	ARSLU-ED	9511 205-9191	ma.mathias1947@gmail.com
3. Brenda Winn	DEQ	804 698 4516	brenda.winn@deq.virginia.gov
4. Dan Lee	Appomattox River SDCO	804-731-3239	
5. Tom Dickerson	Town of Ashland	804-798-9219	TDickerson@AshlandVA.gov
6. Heather Barrar	FOLAR	804 516 4486	hbarrar@folar-va.org
7. Joseph L. Gerdas	James River SDCO	804 732-6660	jgerdas@princegeorgecountymn.gov
8. G. Stur	CC County	804 852-4707	gimibel11@co.charles-city.va.us
9. Luke Washington	PlanRVA	804-323-2033	lwashington@planrva.org
10. Rachel Chappin	Chesterfield	804-748-1778	rchappin@chesterfield.gov

Name	Organization	Phone	E-Mail Address
1. Sarah Stewart	PlanRVA	804 323 2033	sstewart@planrva.org
2. Denny Morris	Crater PDC	804-861-1666	dmorris@craterpdc.org
3. Dany/E. Walker	City of Petersburg	804-733-2357	dwalker@petersburgva.org

MEETING: Virginia Offshore Wind Development Authority

DATE: January 10, 2020

PLACE: Duckhock Library

GUEST SIGN-IN SHEET

NAME	AFFILIATION / POSITION
Sally McNeilan	McNeilan Associates
Ty Murray	G&E Consultants
Sierra Parris	G&E Consultants
Eileen Wall	Sierra Club
Chris Galleher	Part of VA
Kate Wilke	The Nature Conservancy
Jim Spore	Reinvent Hampton Roads
Mark Smith	Hampton Roads P&C
Judy Darrington	TNC
Andy Cannon	Bonnie's Energy
Josh Kaylor	self
Paul Olsen	ODU
Will FROTH	VA MARITIME ASSOCIATION
GRAB PAPP	AMERICAN RENEWABLES
Cathy Vick	Part of VA
Todd Jansen	VCU

Northern Virginia Regional Commission Clean Water Partners Meeting

January 30, 2020 ▪ 1:00pm-2:30pm

3040 Williams Drive, Suite 200 Fa

Fairfax, VA 22031

Attendees

Corey Miles, NVRC (cmiles@novaregion.org)

Satoshi Eto, Fairfax County (satoshi.eto@fairfaxva.gov)

Normand Goulet, NVRC (ngoulet@novaregion.org)

Chris Stone, Loudoun County (chris.stone@loudoun.gov)

Andrew Uglow, Prince William County Public Schools (uglowaf@pwcs.edu)

Irene Haske, Fairfax County (Irene.haske@fairfaxcounty.gov)

Susan Miller, Fairfax Water (smiller@fairfaxwater.org)

Lily Whitesell, Arlington County (lwhitesell@arlingtonva.us)

Holly Moran, Fairfax County Public Schools (hmmoran@fcps.edu)

Nathaniel Ogedegbe, Town of Leesburg (nogedegbe@leesburgva.gov)

Zak Bradley, Town of Falls Church (zbradley@fallschurchva.gov)

Jeff Flood, CZM (Jefferson.flood@deq.virginia.gov)

Aileen Winqvist (awinqvist@arlingtonva.us)

Christine Horner, City of Vienna (christine.horner@viennava.gov)

Jessica Lassetter, City of Alexandria (jessica.lassetter@alexandriava.gov)

Pam Kenel, Loudon Water (pkenel@loudounwater.org)

Rachael Holland, City of Alexandria (rachael.holland@alexandriava.gov)

Jonathan Franssell, Town of Herndon (jonathan.franssell@herndon-va.gov)

March 4, 2020 NVRC Resiliency Webinar Attendee List

Jeff Flood gave a 15-minute PPT presentation of the Section 309 Strategy process, highlighting past and ongoing projects funded by NOAA/CZM related to resiliency and under the Coastal Hazards Strategy.

