

Albemarle - Pamlico

National Estuary Partnership



Program Evaluation Narrative

Evaluation Period: 1 July 2017 - 30 September 2022



U.S. Environmental Protection Agency Cooperative Agreements

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Introduction

The primary purpose of the Program Evaluation (PE) is to assist the U.S. Environmental Protection Agency (EPA) in assessing how each of the 28 National Estuary Programs (NEPs) are making progress towards achieving programmatic and environmental results through implementation of their Comprehensive Conservation and Management Plans (CCMPs). The PE is an interactive process designed to ensure national program accountability and transparency, while supporting local considerations into implementation progress. It also intended to demonstrate the value of federal investment in estuarine and coastal watershed restoration and protection at the local and regional levels. This narrative report fulfills a portion of the PE process by the Albemarle-Pamlico National Estuary Partnership (APNEP). Further discussions and interactions with staff, Management Conference members, and others will follow along with an on-site visit by the EPA PE team later in 2023.

APNEP's mission is to identify, protect, and restore the significant resources of the Albemarle-Pamlico region. The Partnership is a collaborative effort hosted by the [NC Department of Environmental Quality](#) (NC DEQ) under a cooperative agreement with the EPA and works closely with the Commonwealth of Virginia. The Partnership also works closely with both EPA Regions III and IV.

APNEP was one of the first programs established under 1987 amendments to the Clean Water Act. APNEP's [initial CCMP](#) was ratified by the Governor of North Carolina and approved by the EPA in November 1994. A revised [CCMP](#) was created in 2012 through a stakeholder-driven process that incorporated an ecosystem-based management approach. The Partnership Office is advised by a Management Conference as currently authorized under [North Carolina Governor's Executive Order #250 \(2022\)](#).

APNEP staff successfully act as both a facilitator and collaborator of work on behalf of the Albemarle-Pamlico Estuarine System (APES) in North Carolina and Virginia by bringing together contributions from multiple sources to address essential actions identified in the CCMP. In response to the COVID pandemic, restrictions on travel and meetings since March 2020 meant APNEP altered its engagement approach but kept moving forward on issues important to the Management Conference and for CCMP implementation. Staff continues to serve a key role in the region as a "trusted source" for information and a facilitator of partnerships. APNEP remains a recognized source of credible scientific and technical information about the region. APNEP staff share and work regularly with partners to provide expertise and science-based information often leading, but also behind the scenes, in support of numerous projects and studies.

Since the previous PE, staff have taken on increasingly visible roles in regional efforts on climate change, resilience, and more inclusive engagement. We are recognized and valued as regional experts who combine broad perspective, technical expertise, and collaboration.

The following narrative reflects on the key accomplishments during the evaluation period and required elements for the PE Narrative Report. Activities are organized around three categories: Healthy Ecosystems, Clean Waters, and Strong Communities. Our role in climate resiliency is noted where appropriate.

Program Evaluation Narrative, Implementation Years 2017-2022

Topic 1: NEP Environmental / Programmatic Workplan Accomplishments

The following information illustrates the environmental and programmatic progress APNEP has made towards achieving the objectives and actions identified in its CCMP through selected workplan accomplishments. Highlighted projects aligned with the EPA-recommended categories of Healthy Ecosystems, Clean Waters, and Strong Communities, which align closely with the CCMP goals below.

Goal 1: A region where human communities are sustained by a functioning ecosystem

Goal 2: A region where aquatic, wetland, and upland habitats support viable populations of native species

Goal 3: A region where water quantity and quality maintain ecological integrity

For more in-depth information of APNEP activities and accomplishments, see the Annual Workplans and Progress Reports and Final Project Reports located [here](#) on the website.

Since the CCMP revision in 2012, APNEP has collaborated with its partner network to implement the CCMP's 58 actions. During this PE evaluation period, APNEP participated in numerous projects aligning with one or more of its CCMP actions, refining its monitoring approach, engaging in programmatic strategic planning and implementations, and dealing with the functional impacts of the Covid-19 pandemic.

In November 2017, APNEP celebrated thirty years of collaboration to protect the natural resources of the Albemarle-Pamlico region. Our 2017 Albemarle-Pamlico Ecosystem Symposium: Eyes on the Horizon was both a commemoration of decades of hard work by our numerous partners as well as a look forward to the emerging issues affecting human communities, natural systems, and water resources within the region's estuaries and watersheds. Topics covered highlights of scientific, management, and policy initiatives from partners implementing the CCMP. In addition, the online [Sound Reflections](#) series highlighted interviews conducted with twelve partners who contributed to the Partnership's growth over the past three decades and emphasized the value of collaboration.

APNEP continues to adapt and to grow from a regional ecosystem study into a productive partnership, drawing on its strengths as a boundary organization with a history of bringing together diverse stakeholders to protect and restore the Albemarle-Pamlico region. Members of our Management Conference and our partners recognize the value that APNEP plays in filling gaps and promoting initiatives that integrate across multiple disciplines and sectors, and across jurisdictional boundaries. Over the past five years, the Partnership has recognized that staff are developing a niche of providing services that our partners may not be staffed for or equipped to implement. The initiatives highlighted below include many staff-led efforts, including supporting research and strategies to inform policy development, economic studies, collaborative management, engagement strategies, and supporting capacity for diverse, underserved communities to address resilience planning.

As CCMP implementation refocuses with a renewed 2022 Executive Order #250, 2023 CCMP Update, 2017 & 2020 Interstate MOUs with Virginia, along with new opportunities through development of the 2023 Five-Year Bipartisan Infrastructure Law Workplan and associated Equity Strategy, APNEP will continue to develop and implement collaborative solutions that address regional needs.

Healthy Ecosystems

Over the past five years of CCMP implementation, APNEP has focused much of its habitat-related activities on submerged aquatic vegetation (SAV), water quality, invasive species, and coastal wetlands and oyster habitats, including support for the [2021 Amendment to the NC Coastal Habitat Protection Plan](#).

