

Final Evaluation Findings

North Carolina Coastal Management Program

September 2011 to October 2020

North Carolina

National Estuarine Research Reserve

November 2009 to October 2020

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Summary of Key Findings

The Coastal Zone Management Act requires the National Oceanic and Atmospheric Administration (NOAA) to conduct periodic evaluations of the performance of states and territories with federally approved coastal management programs and national estuarine research reserves. This evaluation conducted by the Office for Coastal Management examined the operation and management of the North Carolina Coastal Management Program for the period from September 2011 to October 2020 and the North Carolina National Estuarine Research Reserve for the period from November 2009 to October 2020. The evaluation focused on two target areas: Coastal Resilience and Program Administration. The four sectors addressed by all of the national estuarine research reserves are research, training, education, and stewardship.

The findings in this evaluation document will be considered by the NOAA Office for Coastal Management in making future financial award decisions concerning the coastal management program and national estuarine research reserve. The evaluation came to these conclusions:

Accomplishment: The North Carolina Department of Environmental Quality has created a collaborative interdisciplinary working environment across the coastal management program and the research reserve that has strengthened the abilities of both programs and earned the respect of both their partners and the regulated community.

Accomplishment: The Department of Environmental Quality and the Coastal Resources Commission have improved the local land use planning process by refocusing on policy development and implementation and switching to an electronic submittal process.

Accomplishment: The North Carolina Department of Environmental Quality has leveraged expertise across the state and secured several funding sources to implement a community resilience program that will have a significant positive impact on coastal communities and their resources.

Accomplishment: The research reserve has developed a strong research presence in a number of key areas and routinely provided training to coastal communities and the development community in support of the coastal program's regulatory requirements.

Accomplishment: The reserve has been a leader in addressing removal of storm-related debris and has developed a partnership with the Town of Beaufort to develop new mechanisms to remove abandoned and displaced vessels from the reserve that can be used as a model for other coastal communities across the state and region.

Accomplishment: The North Carolina National Estuarine Research Reserve and Coastal Management Program routinely collaborate to address issues related to climate change and sea

level rise, creating a unified approach that is respected throughout the region. This collaboration has resulted in tangible, science-based decision-making, such as streamlining the general permit for living shorelines.

Recommendation: The Department of Environmental Quality should ensure that staffing of the Division of Coastal Management is adequate to meet all of the needs of both the coastal program and the research reserve.

Recommendation: The Division of Coastal Management should explore additional opportunities for working with volunteers and local governments on education, monitoring, and enforcement of regulations on research reserve property.

Recommendation: The Department of Environmental Quality should examine factors and incentives to encourage staff retention, such as ensuring adequate staffing levels to control workloads as well as training opportunities.

Recommendation: To further integrate the efforts of the research reserve's research and monitoring programs and the North Carolina Sentinel Sites Cooperative to study sea level rise, the Division of Coastal Management should consider expanding the role of the research coordinator of the research reserve to assist in staff support of the science panel.

Necessary Action: There are no necessary actions associated with this evaluation.

Conclusion: This evaluation finds that the State of North Carolina Department of Environmental Quality is adhering to the requirements of section 312(a) of the Coastal Zone Management Act, 16 U.S.C. § 1458(a), in the operation of the North Carolina Coastal Management Program and to the programmatic requirements of the National Estuarine Research Reserve System in the operation of the North Carolina National Estuarine Research Reserve.

Program Review Procedures

The NOAA Office for Coastal Management evaluated the North Carolina Coastal Management Program and the North Carolina National Estuarine Research Reserve in fiscal year 2021. The evaluation team consisted of Ralph Cantral, evaluation team lead, Heidi Stiller, South region director, Makeda Okolo, Southeast and Caribbean regional lead, Stephanie Robinson, site liaison to the research reserve, and Lindy Betzhold, site liaison to the coastal management program, all from the NOAA Office for Coastal Management; Elizabeth von Kolnitz, chief of the South Carolina Office of Ocean and Coastal Resource Management; and Jennifer Raulin, manager of the Chesapeake Bay-Maryland National Estuarine Research Reserve. The support of the staff members of the North Carolina Division of Coastal Management was crucial in conducting the evaluation, and their support is most gratefully acknowledged.

NOAA sent a notification of the scheduled evaluation to Michael S. Regan, secretary of the North Carolina Department of Environmental Quality on February 13, 2020, and published a notice of intent to evaluate the North Carolina Coastal Management Program and the North Carolina National Estuarine Research Reserve in the *Federal Register* on September 1, 2020. The North Carolina Division of Coastal Management posted a notice of the public meeting and opportunity to comment in the *Carteret News-Times* (Morehead City), the *Coastland Times* (Manteo), and the *Star-News* (Wilmington) on August 30, 2020.

The evaluation process included a review of relevant documents and a survey of stakeholders, which helped identify two target areas for the evaluation: coastal resilience and program administration. The evaluation team also discussed the target areas with Division of Coastal Management staff members who helped identify issues and workable solutions to maintain and improve the implementation of the program and reserve. A site visit was conducted virtually from October 5 through 9, 2020, where the evaluation team held group discussions with stakeholders and program and research reserve staff members. In addition, a public meeting was held virtually on October 7, 2020, to provide an opportunity for members of the public to express their opinions about the implementation of the programs.

Stakeholders and members of the public were also given the opportunity to provide written comments via email through Friday, October 16, 2020. Five written comments were received from interested parties.

Final evaluation findings for all coastal zone management and national estuarine research reserves highlight the reserve's accomplishments in the target areas and include recommendations that are of two types:

Necessary Actions address programmatic requirements of the implementing regulations of the Coastal Zone Management Act and of the reserve's management plan approved by NOAA. These must be carried out by the dates specified. Failure to address necessary actions may

result in a future finding of non-adherence and the invoking of interim sanctions, as specified in the Coastal Zone Management Act §312(c). This evaluation contains no necessary actions.

Recommendations are actions that the office believes would improve the program, but which are not mandatory. The reserve is expected to have considered the recommendations by the time of the next evaluation or by the dates specified. This evaluation contains five recommendations.

Evaluation Findings

Target Area 1: Program Administration

Both the coastal management program and the reserve have been administered by the Department of Environmental Quality through the Division of Coastal Management since the coastal management program's approval in 1978 and the creation of the national estuarine research reserve in 1985. By administering the programs together, they have collaborated to understand and become very supportive of each other's goals. The reserve has informed the coastal program of impacts to resources that need to be addressed through resource management, and the coastal program has contributed to research on living shorelines and other field work.

Key Findings related to Target Area 1:

Addressing Past Recommendations

In the most recent evaluation of the research reserve, NOAA suggested that the Division of Coastal Management should more fully leverage the research reserve in implementing the coastal management program. Another recommendation was that the research reserve should work to facilitate a more communicative and collaborative environment to strengthen cross-sector collaborations within the reserve system. Since that evaluation, the research reserve has made a conscious effort to address these concerns. The evaluation team learned that the coastal training program has conducted workshops related to stewardship, and the education program has incorporated reserve research into programs for teachers, as just two examples. The research reserve has also facilitated the inclusion of cross-sectoral approaches in the development and implementation of its latest management plan.