Corey Miles, NVRC - cmiles@novaregion.org

Tim Beatley, UVA - tb6d@virginia.edu

Daniel Lee, Washington Metropolitan Area Transit Authority - dalee1@wmata.com

Allison Deines, Alexandria Renew Enterprises - allison.deines@alexrenew.com

Daniel Habete, Fairfax County - daniel.habete@fairfaxcounty.gov

Andrew Roach, USACE - andrew.a.roach@usace.army.mil

Annette Osso, Resilient Virginia osso@resilientvirginia.org

Blake Hamilton, Alexandria Renew Enterprises - blake.hamilton@alexrenew.com

Dale Medearis, NVRC - dmedearis@novaregion.org

Denise Nelson, Berkley Group on behalf of GWRC - DENISENELSON2014@GMAIL.COM

Dipmani Kumar, Fairfax County - dipmani.kumar@fairfaxcounty.gov

Claudia Glen, Washington Metropolitan Transit Authority - CGlen@wmata.com

Jacqueline Seiple, USACE - jacqueline.a.seiple@usace.army.mil

Joshua Ghaffari, District of Columbia Office of Planning - joshua.ghaffari@dc.gov

Katie Dyer, Metropolitan Washington Council of Governments - kdyer@mwkog.org

Lisa Goldberg, City of Alexandria - lisa.goldberg@alexandriava.gov

Richard Dooley, Arlington County Community Energy Coordinator - rdooley@arlingtonva.us

Stephanie Kupka, City of Fairfax Sustainability Coordinator - stefanie.kupka@email.com

Stephen Walz, Metropolitan Washington Council of Governments - swalz@mwkog.org

Bill Eger, City of Alexandria - bill.eger@alexandriava.gov

Appendix C – Workgroup Attendee Lists

Virginia CZM staff led the February 24, 2020 meeting of the CSI work group, which included the following attendees:

Shep Moon, CZM
Laura McKay, CZM
Jutta Scheider, DEQ Water
Justin Williams, DEQ
John Kennedy, DEQ Bay Program
KC Fillipino, HRPDC
Curt Smith, MPPDC
Denise Nelson, GWRC
John Bateman, NNPDC
Corey Miles, NVRC
Sarah Stewart, PlanRVA
Pam Mason, VIMS
Karina Nunez, VIMS

March 5, 2020 Section 309 Coastal Hazards Meeting

Name	Title	Affiliation	Email
Karen Duhring	Coastal Scientist	VIMS	karend@vims.edu
Karina Nunez	Research Scientist	VIMS	karinna@vims.edu
Paola Peabody	Permit Writer	VMRC - Habitat	Peabody@vmrc.vir.gov
Elizabeth Andrews	Director	VCPC, Wetland	eaandrews@wv.gov
Julie Phillips	Special Asst to Gov for Coastal Department/Asst. Dir. Office of the Governor	Office of the Governor	ehillips@wv.gov
Shannon Alexander	Director of Planning	A-NPDC	salexander@anpdc.org
Elizabeth Spach	VA Management Fellow	Office of the Governor	elizabeth.spach@wv.gov
William Remy	Director/CBNEP	VIMS	wremy@vims.edu
Scott Hardaway	Assoc. Research Scientist	VIMS	hardaway@vims.edu
Donna Milligan	Asst. Research Scientist	VIMS	milligan@vims.edu
Molly Mitchell	Marine Scientist	VIMS	molly@vims.edu
Ross Weaver	Program Asst Director	Wetlands Watch	ross.weaver@wetlandswatch.org
Mary-Carson Stiff	Director of Policy	Wetlands Watch	McStiff@wetlandswatch.org
Jay Ruffa	Coastal PDC	Director of Planning	jruffa@cmrtopk.org
Denise Nelson	GWRC	Environmental Eng.	denise@bgllc.net
Curt Smith	MPPDC Coastal Planner	Deputy Director	csmith@mppdc.com
Jeff Flood	Coastal Planner	CZU	jeff@floodcoastalplanning.com
LEWIE LAWRENCE	MPPDC		llawrence@mppdc.com
Ben McFarlane	Senior Regional Planner	HRPAC	bmcfarlane@hrpac.org
Sarah Stewart	Program Manager - Env. Program	PlanRVA	sstewart@planrva.org
Angela Davis	Floodplain Program Planner	DCR	angela.davis@dcrgov.virginia.gov

John Bateman	Regional Planner, NPDC	jbateman@nnpdc17.state.va.us	
Paul Mason	Senior Research Scientist	mason@vims.edu	VIMS

Appendix D – Public Comments Received



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March 11, 2020

Ms. Laura McKay
Program Manager
Virginia Coastal Zone Management Program
Department of Environmental Quality
1111 East Main Street, Suite 1400
Richmond, Virginia 23219

Submitted via email

Dear Ms. McKay:

RE: The Pew Charitable Trusts Comments on the Draft Phase I Coastal Needs Assessment