SAV Metric Report – Assessment: APNEP published a report showing a net loss in the areal extent of high-salinity submerged aquatic vegetation (SAV) habitat in North Carolina’s sounds between 2006 and 2013. While the data also confirm that the state possesses the largest acreage of seagrass along the east coast of the United States, around 100,000 acres, the overall extent of seagrass meadows in the Albemarle-Pamlico estuary decreased by 5,686 acres or 5.6% despite the availability of suitable habitat for expansion of the resource. Seagrass is declining worldwide; North Carolina is experiencing annual rates of seagrass loss at or below the global average. [Learn more.](#)

Year(s): 2017 - Present
Partners: [See list of members on each Monitoring and Assessment Teams](#)
Outputs/Deliverables: List of indicators and metrics for the Albemarle-Pamlico region
Outcomes: Improved understanding of the status and trends of APES, detection of environmental changes in support of CCMP implementation.
FY2017-22 Cost: Staff Time
Estimated Leverage: \$7,188
CCMP Actions: E1.1, E1.2, E1.3, E2.1, E2.2
CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d
CWA Core Programs: (6) protecting coastal waters through the National Estuary Program
EPA Element(s): Healthy Communities, Direct Assistance

SAV Monitoring and Mapping: APNEP continued to lead the monitoring of priority estuarine habitat indicator, SAV, via aerial imagery acquisition and boat-based surveys in collaboration with the NC Department of Transportation (NC-DOT), the NC Division of Marine Fisheries (NC-DMF), and other partners on the APNEP SAV Team. Based on data from 2013 and 2019-2020 surveys respectively, we built upon the 2006-2008 baseline map by publishing two additional time-series maps of the leading metric “SAV Extent in High-Salinity Waters by Density Class”. [Learn more.](#)

APNEP’s monitoring strategy changed significantly beginning in 2021 based on the initial implementation of APNEP’s Integrated Monitoring Plan. Significant changes for high-salinity SAV (seagrass) include additional indicator metrics plus bi-seasonal monitoring at one of four sub-regions each year on a rotational basis (rather than the entire region every 6-7 years). The water quality component of this Integrated Monitoring Plan is discussed in the Water Quality section. [Learn more.](#)

Status/ Year(s): Ongoing / 2005- Present
Partners: NOAA, NC-DOT, NC-DMF, NC-NERR, UNC-Wilmington, UNC-Chapel Hill, East Carolina University, U.S. NRCS
Outputs/Deliverables: Maps (GIS layers & metadata) of coastal SAV areal extent by cover class; metric reports whose target readership are technically inclined environmental managers
Outcomes: Information for decision-makers, Data for CHPP implementation
FY2017-22 Cost: \$ 353,130
Estimated Leverage: \$ 617,569

CCMP Actions: A1.1, E1.1, E2.1

CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Living Resources, Direct Assistance

NC Aquatic Nuisance Species Management Plan Committee Coordination: Staff played a key role in co-facilitating the NC Aquatic Nuisance Species Management Plan (NC-ANSMP) Steering Committee, which has been focused on revising the state's Plan for federal approval, and afterwards identify next steps for Plan implementation. This state plan for coordinated management, research, and outreach of aquatic nuisance species, once finalized and federally approved, will make North Carolina eligible for federal funding to support the plan's implementation. Improved coordination and collaboration across state agencies will leverage limited resources available for invasive species management in North Carolina. [Learn more.](#)

Status/ Year(s): Ongoing/ 2015-2016, 2018 - Present

Partners: NC-DEQ, NC Wildlife Resources Commission, NC Dept. of Agriculture and Consumer Services, NC Dept. of Natural and Cultural Resources, US Fish and Wildlife Services, NC State University, NC Division of Water Resources, The Nature Conservancy, NC Sea Grant

Outputs/Deliverables: Statewide plan for coordinated management, research, and outreach on aquatic nuisance species.

Outcomes: Improved coordination and collaboration across state agencies will leverage limited resources available for invasive species management in NC. The NC-ANSMP will also compliment Virginia's equivalent plan, thereby better enabling coordinated management actions between the two states under the 2020 MOU.

FY2017-22 Cost: Staff time

Estimated Leverage: \$ 12,000 (Federal approval of this plan will make NC eligible to receive federal funding (~\$40K/year) to support the plan's implementation)

CCMP Actions: A2.1, B2.6, C3.1, D1.

CCMP Outcomes: 2c

CWA Core Programs: (5) protecting wetlands (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Living Resources, Direct Assistance

2021 NC Coastal Habitat Protection Plan Amendment: The NC Coastal Habitat Protection Plan (CHPP) originated with the Fisheries Reform Act of 1997 (FRA). The FRA changed the way fisheries are managed in North Carolina. The initial CHPP was adopted in late 2004 and implementation began in 2005. Since then, the CHPP was rewritten in 2010 and 2016. In late 2021, an amendment to the CHPP was adopted by the three NC regulatory bodies with water quality and fisheries oversight – Coastal Resources, Environmental Management and Marine Fisheries Commissions. APNEP staff were heavily involved in the development of the 2021 CHPP Amendment, Issue Papers, workshops, and campaigns to raise public awareness about the CHPP throughout the review period. The amendment focuses on and identifies five primary areas where improving water quality is critical including: 1) SAV protection and restoration through water quality improvements, 2) Wetland protection and restoration through nature-based solutions, 3) Environmental rule compliance to protect coastal habitats, 4) Wastewater infrastructure solutions for water quality improvement, and 5) Coastal habitat mapping and monitoring to assess status and trends. APNEP's projects

and initiatives related to SAV monitoring and assessment are strongly tied to CHPP implementation. Staff and Management Conference members participate in efforts and initiatives to support CHPP implementation including the CHPP Public-Private Partnership (PPP) group, NC Oyster Blueprint, and the Living Shorelines Action Team, in addition to coordinating within NCDEQ to ensure the CHPP and CCMP are coordinated in an integrated fashion. [Learn more.](#)

Status/ Year(s): 2004-Present

Partners: NC Dept. of Environmental Quality, NC Division of Coastal Management, NC Division of Marine Fisheries, NC Coastal Federation, NC Coastal Resources Commission, NC Environmental Management Commission, NC Marine Fisheries Commission, others