Similarly, the research reserve and the coastal management program have worked together to address shared priorities such as addressing abandoned and derelict vessels and marine debris. The research reserve's coastal training program regularly addresses coastal program needs through workshops and trainings. Workshops have been held to address many coastal program priorities, including local government grant opportunities and promoting the use of living shorelines for estuarine shoreline erosion control.

The evaluation team learned that the staffs of the coastal management program and research reserve have earned the respect of many groups ranging from the Coastal Resources Commission to scientists and educators, as well as the regulated community. Much of this support has been achieved or maintained through this evaluation period, which has seen a number of difficult challenges, including hurricanes, increased developmental pressure, and major political and organizational change.

Accomplishment: The North Carolina Department of Environmental Quality has created a collaborative interdisciplinary working environment across the coastal management program

and the research reserve that has strengthened the abilities of both programs and earned the respect of both their partners and the regulated community.

Staffing the North Carolina Coastal Management Program

Background: The North Carolina Division of Coastal Management is responsible for several programs under the Coastal Area Management Act (CAMA), including permitting and enforcement; CAMA land-use planning; public beach and waterfront access; the North Carolina National Estuarine Research Reserve, six state-designated coastal reserves; and a grant program for marine sewage pumpout facilities. The division operates offices in Morehead City, Beaufort, Elizabeth City, Columbia, Manteo, Washington, and Wilmington. During this evaluation period, North Carolina has experienced nine hurricanes (three of which caused damages in excess of \$1 billion), six tropical storms, and numerous nor'easters that have had serious impacts to both coastal property and the division's workload. In addition, the pace of development along the North Carolina coast has accelerated sharply since the most recent evaluations.

Analysis: Since the latest evaluations in 2010 and 2011, the Division of Coastal Management has lost 16 positions, yet continues to achieve many of its objectives of working to sustain coastal communities while protecting natural and cultural resources. Unfortunately, the effort to meet program requirements has taken a toll on the program staff. The evaluation team observed that staff resources are stretched thin, and a number of routine functions have been given lower priority as the program struggles to meet the mandates of the Coastal Area Management Act. Fortunately, the division has been able to maintain a strong, dedicated staff, especially in light of the retirement of several key personnel with many years of experience. Nevertheless, workloads for most employees exceed the limits of the workday, and the evaluation team fears that staff burnout will become a serious problem for the organization. Serious thought should be given to adding staff to the division.

The program faces serious staffing capacity concerns in several key areas, in addition to staff shortages in the research reserve (see below). First, the loss of a full-time local permitting Coordinator position has reduced the program's ability to provide outreach, training, and technical assistance to coastal communities with delegated CAMA Minor Permitting programs. The local permit officers in these communities deal with many of the smaller-scale development issues, and are indispensable to the workings of the Coastal Area Management Act. In recent years, more than 700 minor permits and 650 exemptions have been issued per year. All permit actions require site visits by the local permit officer. If the local officers cannot adequately perform this function, it becomes an added responsibility of the division employees. Without the minor permitting coordinator position, the local officers have no central person they can turn to for technical assistance and training. Nine communities have either already opted out or are considering opting out of the program in the future. A new local permitting coordinator position is direly needed to ensure that all requirements of the program are met.

Second, following the last evaluation in 2011, the division was able to reduce the total processing times for major development permits down to an average of 76 days (out of a maximum 150 days allowed by statute). Since 2015, however, permitting times for major developments have risen to 86 days. There are several reasons for this increase, including increased permit applications due a more robust economy, increasing permit complexity, the number of hurricanes and tropical storms, and slower response times from review agencies. A number of retirements and loss of staff for career advancement have also contributed to this increase.

Third, the program has not had consistent IT support for key permitting and enforcement databases and document management initiatives. Although significant progress has been made on this front with a department-assigned programmer tasked with Division of Coastal Management's transition to E-permitting over the past two years, the program remains vulnerable in the areas of records management and the ability to use and share reliable permitting data. As discussed below in the research reserve section, the reserve also lacks a geographic information specialist who could support many activities of the office, including boundary updates related to acquisition, habitat mapping, and creating efficiencies in field data collection and data management.

Fourth, in addition to activities required to administer the Coastal Area Management Act programs, the department and the division have taken on new responsibilities under the statewide community resilience initiative. The division has hired two temporary staff to help with these efforts, but the long-term success of these new and important resilience efforts would be enhanced by creating permanent positions. State funding for these positions would provide tremendous return on investment as the resilience planning work the division is supporting will prepare local communities and the state to be more strategic with major investment of mitigation dollars from federal agencies such as FEMA, the U.S. Department of Housing and Urban Development, and the U.S. Army Corps of Engineers. The division has already demonstrated an ability to attract external funding for resilience work, and helping communities develop "shovel-ready" projects will position the state to secure additional federal and foundation funding.

Other Administrative Topics: Coastal Program

During the evaluation period, the Division of Coastal Management has worked with the Coastal Resources Commission to revamp the local government land use planning program established under the Coastal Area Management Act. These changes reduce the regulatory burden on the local government partners and decrease the amount of time necessary for approval of the plans. The federal consistency program was also enhanced by developing a new process to eliminate the need for paper processing.

Accomplishment: The Department of Environmental Quality and the Coastal Resources Commission have improved the local land use planning process by refocusing on policy development and implementation and switching to an electronic submittal process.

Staffing the National Estuarine Research Reserve

Background: The North Carolina Research Reserve is composed of four components, and currently operates from three offices due to the geographic distribution of the sites: the northern office in Manteo supports the Currituck Banks site; the central office in Beaufort supports the Rachel Carson site; and the southern office in Wilmington supports the Masonboro and Zeke's Islands sites. The division also administers six state-designated coastal reserves: Kitty Hawk Woods, Buxton Woods, Buckridge, Permuda Island, Bald Head Woods, and Bird Island.

Analysis: Because of the number of components and their dispersed nature, as well as funding shortfalls, it has been difficult to adequately staff the research reserve. The Division of Coastal Management has provided staff through a number of mechanisms: as direct state hires, through a contract with the University of North Carolina Wilmington (UNCW), and with a number of temporary long-term and seasonal employees.

The education specialist position (under a UNCW contract) was not back-filled when the employee accepted the education coordinator position due to budget challenges at the time (2011), and has not been refilled in a permanent capacity. Increased education staffing is most needed in the southern portion of the state. Although the reserve has continued education efforts in the Wilmington area using temporary staff, the longevity and continuity of programming in the region is tenuous, and likely to experience high turnover because of the lack of stable funding.

Similarly, a full-time permanent geographic information systems position (UNCW contract) was eliminated in 2011 and replaced with a temporary appointment. This temporary position was eliminated in 2017. As of this evaluation, GIS responsibilities are spread across a number of individuals in the research reserve and the coastal program, leading to a disjointed effort that has led to the inability of staff to obtain data and information in a timely manner as needed.