Thank you for the opportunity to provide comments on Virginia's Draft Phase 1 Coastal Needs Assessment, conducted by the Virginia Coastal Zone Management (CZM) Program, under section 309 of the Coastal Zone Management Act (CZMA). Every five years, this program allows states and territories to assess their coastal zone management programs across nine enhancement areas, rank specific areas in order of priority, and finally develop new five-year strategies in these areas to improve protection and management of coastal resources through the development of enforceable policies. The Coastal Zone Enhancement Program can be considered a forward-looking, strategic plan for the coasts to address current and emerging issues. Given the challenges facing our coastal resources and communities, including storms, sea level rise, habitat loss and degradation, comprehensive planning efforts that result in tangible policy outcomes like the 309 process are of critical importance.

The Draft Phase 1 Coastal Needs Assessment identified the following enhancement areas as high priorities for the purposes of developing specific strategies:

- Coastal Hazards
- Cumulative and Secondary Impacts
- Ocean Resources
- Marine Debris

Pew commends the Commonwealth for its public-driven process used in the ranking of these priority areas. We agree that these areas capture many of the current and new challenges facing the coastal zone. We would also encourage the Commonwealth to ensure that wetlands – though ranked as a medium priority – are specifically incorporated into new strategies related to coastal hazards and cumulative and secondary impacts, and that the role wetlands play as nursery and habitat to fish and other marine wildlife is considered when developing strategies that address ocean resources.

Coastal Hazards

We concur that the coastal hazards enhancement area is a high priority given the increase in the occurrence and severity of storms and flooding events, as well the potential for sea level rise to impact coastal communities and natural resources. As the Commonwealth develops strategies to address coastal hazards, we recommend the proactive identification and preservation of undeveloped areas that can serve as the coastal habitat of the future for resources like tidal wetlands, so that they can continue to support wildlife, protect shorelines, and absorb and filter water.

We commend the Commonwealth for its efforts to advance coastal resiliency, including supporting the use of living shorelines as a viable shoreline protection solution through the creation of incentives, training, and streamlined permitting requirements. Towards this effort, we support the enactment of SB776, which will require the Virginia Marine Resources Commission to “permit only living shoreline approaches to shoreline management unless the best available science shows that such approaches are not suitable.”¹

Pew also encourages the Commonwealth to continue building on the important resiliency planning conducted by the Planning Development Commissions (PDCs) and via the Resilience Adaptation Feasibility Tool (RAFT) evaluations. Specifically, we recommend following through to remedy any deficiencies or shortcomings identified in local programs and helping local and county governments to enhance their own capacity to anticipate and address coastal hazards in their day-to-day decision-making.

Cumulative and Secondary Impacts

Coastal ecosystems are complex and interconnected. The Cumulative and Secondary Impacts (CSI) enhancement area recognizes this complexity and provides an ecosystem lens for addressing threats like pollution and development encroachment in sensitive areas. We support ranking this area as high. Virginia’s coastal management program is well-situated to leverage the various programs in place that address CSI, including the Chesapeake Bay Program, and to connect the dots with efforts related to floodwater mitigation, protection of water quality, and enhancement of wildlife and aquatic habitat. Programs and actions that carefully consider these interrelated aspects of the coastal environment will be able to realize multiple benefits.

On this point, we would also underscore the value of improving and integrating data sources, including inventories of different types of wetlands and activities affecting wetlands. It may be important for the Commonwealth to identify those wetland resources most vulnerable to loss through sea level rise. With such information at the ready, state agencies, local governments, and private entities may be better positioned to implement appropriate mitigation activities.

As stated in the draft Needs Assessment, it's wise to adjust “planning horizons to incorporate population growth” when considering resiliency and identifying future coastal hazards. For example, Charlotte-Mecklenburg, North Carolina has modeled future buildout to identify flood risk from increased

¹ General Assembly of Virginia, 2020 Session. An Act to amend and reenact §§ 28.2-104.1, 28.2-1301, 28.2-1302, and 28.2-1308 of the Code of Virginia, relating to wetlands protection; living shorelines (S. 776). Virginia Acts of Assembly. Accessed March 10, 2020: <http://lis.virginia.gov/cgi-bin/legp604.exe?201+ful+SB776ER>.