Outputs/Deliverables: 2021 CHPP Amendment, PPP group

Outcomes: Improved habitat management and monitoring, improved water quality, coordinated activities and regulation across NC state agencies to improve estuarine habitats

FY2017-22 Cost: Staff time

Estimated Leverage: \$76,000

CCMP Actions: A1.1, A2.3, A2.4, B1.2, B1.3, B1.4, B1.5, B2.2, B3.2, B3.3, C1.3, C1.4, C1.5, C2.2, C3.2, C3.3, C4.2, C4.3, C5.1, C5.2, C5.3, D1.2, D1.4, E1.2

CCMP Outcomes: 1a, 1b, 1c, 1d, 2a, 2b, 2c, 3b, 3c, 3d

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Direct Assistance, Habitats, Living Resources

Clean Waters

Central to APNEP's mission as a program authorized by the Clean Water Act is protecting and restoring the Albemarle-Pamlico region's waters. Over the past five years of CCMP implementation, APNEP has assisted NCDEQ with the formation and facilitation of a Scientific Advisory Council for Albemarle Sound as a pilot for statewide nutrient criteria development and been a primary supporter of research to inform development of water quality standards in estuarine waters of North Carolina. Through both staff-led initiatives and assistance from Management Conference members, the Partnership has assisted in promoting linkages between water quality and coastal habitat protection with an emphasis on SAV as a focus area, and continued development of indicators, metrics, and integrated monitoring plans. In addition, APNEP has provided multi-year support for several key initiatives that focus on the relationship between water quality and public health. Highlighted initiatives and projects are shown below:

Development of Integrated Monitoring Plan: With the input of APNEP's Science and Technical Advisory Committee (STAC), staff developed a proof-of-concept Integrated Monitoring Plan with an initial scope focused on coastal SAV and estuarine water quality metrics associated with SAV habitats. The initial plan was accepted by the Leadership Council in March 2021, and work is currently underway on enhancing the water quality monitoring aspects of the plan.

Year(s): Ongoing (Phase 1 complete) / 2017 - Present

Partners: STAC, MATs

Outputs/Deliverables: List of indicators and metrics for the Albemarle-Pamlico region, Integrated Monitoring Plan.

Outcomes: Improved understanding of the status and trends of APES, detection of environmental changes in support of CCMP implementation.

FY2017-22 Cost: Staff Time

Estimated Leverage: \$13,400

CCMP Actions: E1.1, E1.2, E1.3, E2.1, E2.2

CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Healthy Communities, Direct Assistance

SAV-Water Quality Workshop: In March 2020, APNEP led a coordinated effort to host a full-day workshop called “Clean Waters and SAV: Making the Connection” that brought together regional experts in both water quality and SAV to discuss linkages between the two resources. The recommendations and priorities developed during the workshop were synthesized in a summary report and used to inform the 2021 CHPP Amendment described above. The workshop discussion was also used to identify short-term actions for APNEP and partners to focus on to protect SAV within the Albemarle-Pamlico region. [Learn more.](#)

Status/ Year(s): Complete/ 2020

Partners: NC Dept. of Environmental Quality, NC Division of Marine Fisheries, Pew Charitable Trusts, STAC, NC Division of Water Resources, Chesapeake Bay Program, CoastWise Partners, UNC-IMS, others

Outputs/Deliverables: Workshop, Summary Report

Outcomes: Strategy for linking SAV and water quality protection

FY2017-22 Cost: \$ 20,000

Estimated Leverage: \$ 31,148

CCMP Actions: B2.2, C3.3, D3.1

CCMP Outcomes: 2b, 3b, 3c, 3d

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Habitats, Water Quality

NC Nutrient Criteria Development Plan Support: APNEP staff and select STAC members are active in the NC Nutrient Criteria Development Plan (NCDP) process, now focused on the Albemarle Sound and Chowan River. Staff assisted the NC Division of Water Resources (NCDWR) with gaining a complete understanding of the system and recommended candidates for the NCDP’s Scientific Advisory Council (SAC) who are experts in high- and low-salinity SAV, and water quality issues. NCDWR has selected SAV as a biological indicator for the health of the Albemarle Sound and Chowan River. APNEP staff will continue to actively participate in nutrient criteria development for the Albemarle Sound and Chowan River until recommendations are accepted by NCDWR, approved by the NC Environmental Management Commission, and submitted to EPA. To further APNEP indicators, metrics, and monitoring and assessment activities, along with supporting NC’s NCDP, APNEP developed the following projects:

Development of Chlorophyll-*a* Standards for SAV Protection: To set SAV protection and restoration goals for the Albemarle-Pamlico Estuarine System and make the connection to needed nutrient and sediment load reductions, quantitative linkages between chlorophyll-*a* concentrations and SAV light requirements are needed. APNEP contracted with the UNC Institute for Marine Sciences (IMS) to develop recommendations for scientifically defensible chlorophyll-*a* standards that are protective of SAV in high- and low-salinity zones. A final report is available [here](#).

Status/ Year(s): Complete/ 2020-2021

Partners: UNC Institute of Marine Sciences, APNEP SAV Team

Outputs/Deliverables: A final [report](#) that provides 1) a description of chlorophyll-*a* and turbidity thresholds protective of high- and low-salinity SAV habitats including quantification of uncertainty in those thresholds; 2) documentation of the data sets and data analyses to validate the bio-optical model or similarly functioning empirical models for determining thresholds; and 3) identification of data gaps that could improve threshold estimates. Presentations of project findings were given to the APNEP Management Conference and NCDP-SAC, and at the 2022 Annual Conference of the NC Water Resources Research Institute.

Outcomes: Scientifically defensible water clarity standards that are protective of SAV for high-salinity zones of APES. Identification of data gaps and model recalibration needed to develop scientifically defensible water clarity standards that are protective for low-salinity zones of APES (see next project).