A third area where staffing has been difficult is in the retention of a manager for the Currituck Banks component of the research reserve. Retention is difficult due to the remote location, distance from other division offices, and the high cost of living on the Outer Banks. These recurring vacancies have put an additional burden on other division staff to implement programs as well as train new staff as they come on board. The division has recently made changes to address this issue by relocating the office to a National Park Service facility in Manteo, from a one-person office in Kitty Hawk, and has hired a part-time temporary employee to assist with the workload. These changes should help to create a more collaborative work environment, hopefully reducing the turnover and reducing the workloads of employees from other distant locations required for training and filling in while the position is vacant.

Additional stress related to staffing the reserve has been the need to conduct oversight and stewardship at several of the state coastal reserves that are not part of the federal research reserve. An example of this is that the Bird Island Coastal Reserve adjacent to the South Carolina border must be managed by federally funded research reserve staff in Wilmington more than 50 miles away.

The Division of Coastal Management has turned to the hiring of temporary employees to cover many of the basic needs of the office and to maintain an effective program that meets the national requirements for estuarine research reserves. These temporary employees have provided key assistance to both the research reserve and the coastal program. Temporary staff members have shown a remarkable commitment to return each year, but permanent positions would help to ensure that all of the responsibilities of the office are adequately staffed, and that program continuity is not compromised.

Recommendation: The Department of Environmental Quality should ensure that staffing of the Division of Coastal Management is adequate to meet all of the needs of both the coastal program and the research reserve.

Other Administrative Topics: Research Reserve

Office space for the research reserve headquarters: The research reserve's primary offices, as well as spaces for education and training programs, are located on Piver's Island at the NOAA Beaufort Lab. Since moving to that location in 2007, there has not been a formal agreement regarding space, and the reserve has not been required to reimburse the laboratory for the rent of the space due to the lack of a mechanism in place to do so. The Division of Coastal Management and the National Centers for Coastal Ocean Science (NCCOS) recognize the need to have a more formal agreement. Several attempts have been made, yet the parties have been unable at this point to adopt one. A concern was raised about the financial impact of such an agreement on the reserve, and thus the division's budget. The Department of Environmental Quality should continue working with NOAA's National Ocean Service to secure a mutually beneficial agreement that establishes continued use of space for the North Carolina National Estuarine Research Reserve at the NOAA Beaufort Laboratory.

The research reserve has seen an increased need for enforcement activities as public access to the reserve components has increased. A number of options for improved enforcement have been explored, but no ideal solution has been identified to date. The Town of Beaufort has expanded its jurisdiction over the Rachel Carson component through annexation, and this has been successful in adding potential capacity for enforcement in the now-incorporated area. Also, the reserve has developed a smartphone application to help "site Steward" volunteers easily report violations at the Rachel Carson component to research reserve staff. On Masonboro Island, the New Hanover County Sheriff's Office provides a law enforcement presence on the July 4 holiday and informs boaters that they are disembarking onto a research reserve. Additional options may exist to work with both local governments and volunteers to educate, monitor, and ease the public impact on the research reserve's natural resources.

Recommendation: The Division of Coastal Management should explore additional opportunities for working with volunteers and local governments on education, monitoring, and enforcement of regulations on research reserve property.

Program Administration: Joint Efforts

Staffing: Staff retention is essential to maintain continuity and consistency in the coastal program and research reserve. By creating inducements to retain staff, the division can reduce the need for training new staff, as well as improve continuity of programs. The division is encouraged to continue looking for additional ways to improve staff retention, such as professional development opportunities and improved workload (mentioned above under capacity). The division may want to explore joint training opportunities with partners such as the U.S. Army Corps of Engineers, other state agencies, or other divisions within the Department of Environmental Quality.

Recommendation: The Department of Environmental Quality should examine factors and incentives to encourage staff retention, such as ensuring adequate staffing levels to control workloads as well as training opportunities.

Target Area 2: Coastal Resilience

The North Carolina Coastal Management Program and the North Carolina National Estuarine Research Reserve have worked together closely to address issues related to reducing the impacts of coastal storms and sea level rise on coastal communities.

Key Findings Related to Target Area 2:

Coastal Resilience: Coastal Management Program

Coastal resilience can be defined in many ways. For the purposes of this analysis, the evaluation team examined how the coastal program and the research reserve are both protecting the environment and the coastal economy by improving the ability of coastal communities to reduce risk from coastal hazards such as sea level rise and coastal inundation. The natural environment provides the foundation for much of the coastal economy in North Carolina, and thus protecting coastal resources is a key element to making communities resilient. Protecting the natural environment and reducing the impacts of coastal storms are key objectives of the Coastal Area Management Act.

The coastal program and the research reserve have played a key role in helping to implement the North Carolina Governor's Executive Order 80, which called for a Climate Risk Assessment and Resilience Plan. In 2019, the Division of Coastal Management hosted a Coastal Resilience Summit and two local community workshops—in both the north and the south. These meetings provided key information about how communities and scientists are measuring and managing changes that may be exacerbated by climate change. The North Carolina Coastal Regional Workshops Report (June 2020) also validates the impacts and risks of natural hazards, discusses potential strategies that could be implemented at the local level, and includes recommendations for resiliency planning that can be implemented at the state level.

As a result of the work related to the Climate Risk and Resilience Plan, the Division of Coastal Management, in cooperation with the Office of Recovery and Resiliency (North Carolina Department of Public Safety), North Carolina Sea Grant, and the Nature Conservancy, has developed the Resilient Coastal Communities Program, which is now supported by funding from the North Carolina Legislature and a \$1.1 million grant from the National Coastal Resilience Fund. Working in partnership with a variety of state agencies and nongovernmental organizations, these funds will be used to provide financial and technical assistance to coastal communities to assess their risks, encourage citizen involvement, and develop and implement plans.

Throughout the evaluation period the coastal program and the research reserve have initiated activities to address sea level rise. In 2010, the Coastal Resources Commission's Science Panel on Coastal Hazards released the North Carolina Sea-Level Rise Assessment Report. This report was controversial, and was amended in 2015 following a legislative request. The revised report was based on projections by the Intergovernmental Panel on Climate Change (IPCC) and

presented a range of values for different parts of the coast. The division also supported a NOAA Coastal Management Fellow (2016-18) to conduct a needs assessment of what local communities require to make them more resilient to sea level rise. The fellow worked with five pilot communities to prioritize the issues and projects to address the problems identified.

The division, working with a variety of partners, has developed a Coastal Adaptation and Resiliency website that offers tools and links to other resources for resilience. This website, developed as part of the state's Section 309 strategy, serves as a portal to a variety of information and provides links to climate data and forecasts, assessment and planning tools, adaptation examples, and sources of funding for planning and implementation. It is geared primarily toward local government staff and other stakeholders interested in coastal resilience in North Carolina.