impervious surfaces and potential land use changes. For inland coastal PDCs, green infrastructure is highlighted as a cost-effective solution to managing stormwater runoff, and the Department of Environmental Quality could look at ways to promote the use of low-impact development (LID) in rules and regulations that can then be incorporated as enforceable policies in the Commonwealth’s CZM program. This could include permitting incentives for projects that use LID practices, identifying regulatory barriers restricting the application of LID, or formally including LID as a regulatory option in state stormwater design manuals. North Carolina has [created a tool](#) to help developers calculate LID volume credits and streamline state stormwater permit applications.²

Ocean Resources

Virginia along with other coastal states is facing increased challenges to the health of its ocean waters, including changing ocean temperatures, shifting fish populations, as well as competing and expanding uses—factors that will test marine resource management at the local, state and federal levels. As such, Pew agrees that the Ocean Resources enhancement area should be ranked high given its importance to the Commonwealth’s coastal businesses and way of life. We commend the Commonwealth for its leadership role in creating the Mid-Atlantic Committee on the Ocean (MACO) as a body to continue the important work conducted under the Mid-Atlantic Regional Council on the Ocean (MARCO). Specifically, we would like to call attention to the collection and stewardship of scientific information through the Ocean Data Portal and the critical role these data will play for the Commonwealth to protect its fishery and habitat resources.

In addition, we encourage the coastal program to engage in efforts related to the Mid-Atlantic Fishery Management Council’s Northeast Regional Marine Fish Habitat Assessment, "a collaborative effort to describe and characterize estuarine, coastal, and offshore fish habitat distribution, abundance, and quality in the Northeast."³ When complete, this process will provide an opportunity for the coastal program to work with partner agencies to adopt new enforceable policies for essential fish habitat in state coastal waters. Virginia’s considerable efforts to restore submerged aquatic vegetation and oyster reefs should be factored into new policies related to the protection of fish habitat as well.

Overall, we commend Virginia’s initiative to further management and planning efforts by incorporating new enforceable policies into the CZM Program as appropriate.

Additional resources that may be helpful to the coastal program as it develops its 309 strategies include a recent study authored by Malin Pinsky and James Morley of Rutgers, the state university of New Jersey, and funded in part by Pew on [shifting marine species habitat](#)⁴; as well as research conducted by a team of university, non-governmental organizations and agency experts funded by Pew’s Lenfest Ocean Program that [estimates fish and invertebrate production of coastal habitats](#) in the United States.⁵ We’d

² North Carolina Department of Environmental Quality. Stormwater LID and Storm EZ. Accessed March 10, 2020: <https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permit-guidance/stormwater-lid-storm-ez>.

³ Mid-Atlantic Fishery Management Council. Northeast Regional Marine Fish Habitat Assessment. Accessed March 10, 2020: <http://www.mafmc.org/nrha>.

⁴ Palardy, Jim. Warming Waters to Force Dramatic Shifts in Marine Species’ Habitats. The Pew Charitable Trusts, May 16, 2018: <https://pew.org/2k1kt87>.

⁵ DeAngelis, Bryan and zu Ermgassen, Philine. Research Will Estimate Fish and Invertebrate Production of Coastal Habitats in the United States. Lenfest Ocean Program, The Pew Charitable Trusts, May 7, 2019: <https://pew.org/2JavSkH>.

also like to highlight an emerging field of research focusing on [harnessing positive interactions among species for coastal restoration](#), overseen by Brian Silliman of Duke University, that may have the potential to increase yields and decrease costs of large-scale restoration under a variety of conditions.⁶ And lastly, we thought you would be interested in new research from Pew called “Mitigation Matters,” identifying 13 states or cities that have adopted policies resulting in effective flood mitigation, including [Norfolk’s new building standards that are helping protect the city’s residents](#).⁷

The Pew Charitable Trusts is committed to supporting the important work conducted by the Virginia CZM Program to improve protection and management of the Commonwealth’s coastal resources. We thank you for the opportunity to comment on the Draft Phase 1 Coastal Needs Assessment and

look forward to the development and implementation of new program enhancement strategies that will continue this vital work.

Sincerely,

Zachary Greenberg

Zachary Greenberg

Officer, Conserving Marine Life in the United States

The Pew Charitable Trusts

⁶ Silliman, Brian. Can Partnerships Between Organisms Interactions Increase Yields and Decrease Coastal Restoration Costs?. Lenfest Ocean Program, The Pew Charitable Trusts, July 19, 2019: <https://pew.org/2L5edMB>.

⁷ Fuchs, Matthew. Norfolk's Revised Zoning Ordinance Aims to Improve Flood Resilience. The Pew Charitable Trusts, November 19, 2019: <https://pew.org/2CDnsgg>.