FY2017-22 Cost: \$ 24,751

Estimated Leverage: \$ 10,000

CCMP Actions: A1.1, B2.2., C1.1., C1.2, C3.3, E1.1

CCMP Outcomes: 2b, 3b

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Habitats, Water Quality

Calibration of a bio-optical model for low-salinity SAV: To set SAV protection and restoration goals for APES and make the connection to needed nutrient and sediment load reductions, quantitative linkages between chlorophyll-*a* concentrations and SAV light requirements are needed. APNEP previously contracted with the UNC IMS to conduct this analysis for both high- and low-salinity SAV. While the bio-optical model performed well for APES high-salinity waters where it was originally developed, further calibration is needed to utilize the model for low-salinity SAV. Extensive compilation and review of available water quality data revealed limited measurements of the critical parameters, CDOM and PAR, in low-salinity waters that are necessary for further calibration of the bio-optical model. This project will collect these data, calibrate the model, and develop recommendations for scientifically defensible chlorophyll-*a* standards that are protective of SAV for low-salinity zones. These findings, in association with the findings for high-salinity SAV, will help guide the development of water quality management strategies for the protection of SAV, particularly through the CHPP and NCDP.

Status/ Year(s): Ongoing/ 2021 - Present

Partners: UNC Institute of Marine Sciences, APNEP SAV Team, NC Division of Water Resources

Outputs/Deliverables: A final report that provides 1) a description of chlorophyll-*a* thresholds protective of low-salinity SAV habitats including quantification of uncertainty in those thresholds; 2) documentation of the data sets and data analyses to validate the bio-optical model or similarly functioning empirical models for determining thresholds; and 3) identification of data gaps that could improve threshold estimates. An oral presentation of project findings to the APNEP Management Conference, the NC NCDP-SAC and other groups decided by APNEP.

Outcomes: Scientifically defensible chlorophyll-*a* and turbidity standards that are protective of SAV within APES low-salinity zones.

FY2017-22 Cost: \$ 24,000

Estimated Leverage: \$ 6,000

CCMP Actions: A1.1, B2.2., C1.1., C1.2, C3.3, E1.1

CCMP Outcomes: 2b, 3b

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Habitats, Water Quality

Fill Data Gaps on Optical Water Quality Constituents in Currituck Sound: Currituck Sound historically hosted expansive low-salinity SAV that provided critical habitats for fish and forage for migratory waterfowl. Since the 1960's, water clarity deterioration due to non-point source nutrient and sediment pollution have caused significant declines in SAV coverage but the remaining SAV of Currituck Sound still constitute an important fraction of North Carolina's low-salinity SAV habitats. Understanding the causes of light attenuation for SAV in Currituck Sound is important for developing strategies to restore SAV coverage but this goal is hampered by a general lack of useable data on the optical water quality constituents that drive light attenuation. Additionally, the bio-optical model that is being used to develop water quality thresholds for protecting SAV within APES does not currently perform well in low-salinity SAV waters like Currituck Sound and requires recalibration for low-salinity estuarine waters (see previous project). The U.S. Army Corps of Engineers (USACE) Field Research Facility (FRF) in Duck, North Carolina, and the East Carolina University (ECU) Coastal Studies Institute (CSI) deployed continuous monitoring instrumentation to produce an extensive dataset of these water quality parameters with turbidity as NTU but both CDOM and chlorophyll *a* were measured in arbitrary fluorescent units (AFU) and are currently unusable for quantifying light attenuation and defining thresholds for protecting SAV. USACE-FRF collected high temporal resolution (15-minute) turbidity (NTU), CDOM (AFU), chlorophyll *a* (AFU), and diffuse attenuation of photosynthetically active radiation (KdPAR) datasets at five research platforms in Currituck Sound from 2016 to 2018. Additionally, from 2018 to 2019, ECU-CSI and USACE-FRF partnered to deploy two instrumented benthic landers that measured these parameters in the same units.

Status/ Year(s): Ongoing / 2022-Present

Partners: UNC Institute of Marine Sciences, ECU Coastal Studies Institute, USACE, APNEP SAV Team, APNEP Water Quality MAT

Outputs/Deliverables: The final report for the larger bio-optical model recalibration project that will incorporate the results funded by this supplement.

Outcomes: Scientifically defensible chlorophyll-*a* and turbidity standards that are protective of SAV within APES low-salinity zones.

FY2017-22 Cost: \$ 4,993

Estimated Leverage: \$ This project leverages data previously collected by USACE and ECU for new purposes

CCMP Actions: A1.1, B2.2., C1.1., C1.2, C3.3, E1.1

CCMP Outcomes: 2b, 3b

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Habitats, Water Quality

Coastal Plain Ecological Flows Evaluation: APNEP has led an Ecological Flows Action Team since 2015 at the request of partners that participated in the NC Ecological Flows Science Advisory Board (EFSAB) to address data gaps and needs identified by members of EFSAB’s Coastal Ecological Flows Working Group. During the PE period the team met frequently and developed guidance for an assessment and compilation of ecological flow-related data in the Albemarle-Pamlico region, and to develop research questions and criteria for establishing flow-ecology relationships in the coastal plain. APNEP provided funds to team co-lead Dr. Mike O’Driscoll and colleagues at ECU to conduct the Phase I study, [Existing Data for Evaluating Coastal Plain Ecological Flows in the Albemarle-Pamlico Estuary Region](#), completed in 2018. The ECU Team is currently working on the Phase II Study to conduct pilot studies in selected watersheds and develop an evaluation process to inform development of ecological flows in the coastal plain. The Phase II Study is expected to be completed in 2023.

Status/ Year(s): Ongoing /2015 – present

Partners: East Carolina University, APNEP Ecological Flows Team members (multiple partners), NC Land of Water (NCLW)

Outputs/Deliverables: Phase I & II Pilot Study Summary Reports

Outcomes: Refinement of data needed to develop recommendations for the NC Division of Water Resources for ecological flows in the NC coastal plain. Development of an evaluation process, decision tree, or matrix that can be replicated in other waterbodies.