The Division of Coastal Management has been working with neighboring states in the Southeast to address hazard risks and vulnerabilities for several years. The division participates as a member of the advisory committee of the Carolinas Integrated Sciences and Assessments (CISA), and has been a lead organizer and sponsor of the biennial Carolinas Climate Resilience Conference. The division hosted the Southeast and Caribbean Climate Community of Practice conference in Wilmington in 2019, and continues to support the Southeast and Caribbean Disaster Recovery Partnership.

Accomplishment: The North Carolina Department of Environmental Quality has leveraged expertise across the state and secured several funding sources to implement a community resilience program that will have a significant positive impact on coastal communities and their resources.

Coastal Resilience: Research Reserve

Hurricanes during the review period left significant numbers of vessels stranded within the boundaries of the reserve. The general assembly granted authority to counties and, recently, to the North Carolina Wildlife Resources Commission for removing vessels within the state, yet there is no dedicated funding source for implementing the program. Removals depend on piecemeal funding opportunities awarded to several entities from several funding sources. The reserve has benefited from grants received by partners from the NOAA Marine Debris Program to assist in removing vessels, but not to the level needed to resolve all of the existing cases. The division, in partnership with the North Carolina Coastal Federation, secured funding from the USDA Natural Resource Conservation Service's Emergency Watershed Protection Program to remove large marine debris related to Hurricane Florence from state lands and waters. This funding will take care of qualifying vessels that remain stranded at the Masonboro Island site.

Unfortunately, the number of storms has increased during the evaluation period, so it is anticipated that this will be a recurring problem. This is also the case with other research reserves, especially in the Southeast, and thus lessons learned can be shared with other reserves in the national system.

The research reserve participates in the National Estuarine Research Reserve System’s “Sentinel Site for Sea Level Rise and Inundation” monitoring program. The efforts include measuring and comparing the responses of emergent vegetative communities to changes in water levels and patterns of inundation at the Masonboro Island and Rachel Carson components. The division also participated in a study conducted in the National Estuarine Research Reserve System to assess the resilience of salt marshes to sea level rise by integrating 10 metrics, including local rates of sea level rise, geomorphology, and sediment availability.

The research reserve has supported the coastal management program by initiating research in a number of key areas. Research and monitoring of living shoreline projects enabled the Coastal Resources Commission to amend regulations to streamline permitting requirements for these projects that will have less impact on coastal resources. The research reserve has also developed several innovative training programs for realtors and contractors (e.g., dinner and a movie; living shoreline education for realtors) to introduce a more resilient framework for protecting developed estuarine shorelines.

Accomplishment: The research reserve has developed a strong research presence in a number of key areas and routinely provided training to coastal communities and the development community in support of the coastal program’s regulatory requirements.

The research reserve has developed a partnership with the Town of Beaufort to address issues related to the Rachel Carson component of the reserve. The town chose to annex additional lands and waters of the reserve and worked with the reserve to prepare ordinances that would give the town authority to remove the vessels. The town adopted the ordinances, which have proven useful in addressing the remaining vessels within their jurisdiction.

Accomplishment: The research reserve has been a leader in addressing removal of storm-related debris and has developed a partnership with the Town of Beaufort to develop new mechanisms to remove abandoned and displaced vessels from the reserve that can be used as a model for other coastal communities across the state.

Coastal Resilience: Joint Efforts

The coastal program and the reserve bring their respective areas of expertise to the topic of resilience. The coastal program focuses more on built communities and the reserve focuses more on natural resources, but these focal areas are not mutually exclusive. Both programs are working to increase understanding of the need to utilize natural resources to protect built communities. Collaborations on the Regional Resilience Workshops for Local Governments and follow-up work with this audience are a good example of how the programs are working together on this topic. The work is continuing through the coastal resilience climate community of practice.

Both the coastal program and the reserve have undertaken numerous activities to address sea level rise and climate change. Division staff helped lead the North Carolina Sentinel Site Cooperative, which works across disciplines to address resilience to flooding, inundation, and sea level rise. The work culminated in a report in 2017 that helped inform the governor's Executive Order 80.

The Division of Coastal Management has taken the lead in advancing the concept of living shorelines in North Carolina. Working with the Division of Marine Fisheries and other partners, the coastal program undertook a major initiative to examine the status of estuarine shorelines throughout the coastal zone. Working with the research reserve, a demonstration project to construct an offshore sill composed of oyster shells at the Rachel Carson component of the reserve was initiated. This research was shared with property owners to point to the benefits of using living shorelines and to encourage use of the general permit for the construction of riprap sills. The work resulted in the Living Shorelines Strategy in 2014. As a follow-up to the report, the coastal management program has worked with partners to develop a new general permit for marsh sills to encourage the development of living shorelines in erodible estuarine areas.

The coastal program and research reserve have also joined together to create a living shorelines workgroup to guide implementation of the Living Shoreline Strategy. This group, led by the research reserve manager, promotes the living shoreline approach through policy, permitting, research, training, and outreach. Since the adoption of the general permit, the group also monitors select marsh sill living shorelines along the coast for permit compliance and tracks results through a geodatabase. The coastal training program also delivers trainings on latest techniques for living shorelines to realtors, technical professionals, contractors, and staff.

Accomplishment: The North Carolina National Estuarine Research Reserve and Coastal Management Program routinely collaborate to address issues related to climate change and sea level rise, creating a unified approach that is respected throughout the region. This collaboration has resulted in tangible, science-based decision-making, such as streamlining the general permit for living shorelines.

The Coastal Resources Commission appointed a volunteer Science Panel to provide scientific data and recommendations regarding coastal processes, including erosion, accretion, sand transport, and the interactions of wind, waves, and currents with the shoreline. The panel is charged with reviewing the current state of knowledge of coastal processes and ecological functions of coastal North Carolina; assessing the current methodologies being used by North Carolina and others to define and identify areas subject to adverse impacts of coastal processes associated with development in Public Trust areas; reviewing the scientific basis of the commission's rules on development in the coastal area; and developing recommendations for future actions of the commission. In that light, the research reserve implements the National Estuarine Reserve System's "Sentinel Site for Sea Level Rise and Inundation" monitoring program and has played key roles in the North Carolina Sentinel Site program. Coordinating the sentinel site efforts with those of the commission's science panel could be useful to efforts to address coastal development.

Recommendation: To further integrate the efforts of the research reserve’s research and monitoring programs and the North Carolina Sentinel Sites Cooperative to study sea level rise, the Division of Coastal Management should consider expanding the role of the research coordinator of the research reserve to assist in staff support of the science panel.

Implementation of National Estuarine Research Reserve General Requirements

Management Plan

The North Carolina National Estuarine Research Reserve Management Plan 2020-2025 was formally approved in December 2020.

Research and Monitoring

The North Carolina National Estuarine Research Reserve has partnered with North Carolina Sea Grant to co-sponsor a graduate research fellowship that has provided support for 11 fellows over the review period. Research conducted by the fellows has been used to support resource management at the state and local level, especially in the areas of invasive species and vulnerability to sea level rise. The research reserve continues to implement the NERRS System-wide Monitoring Program with a commitment to abiotic, biotic, and habitat monitoring and mapping.

Education

The research reserve education program conducts a formal needs assessment every five years. The latest assessment has led to a focus on changing coastal conditions, human impact on the environment, and how estuaries serve as nurseries for marine life. These priorities are used to develop and deliver professional development programs to formal and non-formal educators, as well as pre-service teachers.

Coastal Training Program

The research reserve’s coastal training program has worked with the coastal management program to provide training on the use of living shorelines for erosion control since 2011. To increase the adoption of living shorelines in North Carolina, these trainings have been expanded to include events tailored to marine contractors, as they tend to recommend appropriate shoreline stabilization methods to property owners seeking erosion control.

Stewardship

The primary purpose of the resource protection function of the stewardship program is to ensure that the coastal and estuarine resources at the reserve sites are protected and maintained to provide a suitable and stable natural environment for long-term research and educational activities. Protection of resources under the threats of climate change and sea level rise and the opportunity for restoration or manipulation to increase resilience are topics the reserve has been working on during recent years of the evaluation period. Site managers, in collaboration with other reserve staff, implemented the Climate Change Vulnerability Assessment Tool for Coastal Habitats

(CCVATCH) to assess vulnerability of marsh habitats across the four sites through a grant from the National Estuarine Research Reserve's Science Collaborative. The Department of Environmental Quality is providing \$130,000 to the reserve for temporary staffing over 2 years to address resilience, which will provide critical staffing capacity to advance this work. These funds will match the National Fish and Wildlife Foundation's Emergency Resilience funds applied for to support the Rachel Carson Reserve described above. The Department of Environmental Quality funding will support transfer of work at Rachel Carson to other reserve sites.

Evaluation Metrics – Coastal Management Program

Beginning in 2012, national estuarine research reserves began tracking their success in addressing three evaluation metrics specific to their programs. The evaluation metrics include a five-year target and provide a quantitative reference for each program about how well it is meeting the goals and objectives it has identified as important to the program.

Goals and Objectives are from the North Carolina Coastal Management Program metrics approved May 29, 2012, and January 7, 2020.

METRIC 1 (2012-17): Estuarine Shoreline Management

Goal: Enhance estuarine shoreline stabilization practices.

Objective: Encourage alternatives to vertical shoreline stabilization methods to maintain the integrity of the natural system.

Strategy: North Carolina’s estuarine shoreline is composed of a diverse array of shoreline types. Shoreline stabilization is defined as the use of structures, vegetation, or land management practices to provide protection of a shoreline from future or existing erosion. Stabilization techniques should be appropriate for the type of shoreline, site conditions, and erosion forces present. Stabilization techniques with the least adverse environmental effects, including “Living Shorelines,” are preferred by natural resource management agencies. “Living Shorelines” are defined as shoreline stabilization methods that employ as many natural habitat elements as appropriate for site conditions to protect shorelines from erosion. Marsh sills are a type of living shoreline since they include natural shoreline features in their construction and maintain some of the natural shoreline habitats. Marsh sills are considered a better alternative to more traditional shoreline stabilization methods, such as bulkheads, as they may minimize shoreline erosion, protect the existing marsh, and allow for marsh establishment landward of the structure. Once established, the marsh absorbs much of the wave energy prior to reaching upland areas.

Currently, few “Living Shoreline” protection projects are permitted relative to vertical stabilization structures. This is possibly due to “Living Shorelines” being perceived by property owners as more costly and time consuming, in addition to concerns about their long-term effectiveness.

Through a combination of permitting actions, site visits and outreach activities (i.e., workshops), the North Carolina Coastal Management Program staff will provide information to property owners and contractors to promote the use of “Living Shoreline” projects (i.e., marsh sills) as an alternative to vertical shoreline erosion control options (i.e., bulkheads).

Performance Measure: The number of marsh sill projects permitted.

Target: A total of 20 marsh sill projects permitted over a five year period.

First Year Results: 7
Second Year Results: 7
Third Year Results: 2
Fourth Year Results: 2
Fifth Year Results: 2

Cumulative Results: 20 (100 percent of target)

Discussion: The division met the goal for permitting marsh sill projects.

METRIC 2 (2012-17): Environmental Regulation

Goal: Provide for more effective environmental regulation in the coastal region.

Objective: Improve the timeliness of permit reviews and increase customer service satisfaction.

Strategy: The North Carolina Coastal Management Program permits and regulates coastal development within the guidelines established by the North Carolina Coastal Resources Commission to fulfill the primary mission of the Coastal Area Management Act (CAMA) and the North Carolina Dredge and Fill Law. Major permits are necessary for activities that require other state or federal permits, for projects that cover more than 20 acres, or for construction covering more than 60,000 square feet. Applications for major permits are reviewed by 10 state and four federal agencies before a decision is made. Currently, the average processing time for issuing a CAMA major permit is 90.9 days. North Carolina Coastal Management Program staff will incorporate several application processing changes in order to reduce the time required to issue a CAMA major permit. The process changes include definitive times by which resource management and regulatory agency comments are due to the division, formalized notification actions, and lack of response from non-critical agencies interpreted as “no comment.”

Performance Measure: The annual average processing time for issuing CAMA major permits.

Target: By 2017, the average processing time for issuing CAMA major permits will be 75 days.

First Year Results: 76.6
Second Year Results: 76.2
Third Year Results: 74.3
Fourth Year Results: 80
Fifth Year: 77.1

Cumulative: 76.8 (1.8 days short of target)

Discussion: The program came close to meeting the target despite having staff shortages.

METRIC 3 (2012-17): Enforcement

Goal: Enhance enforcement of existing rules.

Objective: Increase inspection compliance rate for permitted projects.

Strategy: Once a permit has been issued, North Carolina Coastal Management Program staff must be proactive to determine whether there has been compliance with the rules and permit conditions. The majority of permits are granted with conditions imposed by the commission to bring the project into compliance with the policies of the Coastal Area Management Act (CAMA). Without these conditions, the project would not comply with the CAMA and could not be approved. Thus, implementation of CAMA policies does not stop with the issuance of permits, and ensuring that the conditions of approval are met is critical to the program. Compliance rates are the best overall measures of enforcement success. The current compliance rate of inspected permitted projects is 93%. To improve this rate, North Carolina Coastal Management Program staff will increase compliance assistance efforts and permit monitoring, while working to educate (i.e., workshops) the regulated community about environmental regulations and the importance of the rules that manage, protect, and conserve coastal resources. Compliance rate progress will be measured by the number of inspections, the appropriateness of the targets for inspections, and the quality of the inspections. The compliance rate will be calculated by dividing the number of inspected projects that are in compliance by the total number of inspected projects.

Performance Measure: Annual average compliance rate of inspected permitted projects.

Target: By 2017, the annual average compliance rate of inspected permitted projects will be 95%.