FY2017-22 Cost: \$ 68,435

Estimated Leverage: \$ 45,478

CCMP Actions: A3.3, D3.2, E2.2

CCMP Outcomes: 2a, 2b, 3a, 2b

CWA Core Programs: (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Habitats, Water Quality

Recreational Water Quality Monitoring: APNEP continued to provide support to the NC-DMF Recreational Water Quality Monitoring Program for the continuation of water quality monitoring near recreational areas at select sites along the estuarine shorelines in the APNEP region. The program tests bacterial concentrations and is responsible for notifying the public when bacteriological standards for safe bodily contact have been exceeded. The program also has an educational component that accompanies the testing, which informs the public about how bacteria enter coastal waters and what actions can help prevent it. Advisories are available [here](#).

Year(s): Ongoing /2014 - Present

Partners: NC Division of Marine Fisheries

Outputs/Deliverables: *Enterococci* bacteria data for approximately 30 recreational water quality testing sites.

Outcomes: CCMP Implementation, integrated monitoring strategy.

FY2017-22Cost: \$ 18,594

Estimated Leverage: \$ 283,000

CCMP Actions: D2.3, E1.1, E2.1, E2.2

CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d

CWA Core Programs: (4) addressing diffuse, nonpoint sources of pollution, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Water Quality, Healthy Communities

Water Quality Data Reporting Tool: This project expanded and refined an interactive tool (wqReport) to automate the download, preparation, and summary of water quality data from actively maintained databases (e.g., National Water Quality Monitoring Council data portal) in support of reporting needs for both the U.S. Fish and Wildlife Service (USFWS) and APNEP. The tool provides options for regional (refuge, HUC-10, or HUC-8 scale) reporting for national and state water quality data relevant to National Wildlife Refuge (NWR) management and APNEP ecosystem assessment and CCMP implementation. We anticipate this tool will significantly improve the capability of APNEP staff and partners to accurately and consistently assess and report on the status and trends of water quality indicators of ecosystem health for the Albemarle-Pamlico estuarine system. Furthermore, this tool was developed with the flexibility needed to permit future modifications (e.g., new parameters, benchmarks, or data sources) as necessary to support APNEP’s monitoring and assessment initiatives over the long-term.

Most of this project was funded by USFWS through an interagency agreement with the U.S. Geological Survey who performed the work needed to expand and streamline the R coding. In collaboration with USFWS on this project, APNEP funded the work of a regional water quality expert, Dr. Nathan Hall at the University of North Carolina at Chapel Hill Institute of Marine Sciences to significantly expand the tool’s list of parameters with associated benchmarks to include indicators and metrics approved by the APNEP STAC for the monitoring and assessment of water resources in the Albemarle-Pamlico estuarine system. Additionally, Dr. Hall also worked with the USGS coders to refine data analysis and graphical and textual display functionalities of the tool. More information about the wqReport R package can be found [here](#).

Status/ Year(s): Ongoing /2022 – present

Partners: USFWS, UNC-Institute of Marine Sciences, USGS

Outputs/Deliverables: A tool to create water quality reports for user-specified Hydrologic Unit Code (HUC) boundaries (8- or 10-digit HUC services are available).

Outcomes: We anticipate that automated reporting can reduce data management tasks to allow more time to strengthen analysis and planning, increase field testing and monitoring, or act upon the identified water resources concerns.

FY2017-22 Cost: \$ 9,038

Estimated Leverage: \$ 90,000

CCMP Actions: E1.1, E1.2, E2.2

CCMP Outcomes: 1a, 1b, 1c, 2b, 2c, 3a, 3b, 3c, 3d

CWA Core Programs: (4) addressing diffuse, nonpoint sources of pollution, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Habitats, Water Quality, Healthy Communities

Strong Communities (including climate & resilience)

Since APNEP’s first CCMP was approved nearly 30 years ago, the Partnership has strived to increase public engagement in the management of its significant resources, understanding the threats to these resources, and implementing actions required to address them. A shift from management methods presented in the previous CCMP (1994) is most notably evident in the integration of ecosystem-based management practices. Ecosystem-based management (EBM) includes consideration of human and natural systems, an adaptive management framework, and meaningful engagement with the region’s citizens to find environmental management and policy solutions. Strong resilient ecosystems and human communities are essential for the

sustainability of the region. APNEP’s strength lies in its ability to successfully act as both a facilitator and collaborator of work on behalf of Albemarle-Pamlico Estuarine System by bringing together contributions, resources, and collaborators across the watershed to address essential actions identified in the CCMP.

SAV Economic Valuation: APNEP contracted with the NC State University Center for Environmental and Resource Economic Policy to fund an analysis of SAV’s economic value within the Albemarle-Pamlico region. An intern assisted with creating infographics and social media campaigns to communicate the results to the public and local governments and illustrate the value of protecting SAV to benefit the local and regional economy, helping support not only SAV CCMP actions, but those geared towards educating the public and decision makers on value of ecosystem services provided by the rich resources of the Albemarle-Pamlico region. This resource builds upon other economic studies funded by the Partnership, creating a niche for APNEP to support its partners. The final report is available [here](#).

- Year(s):** Complete / 2019-2021
- Partners:** N.C. State University, NC Sea Grant, NC Division of Marine Fisheries, STAC
- Outputs/Deliverables:** Economic analysis report
- Outcomes:** Increased awareness and appreciation for the value of North Carolina’s coastal SAV, enhanced environmental – natural resource stewardship
- FY2017-20 Cost:** \$ 68,193
- Estimated Leverage:** \$ 2,000
- CCMP Actions:** B2.2, C3.3
- CCMP Outcomes:** 2a, 2b
- CWA Core Programs:** (6) protecting coastal waters through the National Estuary Program
- EPA Element(s):** Living Resources, Habitats

Engagement and Stewardship: APNEP funded numerous environmental education and outreach projects from 2017-2022, building upon a long history of raising awareness of the importance of the Albemarle-Pamlico estuarine system, fostering environmental stewardship, volunteerism, and supporting partner initiatives. Details on each project can be found in the Annual Work Plans.