First Year Results: 98

Second Year Results: 99

Third Year Results: No data

Fourth Year Results: 98

Fifth Year Results: 98

Cumulative Results: 98.3 percent (exceeded target for the four years with data)

Discussion: The program exceeded the target.

METRIC 1 (2018-23): Coastal Hazards

Goal: Increase coastal local government capacity to address resiliency.

Objective: The Division of Coastal Management will create a program to direct the appropriate resources and expertise to build capacity and guide the development of projects to address pressing community vulnerabilities.

Strategy: A number of large, costly storm events over the past decade have again reminded coastal communities of the need to become more resilient to episodic events, and continually improving information about the nature and magnitude of chronic coastal hazards highlight the necessity of building in long-term resilience. Local governments must constantly navigate a changing number of mandates for hazard mitigation and disaster recovery planning and may not have the capacity to stay abreast of the range of tools and resources that are available to assist them. Along with planning mandates, local governments must keep up with state and federal standards and regulations that may need to be incorporated into local ordinances and permitting programs. Division of Coastal Management will provide trainings for local governments and other key sectors, such as real estate agents, to keep them apprised of the latest scientific information and federal and state regulations. This will allow the division to more effectively implement Governor Cooper's Executive Order 80 as well as meet Objective 13.4 of the Department of Environmental Quality Strategic Plan. This goal will also support Task 4 of the North Carolina Coastal Management Program's Fiscal Year 2015-2020 309 Strategy related to enhancing local government resiliency capabilities.

The Division of Coastal Management has been working in collaboration with other state and nongovernmental organization partners to provide direct assistance to local governments on vulnerability assessments and coastal hazards mitigation and is seeing demand for increased service delivery in this area. The division was able to secure two temporary staff from 2016-2019 to pilot this work, a Coastal Management Fellow that cost \$15,000 in state funds over two years, and a 1-year temporary Coastal Resilience Specialist utilizing \$65,000 in federal funding that is no longer available. Loss of these two temp positions has greatly diminished the division's capacity to continue to deliver services to local governments. The Division of Coastal Management is not aware of a similar existing program within the department; however, there are complementary sources of state funding for project implementation after planning and design work is complete.

Performance Measure: Between 2018 and 2023, the number of training events related to coastal hazards offered by the coastal zone management program.

Target: Between 2018 and 2023, 20 training events related to coastal hazards offered by the coastal zone management program.

First Year Results: 5

Second Year Results: NA

Third Year Results: NA
Fourth Year Results: NA
Fifth Year Results: NA

Cumulative Results: 5 (25 percent of target after one year)

Discussion: The division is making excellent progress in meeting the target.

METRIC 2 (2018-23): Coastal Hazards

Goal: Enhancement of estuarine shoreline stabilization practices.

Objective: Encourage alternatives to vertical shoreline stabilization methods to maintain the integrity of the natural system.

Strategy: North Carolina’s estuarine shoreline is composed of a diverse array of shoreline types. Shoreline stabilization is defined as the use of structures, vegetation, or land management practices to provide protection of a shoreline from future or existing erosion. Stabilization techniques should be appropriate for the type of shoreline, site conditions, and erosion forces present. Stabilization techniques with the least adverse environmental effects, including “Living Shorelines,” are preferred by natural resource management agencies. “Living Shorelines” are defined as shoreline stabilization methods that employ as many natural habitat elements as appropriate for site conditions to protect shorelines from erosion. Marsh sills are a type of living shoreline since they include natural shoreline features in their construction and maintain some of the natural shoreline habitats. Marsh sills are considered a better alternative to more traditional shoreline stabilization methods, such as bulkheads, as they may minimize shoreline erosion, protect the existing marsh, and allow for marsh establishment landward of the structure. Once established, the marsh absorbs much of the wave energy prior to reaching upland areas.

Currently, few “Living Shoreline” protection projects are permitted relative to vertical stabilization structures. This is possibly due to “Living Shorelines” being perceived by property owners as more costly and time consuming in addition to concerns about their long-term effectiveness.

Through a combination of permitting actions, site visits, and outreach activities (i.e., workshops), North Carolina Coastal Management Program regulatory staff will provide information to property owners and contractors to promote the use of “Living Shoreline” projects (i.e., marsh sills) as an alternative to vertical shoreline erosion control options (i.e., bulkheads).

Most recently, the Division of Coastal Management worked with a stakeholder group to create a more streamlined permitting process for marsh sills. Members of the group included the United States Army Corps of Engineers, the marine science community, North Carolina Division of Water Resources, North Carolina Division of Marine Fisheries, North Carolina Coastal Federation, North Carolina Sea Grant, and the National Oceanic and Atmospheric Administration.

Based on recommendations from the stakeholder group, the Division of Coastal Management drafted an amended general permit for marsh sills, which was recently approved by the North Carolina Coastal Resources Commission with an effective date of April 1, 2019. This general permit served as the basis for a Regional General Permit for marsh sills issued by the Corps of Engineers on March 26, 2019, allowing the division to issue general permits for marsh sills without a case-by-case federal review in many cases.

It is anticipated that a) 1 state-level policies and plans will be completed; b) 2 local-level policies and plans completed; c) 1 project completed at the state-level; and d) 20 projects completed at the local-level to reduce future damage from coastal hazards with assistance from coastal zone management funding or staff.

Performance Measure: Between 2018 and 2023, number of a) state-level policies and plans completed; b) local-level policies and plans completed; c) projects completed at the state-level; and d) projects completed at the local level to reduce future damage from coastal hazards with assistance from coastal zone management funding or staff.

Target: Between 2018 and 2023, 24 a) state-level policies and plans completed; b) local-level policies and plans completed; c) projects completed at the state-level; and d) projects completed at the local level to reduce future damage from coastal hazards with assistance from coastal zone management funding or staff.

First Year Results: 2 state projects

Second Year Results: 4 local projects

Third Year Results:

Fourth Year Results:

Fifth Year:

Discussion: The division is making good progress after a start-up period.

METRIC 3 (2018-23): Public Access

Goal: Enhancement of existing public access sites

Objective: Increase the number of public access sites enhanced.

Strategy: The state has created Public Beach and Coastal Waterfront Access Program for the purpose of acquiring, improving, and maintaining waterfront recreational property throughout the coastal region for public access to these important public trust resources. The primary purpose of the public access program is to provide funds to acquire or develop land for public access, including parking, as authorized by G.S. 113A-134.3(c). Boating and fishing facilities are eligible for funding under the Public Beach and Coastal Waterfront Access Program provided that pedestrian access is also incorporated in the design of the facility.

Performance Measure: Between 2018 and 2023, the number of existing public access sites enhanced with assistance from coastal zone management funding or staff.

Target: Between 2018 and 2023, 30 existing public access sites enhanced with assistance from coastal zone management funding or staff.

First Year Results: 17

Second Year Results: 10

Third Year Results: NA

Fourth Year Results: NA

Fifth Year Results: NA

Cumulative Results: 27 (90 percent of target after two years)

Discussion: After two years, the coastal management program is making excellent progress toward meeting this goal.