With input from its Engagement and Stewardship Action Team, APNEP launched a new Engagement and Stewardship Request for Proposals during summer 2021. An independent review committee of environmental education and outreach professionals selected the following two projects through a competitive evaluation and ranking process:

Following the River: An Exploration of the Virginia Southern Watersheds/ Pasquotank River Basin:

During 2021-22, Lynnhaven River NOW (LRNow) created a resource guide and lesson plans for educators in southeastern Virginia and northeastern North Carolina to increase knowledge about the unique history and natural resources of the region and connections of the shared waterways between the two states. The program included two unique, immersive teacher training experiences in the southern watersheds of Virginia Beach that flow into North Carolina’s Pasquotank River Basin and the Albemarle Sound. The contract was renewed for FY2023.

- Status/ Year(s):** Ongoing / 2021-22 (Year 1)
- Partners:** Lynnhaven River NOW, US Fish and Wildlife Back Bay National Wildlife Refuge, Weasel Creek Watershed Expeditions, VA Department of Conservation and Recreation

Outputs/Deliverables: Two unique immersive teacher trainings. Create a resource guide and lesson plans about the upper part of the watershed in Virginia that would be available online for both North Carolina and Virginia Beach teachers. Expand upon existing North Carolina Pasquotank River Basin booklets to include maps and information about the Virginia portion of this river basin.

Outcomes: Increased awareness and understanding of Virginia's connection to APES, enhanced environmental – natural resource stewardship.

FY2021-22 Cost: \$ 20,000

Estimated Leverage: \$ 27,970

CCMP Actions: D1.1, D2.1, D2.2

CCMP Outcomes: 1a, 1b, 1d, 2a, 2c, 3b

CWA Core Programs: (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Trainings, Direct Assistance

Shad in the Classroom (Year 1): The Friends of the North Carolina Museum of Natural Sciences was awarded funds to support the Museum in continuing their Shad in the Classroom program. The program trains teachers to facilitate classroom learning about water quality, American Shad ecology, riverine and coastal ecosystems, and careers in science. The project engages students and teachers in hands on learning during workshops and field experiences. The contract was renewed for FY2023.

Status/ Year(s): Ongoing/ 2021-22

Partners: NC Museum of Natural Sciences (Lead), US Fish and Wildlife Service, NC Wildlife Resources Commission, NCSU, ECU, Friends of the NC Museum of Natural Sciences

Outputs/Deliverables: American Shad fry released into the Neuse River in conjunction with USFWS and NCWRC restoration efforts, ~30 educators/year trained on rearing and releasing American Shad, 1000+ students participating/year.

Outcomes: Increased community involvement in water quality and habitat protection, enhanced environmental – natural resource stewardship

FY2017-22 Cost: \$ 60,000

Estimated Leverage: \$ 31,000

CCMP Actions: D2.1, D2.2, D2.3

CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b

CWA Core Programs: (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Trainings, Direct Assistance

Continuation of Long-Term Watershed Engagement Projects: APNEP continued long-term support and funding for education and engagement projects “Shad in the Classroom” and the “Summer Teacher Institute” during the much of the evaluation period prior to initiating the new RFP process described above.

Summer Teacher Institute: APNEP's long-term support for the Summer Teacher Institute, a multi-day environmental and outdoor education professional development opportunity for the region's

educators, has reached approximately 25 teachers each year since its inception in 2004. During the review period, APNEP funded the program five times from 2017-2021. The project was discontinued following summer 2021 as funds were posted to an RFP for new education and engagement activities. [Learn more.](#)

Status/ Year(s): Complete/ 2017 – 2021

Partners: UNC Institute for the Environment (Lead), NC Museum of Natural Sciences, North Carolina Coastal Federation, EPA, NCSG, NC Aquariums

Outputs/Deliverables: Approximately 25 teachers per year trained in hands-on, outdoor environmental education, water quality, and watershed curricula

Outcomes: Increased use of environmental education curricula in North Carolina schools, enhanced environmental – natural resource stewardship.

FY2027-22 Cost: \$ 100,000

Estimated Leverage: \$ 60,000

CCMP Actions: D2.1, D2.2, D2.3

CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b

CWA Core Programs: (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Trainings, Direct Assistance

Shad in the Classroom: Long-term APNEP support for the NC Museum of Natural Science's Shad in the Classroom program has reached approximately 30 educators each year since 2011, and through those educators over 1000 students each year. This initiative has consistently grown since its inception, with demand that outstrips the program's capacity to accommodate additional classroom participation. APNEP staff aid with egg deliveries to schools and shad release day events. After 2020, the project was selected for a new contract by Engagement Action Team (see above).

Status/ Year(s): Complete / 2017-2021

Partners: NC Museum of Natural Sciences (Lead), US Fish and Wildlife Service, NC Wildlife Resources Commission, NCSU, ECU, Friends of the NC Museum of Natural Sciences

Outputs/Deliverables: American Shad fry released into the Neuse River in conjunction with USFWS and NCWRC restoration efforts, ~30 educators/year trained on rearing and releasing American Shad, 1000+ students participating/year.

Outcomes: Increased community involvement in water quality and habitat protection, enhanced environmental – natural resource stewardship

FY2017-22 Cost: \$ 100,000

Estimated Leverage: \$ 60,000

CCMP Actions: D2.1, D2.2, D2.3

CCMP Outcomes: 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 3b

CWA Core Programs: (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Trainings, Direct Assistance

Tribal Coastal Resilience Connections: Using supplemental EPA 320 funds designated to work with underserved and under-represented communities on climate resilience, APNEP partnered with the NC Commission of Indian Affairs (NCCIA), NC State University (NCSU) {faculty now at Duke University}, and the Virginia Coastal Policy Center to work with tribal communities in the Albemarle-Pamlico region and learn from other Tribes throughout the nearby coastal plain. Our involvement in this effort stemmed from participation in the EO80 Resilience efforts described elsewhere in this narrative and was a direct result of staff recognizing and leading efforts to fill gaps to support partner-led initiatives. At the time (2019), Tribes were not represented in agency efforts to include local governments and communities in developing statewide coastal resilience plans. The goal of this initiative is to develop a strategy for incorporating resilience into tribal planning and community engagement processes. The Tribal Coastal Resilience Team has been successful in generating research on tribal engagement in climate and resilience planning efforts throughout the U.S., launching a social media campaign, conducting outreach at conferences and events, and creating partnerships and building the groundwork for a sustainable program. The second phase of the project was initiated in 2022.