Evaluation Metrics – National Estuarine Research Reserve

Beginning in 2012, national estuarine research reserves began tracking their success in addressing three evaluation metrics specific to their programs. The evaluation metrics include a five-year target and provide a quantitative reference for each program about how well it is meeting the goals and objectives it has identified as important to the program.

Goals and Objectives are from the North Carolina National Estuarine Research Reserve Metrics approved March 28, 2012, and March 7, 2018.

METRIC 1 (2012-17): Education

Goal: Humans understand the natural systems, their connections to them, and the benefits derived from them.

Objective: Education programs will deliver information on North Carolina coastal resources to K-12 and college students to foster environmental stewardship and informed decision-making.

Strategy: The reserve will conduct hands-on student field trips, which will include research and monitoring data. Local outreach efforts will be conducted in the schools. (Further discussion and detail of the strategy are in the North Carolina National Estuarine Research Reserve Management Plan 2009-2014 on pages 68-69.)

Performance Measure: Number of K-12 and college student contact hours per year.

Target: 1,080 student contact hours per year.

First Year Results: 1,446

Second Year Results: 1,558

Third Year Results: 1,156

Fourth Year Results: 558

Fifth Year Results: 728

Cumulative Results: averaged 1,089 per year (exceeded target overall and in 3 of 5 years)

Discussion: As mentioned elsewhere in the document, reserve activities were greatly impacted by tropical storms during the final two years of the time period.

METRIC 2 (2012-17): Research

Goal: Applicable research informs coastal policy.

Objective: Research reserve products will be used by the coastal management community.

Strategy: The reserve will utilize the North Carolina National Estuarine Research Reserve (NCNERR) website and collegial communication to advertise the need for a research permit to conduct work in the NCNERR. The permit will be promoted at all pertinent reserve presentations and via written reserve documents. The research needs list will be used to help direct outside research efforts toward reserve knowledge gaps. The NERR Graduate Research Fellowship and North Carolina Sea Grant and North Carolina Coastal Reserve Coastal Research Fellow programs will be utilized to conduct needed research on reserve properties. (Further discussion and detail of the strategy are in the North Carolina National Estuarine Research Reserve Management Plan 2009-2014 on pages 86-88.)

Performance Measure: Number of research permits issued each year.

Target: 12 research permits issued each year.

First Year Results: 7

Second Year Results: 10

Third Year Results: 12

Fourth Year Results: 16

Fifth Year: 9

Cumulative: 10.8 (90 percent of target, and met or exceeded target 2 of 5 years)

Discussion: The research reserve's progress on this indicator was impeded by both hurricanes and staff shortages, as the research coordinator position was vacant for a portion of the 2012-2017 period.

METRIC 3 (2012-17): Stewardship

Goal: North Carolina Research Reserve operations, infrastructure, and stature are improved.

Objective: The North Carolina Research Reserve needs will be more fully met by volunteers and volunteers will be trained in coastal issues.

Strategy: The reserve will work to increase opportunities for volunteers to contribute to the North Carolina Research Reserve stewardship program in order to ensure that program objectives are more fully met by volunteers. Stewardship includes all activities of volunteers that are associated with completion of stewardship program goals and under the direction of

stewardship staff, including but not limited to marine debris removal, patrol of sites, maintenance of trails, monitoring and management of specific species or habitats, restoration and enhancement projects and professional services such as surveying, taxonomic consultation, and boat transport. Volunteers will be utilized to support a variety of activities associated with stewardship program objectives. Increasing participation in volunteer activities will also serve to ensure that members of the community are trained in coastal issues relevant to the stewardship program. Volunteer training will be provided and enable volunteers to assist with activities such as identification of coastal plants and organisms, data collection, and safe field and boating operations. Volunteer activities may relate to the work of the reserve's Local Advisory Committees. (Further discussion and detail of the strategy are in the North Carolina National Estuarine Research Reserve Management Plan 2009-2014 on pages 102-103.)

Performance Measure: Number of volunteer hours per year contributed by volunteers to North Carolina Research Reserve that are associated with completion of stewardship program goals and under the direction of stewardship staff.

Target: 1,350 volunteer hours per year contributed to North Carolina Research Reserve that are associated with completion of stewardship program goals and under the direction of stewardship staff.

First Year Results: 1,248.5

Second Year Results: 1,692.5

Third Year Results: 1,916

Fourth Year Results: 1,933.5

Fifth Year Results: 1,566

Cumulative Results: 1,671 average hours per year (124 percent of overall target, and exceeded annual target 4 of 5 years.)

Discussion: The targets were exceeded.

METRIC 1 (2017-22): Training

Goal: Education and training inspire target audiences to protect coastal and estuarine ecosystems.

Objective: Annually, 90% of participants state that they intend to apply the science-based knowledge and skills relevant to coastal management gained through Coastal Training Program activities.

Strategy: The Coastal Training Program will coordinate core trainings for decision-makers and new training events in response to the 2014 needs assessment and emerging policy issues, all in collaboration with program partners. These trainings will help increase reserve visibility among coastal decision-makers and coastal communities. The Coastal Training Program will incorporate coastal and estuarine science conducted by the reserve and partners into trainings as appropriate, thus enhancing research awareness. Partners will be credited to appropriately acknowledge roles and increase understanding of how the reserve works with partners.

- Action 1: Coordinate core trainings for decision-makers in collaboration with program partners.
- Action 2: Coordinate new training events in response to the 2014 needs assessment and emerging policy issues in collaboration with program partners.
- Action 3: Incorporate coastal and estuarine science into trainings.

Performance Measure: From July 1, 2017, to June 30, 2022, number of training events delivered by the Coastal Training Program.

Target: From July 1, 2017, to June 30, 2022, the Coastal Training Program will deliver 45 training events.

First Year Results: 11

Second Year Results: 11

Third Year Results:

Fourth Year Results:

Fifth Year Results:

Cumulative Results: 22 total to date (48.9 percent of target after two years)

Discussion: The North Carolina Research Reserve is exceeding targets after the first two years.

METRIC 2 (2017-22): Education

Goal: Education and training inspire target audiences to protect coastal and estuarine ecosystems.

Objective: Two hundred fifty educators receive information on North Carolina's coastal and estuarine ecosystems and are able to apply curricula within their instruction.

Strategy: The education program will deliver workshops (i.e., Coastal Explorations and Teachers on the Estuary) for and engage educators (i.e., classroom teachers, non-formal educators, and pre-service teachers) at education programs and events where reserve curriculum and education programs are highlighted. This will increase reserve visibility and understanding of

how the reserve works with partners. Research and stewardship projects and results will be incorporated as appropriate to complement and enhance education programs and products, and further connect educators to the reserve program, sites, and research. This performance measure is the sum of “Number of Teachers on the Estuary (TOTE) Educators” + “Number of Educators” as tracked in the reserve system’s education database.