Status/ Year(s): 2019-Present

Partners: NC Commission of Indian Affairs, NC State University, Virginia Coastal Policy Center, Duke University, NC Dept. of Environmental Quality

Outputs/Deliverables: Comparative analysis of engagement approaches, focus group discussions, workshops, project summaries, asset mapping, risk & vulnerability assessments, social media engagement, recommendations for inclusion in state and local climate risk and resilience plans.

Outcomes: Increase in the number of communities in the APNEP region that incorporate resilience into local planning processes.

FY2017-22 Cost: \$ 37,500

Estimated Leverage: \$ 27,500

CCMP Actions: D3.3

CCMP Outcomes: 1a, 1b, 1d, 1e, 2a, 2b, 2c, 3a, 3b, 3c, 3d

CWA Core Programs: (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Healthy Communities, Direct Assistance

Scuppernong Study Facilitation: At the request of the NC Division of Parks and Recreation, APNEP has been leading development of the Scuppernong Regional Water Management Study since 2018, serving as a neutral, science-based convenor of a diverse group of stakeholders and local communities to address flooding and water management issues on the northern Albemarle-Pamlico peninsula. APNEP facilitated a partnership to develop a collaborative approach for a hydrologic study that will characterize the hydrology of the region, update water management plans, and address recurrent flooding. APNEP partnered with the NC Coastal Reserve, NC Sea Grant, and The Nature Conservancy to secure additional funding to develop a collaborative engagement strategy to ensure equitable community engagement and input from regional stakeholders. Staff spent significant time during the evaluation period coordinating with technical partners and stakeholders, preparing grant applications, and securing partners, grant funding, and match for the project. The outcomes from the study will be utilized to build a comprehensive plan to address water management issues on both privately and publicly owned land. Funding was awarded from the NCDEQ Water Resources Development Grant for the Study and NOAA / National Estuarine Research Reserve Association for the Strategy after the end of this evaluation period. The project teams have been actively

meeting and we look forward to reporting completion of a successful project in more detail during the next PE period. [Learn More](#)

Status/ Year(s): Ongoing / 2018-2022

Partners: NC-DEQ, NC Department of Agriculture and Consumer Services, Washington County, NC Division of Parks, and Recreation, USFWS, NC Cooperative Extension, Albemarle Commission, Tyrrell County

Outputs/Deliverables: Water budget for Washington County, basis for development of collaborative regional water management strategies

Outcomes: Improved management of follow, community and ecosystem resilience, integrated management, improved water quality, habitat access

FY2017-22 Cost: Staff Time

Estimated Leverage: \$ 10,000

CCMP Actions: A3.1, B2.3, C2.3

CCMP Outcomes: 2a, 2b, 3d

CWA Core Programs: (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Healthy Communities, Direct Assistance, Water Quality, Habitats, Living Resources

North Carolina - Virginia Memorandum of Understanding (2017 & 2020): Facilitated by APNEP, six environmental and natural resources agencies from North Carolina and Virginia signed a Memorandum of Understanding (MOU) that re-affirms their commitment to foster interstate collaboration within the shared waterways of the Albemarle-Pamlico region. The MOU will assist agencies in coordinating with APNEP to tackle regional issues such as nonpoint source pollution, restoring fish passage and spawning habitat, controlling invasive species, and assisting communities in incorporating climate change and sea level rise considerations into their planning processes. APNEP significantly strengthened relationships with partners in Virginia during the review period and participated in several initiatives and events in support of MOU implementation. A [report](#) on coordination, data sharing, and assessment of interstate initiatives was released in 2021.

Year(s): 2017 – Present

Partners: NC-DEQ, NC-DNCR, NC-WRC, NC-DACS, Virginia Secretary of Natural Resources, Virginia Secretary of Agriculture and Forestry.

Outputs/Deliverables: Reports, annual work plan, recommendations, new partnerships and activities in Virginia and North Carolina focused on protecting and restoring the region.

Outcomes: Increased capacity to implement the CCMP.

FY2017-22 Cost: Staff Time

Estimated Leverage: \$6,000

CCMP Actions: All

CCMP Outcomes: All

CWA Core Programs: (2) identifying polluted waters and developing plans to restore them, (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Healthy Communities, Direct Assistance

Installation of Albemarle-Pamlico Estuary Highway Signs: APNEP worked with the NC Department of Transportation to design, manufacture, install and maintain highway signs at the watershed boundary along six major roadways into the Albemarle-Pamlico watershed. These signs were installed in 2019 and 2020 to raise awareness of the extent of the region and of the connectivity from headwaters to the coast. NC DOT will maintain the signs. [Learn more.](#)

Year(s): 2012-2020

Partners: NC-DEQ, NC-DOT

Outputs/Deliverables: Six signs installed at the intersections of major North Carolina highways with the Albemarle-Pamlico watershed boundary

Outcomes: Increased public awareness of the Albemarle-Pamlico watershed.

FY2017-22 Cost: \$35,000

Estimated Leverage: \$2,000+

CCMP Actions: D1, D2

CCMP Outcomes: 1e, 2a

CWA Core Programs: (6) protecting coastal waters through the National Estuary Program

EPA Element(s): Healthy Communities, Direct Assistance

Leveraging Funds: Cumulative Total of Leveraged Funds

APNEP actively seeks alternative and supportive funding sources for activities and projects to support CCMP goals. In addition, APNEP pursues additional avenues for collaborating with partners to assist in targeting program funds towards CCMP and basin-wide goals. Where possible, APNEP works to cost-share projects to increase the effectiveness or the magnitude of projects, even though in several cases APNEP has not been the primary catalyst for a project or activity but is an active collaborator.