- Action 1: Conduct hands-on and field-based educator workshops, including Coastal Explorations and Teachers on the Estuary.
- Action 2: Update workshops and curricula based on current techniques and topics identified through the 2014 needs assessment as well as future surveys.
- Action 3: Incorporate reserve research and stewardship activities and monitoring data into workshops and curricula.
- Action 4: Engage educators through partner-hosted education programs and events.

Performance Measure: From July 1, 2017, to June 30, 2022, number of educators reached.

Target: From July 1, 2017, to June 30, 2022, the education program will reach 300 educators.

First Year Results: 124

Second Year Results: 59

Third Year Results: NA

Fourth Year Results: NA

Fifth Year: NA

Cumulative: 183 total to date (61 percent of target after two years)

Discussion: The North Carolina Research Reserve is exceeding targets after the first two years.

METRIC 3 (2017-22): Stewardship

Goal: Stewardship of protected sites contributes to the study and appreciation of coastal and estuarine ecosystems.

Objective: Trained volunteers contribute to and benefit from supporting stewardship activities.

Strategy: The reserve will recruit, train, and engage volunteers to support reserve program goals. Volunteers are involved with many stewardship activities and directly support stewardship of the sites through marine debris removal, trail maintenance, species or habitat monitoring, restoration or enhancement projects, and various professional services. Volunteers are also important to completion of education activities such as public field trips and outreach events. Volunteers occasionally support research projects. Recent citizen science activities connect volunteers with the stewardship, research, and education functions of the reserve.

Providing volunteers with training and opportunities to be directly engaged with reserve programs serves to increase the visibility of the reserve and improve understanding of the reserve's research and monitoring and how the reserve works collaboratively with partners, in addition to building an understanding of the importance of coastal and estuarine ecosystems. This performance measure will be tracked using the Volunteer Hours Index.

Performance Measure: From July 1, 2017, to June 30, 2022, total volunteer hours in support of Reserve program goals.

Target: From July 1, 2017, to June 30, 2022, volunteers will contribute 7,000 hours to support reserve program goals.

First Year Results: 1,311

Second Year Results: 1,752

Third Year Results: NA

Fourth Year Results: NA

Fifth Year Results: NA

Cumulative Results: 3,063 total to date (43.7 percent of target after 2 years)

Discussion: The North Carolina Research Reserve is exceeding targets after the first two years.

Conclusion

This evaluation concludes that the North Carolina Department of Environmental Quality is successfully implementing and enforcing its federally approved coastal management program, adhering to the terms of the federal financial assistance awards, and addressing coastal management needs identified in section 303(2)(A) through (K) of the Coastal Zone Management Act. I also find that the State of North Carolina's operation and management of the North Carolina National Estuarine Research Reserve, including education, research, and interpretative activities, is adhering to the programmatic requirements of the Coastal Zone Management Act and its implementing regulations.

These evaluation findings contain no necessary actions and four recommendations. The recommendations must be considered before the next regularly scheduled program evaluations, but they are not mandatory at this time. Program recommendations that must be repeated in subsequent evaluations may be elevated to necessary actions.

This is a programmatic evaluation of the North Carolina Coastal Management Program and the North Carolina National Estuarine Research Reserve that may have implications regarding future financial assistance awards. However, it does not make any judgment about or replace any financial audits.

signed by Keelin S. Kuipers
Keelin S. Kuipers
Deputy Director
NOAA Office for Coastal Management

dated March 4, 2021
Date

Appendix A: Response to Written Comments

Five written comments were received.

Leda Cunningham of the Pew Charitable Trusts wrote to complement the North Carolina Coastal Management Program on their efforts to promote and maintain healthy coastal ecosystems. She specifically states that the program has accomplished several program improvements during the evaluation period, including efforts to address sea level rise and allow for quick permitting of living shoreline projects. Ms. Cunningham also lauded the program's efforts to increase local capacity to increase coastal resilience. She also commended the coastal management program for its stakeholder engagement efforts. Ms. Cunningham recommends that the program continue to work with regional partners on resilience efforts and to support "community approaches that expand the use of nature-based solutions and maximize ecosystem services."

The evaluation team thanks Ms. Cunningham for her comments.

Erik Fleek wrote to say that he feels strongly that commercial fishing should be banned from the national estuarine research reserves and, specifically the use of nets and the placement of crab pots. He also notes that if regulations currently exist, they need to be better enforced.

The evaluation team thanks Mr. Fleek for his comments.

Bruce (last name not provided) wrote to express his concerns related to the dumping of finfish bycatch in Pamlico Sound from shrimp trawlers.

The evaluation team thanks Bruce for his comment and has forwarded his comment to the North Carolina Division of Coastal Management for their consideration.

Carolyn Currin of NOAA's National Centers for Coastal Ocean Science commended both the coastal management program and the national estuarine research reserve for their willingness to partner with her agency. She also states that the recent resilience efforts have been effective in reaching out to disadvantaged communities. Dr. Currin further notes that the Coastal Training Program of the research reserve is especially effective at educating professionals on key coastal topics and that the reserve's research efforts are very extensive and collaborative.

The evaluation team thanks Dr. Currin for her comments.

The following comment was received from **Jean Public**:

"there is not ever enough outreach with these govt agencies with the true general public. they have so much interaction with other govt agencies, all of which are so totally corrupt and taken over by big rich mans momney that the general public is not

getting through at all in any of these agencies. all those state and federal agencies have been captured by rich men with lots of money who in fact rule those federal and state agencies. as an xample, take nj div fish & wildlife kilin agency. they only take people on that council who are hunters or farmes. there are a hell of a lot of people who are not hunters or farmers but if you are not one of those two groups you are blackballed. is that fair. that is the way these agencies go. they have set up insider regulatons so they only let in their own kind and keep everybody else out. so when this agency says it goes to other federal and state agencis, they are goin to the rich mans club. not the general public. i ts time to rectify this kind of scalawag, corruption going on. the averag man isnt getting any say at all in what goes on in these federal rgister proposals. not one bit of say. we know flooding is comng. it seems to me no building at all shoudl be allowed on any coastal site. just say enough. enogh is enough. we taxpayers do not want to pay to rebuild their houses 8 times when the sea comes in. we know it is comng. it is absolutely foolhardy not to move peoplle back from building on the coasts. i think moving them back 500 ft is a good idea immediately. this comment is for the public record. plese receipt. jean public”

The evaluation team appreciates Ms. Public’s comment, but points out that this evaluation is of the North Carolina Coastal Management Program, which was approved under the provisions of the Coastal Zone Management Act (16 U.S.C. §1451-1465). The act authorizes states to voluntarily develop resource management programs “to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation’s coastal zone for this and succeeding generations.” This evaluation examines only the state’s implementation of North Carolina’s approved program, which includes a number of regulations to reduce risk and vulnerability, including setbacks. Regulations are adopted by the North Carolina Coastal Resources Commission during meetings open to the public and are advertised according to state laws and regulations.