The following data (Table 1) provided by the EPA from the National Estuary Program Online Reporting Tool (NEPORT) database presents total (primary and significant) leveraging information for the APNEP for FY 2018-2022.

Year	Annual 320 Allocation	Total \$ Leverage	Total Leveraged Ratio
2018	\$600,000	\$7,331,930	12.2
2019	\$600,000	\$9,872,000	16.5
2020	\$625,000	\$38,000,283	60.8
2021	\$662,500	\$1,017,780,131	1536.3
2022	\$700,000	\$271,516,998	387.9
	\$3,187,500	\$1,339,081,100	423.4

TABLE 1: Total (primary and significant) leverage for FY 2018-2022.

Protecting the Habitat: Cumulative Total of Acres Protected or Restored

NEPORT data provided by the EPA (Table 2) documented that the APNEP and our watershed partners protected, restored, or maintained 45,889 acres in FY 2018-2022.

Habitat Type	Total Acres
Agriculture/Ranch Land	6515.941
Beach	4
Dune	0.01
Estuarine Shoreline	363.472
Estuarine Water Column	1.01
Field/Meadow	25
Forest/Woodland	16797.452
Forested Wetland	4845.826
Freshwater Marsh	5347
Hard Bottom	260.42
In-Stream	627.41
Other	0.839
Riparian	9976.452
Salt Marsh	717.77
Shell Bottom	405.96
Total Acres	45888.562

TABLE 2: Total Acres protected, restored, or maintained in the APNEP Region for FY 2018-2022

Topic 2: NEP Program Implementation

The following describes APNEP's organizational and operational health and functionality to demonstrate a successful path forward for overcoming challenges and achieving current and future CCMP goals. A budget summary of how EPA funding and match has been used since the last program evaluation is also included.

NEP Administration and Governance Structure

How does the NEP organizational structure provide a clear and transparent decision-making process for actions based on both stakeholders' priorities and good science, facilitate decision-making autonomy for the Management Conference from the host entity, and allow the NEP to be seen as a leader in watershed management?

APNEP's current governance structure consists of three interconnected entities: Management Conference (Leadership Council, Science and Technical Advisory Committee, Citizen Advisory Committee), Staff, and the Partnerships.

Management Conference: The Management Conference is the core for guiding the work of APNEP. It consists of three groups of diverse stakeholders and uses a collaborative, consensus-building approach to implement the CCMP. The Management Conference ensures that the CCMP and its implementation is uniquely tailored to the local environmental conditions and priorities.

The initial membership of each of the bodies of the Management Conference was established by [North Carolina Governor's Executive Order #250 \(2022\)](#); from 2017 to 2022 it was authorized under [Executive Order #26](#). The Leadership Council and each of the advisory committees is encouraged to expand their members and fill vacancies to meet programmatic goals and implement APNEP's [2020 Diversity, Equity, and Inclusion Statement](#) described below.

The Management Conference represents individuals and organizations with a stake in the work of the Partnership, including citizens, federal and state agencies, local governments, and non-government organizations. While some members of the Partnership serve on the Management Conference, others (such as some non-government organizations or associations, and most local governments) are not directly represented.

Each body establishes its own operating procedures or bylaws. All Leadership Council and Advisory Committee meetings are open to the public and publicized on the APNEP website and other outlets.

Leadership Council: The Leadership Council works with staff, advisory committees, and other groups to advise, support, evaluate, update, advocate for, and guide CCMP implementation. The Leadership Council is the primary guidance body for APNEP. The Leadership Council meets generally two to three times a year, though they meet as often as needed to address issues raised by the staff or the advisory committees.

Science & Technical Advisory Committee: The Science and Technical Advisory Committee provides independent advice to the Leadership Council and the Citizen Advisory Committee on scientific and technical issues, including ecosystem assessment and monitoring in support of CCMP implementation. The membership of the Science and Technical Advisory Committee is broad-based and may include scientists and technologists from local colleges, universities, and research institutes as well as technical staff from federal and local agencies, industry, and environmental organizations,

with expertise in science and technology relevant to environment and natural resource management in the Albemarle-Pamlico estuarine system.

Citizen Advisory Committee: The Citizen Advisory Committee works with the Leadership Council and the Science and Technical Advisory Committee on CCMP implementation and meaningful community engagement activities. Committee members serve as liaisons to citizens, agencies, tribes, and relevant parties regarding environmental and natural resource management relevant to CCMP implementation. The Committee works to engage diverse communities and populations in its decisions and represent diverse perspectives within the Management Conference. The membership of the Citizen Advisory Committee is broad-based and may include the following natural resource management interests within the Albemarle-Pamlico estuarine system: local governments; local or regional planning; environmental equity; commerce and industry; education; recreation; tourism; fishing or seafood industry; agriculture; forestry; military; tribal organizations; local, state, or national conservation organizations; soil and water conservation districts; finance; communications and media; local and state agencies; and federal agencies.

Staff: The [North Carolina Governor's Executive Order #250 \(2022\)](#) also states that the Office shall be in the North Carolina Department of Environmental Quality to coordinate and facilitate CCMP implementation and support APNEP's mission. It also states the Office shall consist of the Director of the Office along with the requisite staff necessary to meet the needs identified by the Management Conference. During approximately the second half of the evaluation period, staff was reduced due to vacancies. Staff receive additional NC DEQ administrative, budget and outreach support, as well as project-based temporary employees, seasonal interns, graduate interns, and fellows. All staff are governed by the rules and regulations regarding North Carolina State employees.

The Partnership: The Partnership consists of the numerous individuals and organizations throughout the program area and beyond, who contribute to our work on behalf of the Albemarle-Pamlico Estuarine System that are not a part of the formal Management Conference structure.

It is critical that APNEP remains a trusted facilitator, convenor, collaborator, and neutral source of sound scientific information. As such, APNEP follows ethics and public transparency protocols established by the State of North Carolina under its host the North Carolina Department of Environmental Quality. Additionally, to avoid conflict, Management Conference members are reminded to identify potential personal or organizational conflicts of interest at the beginning of each meeting. Recusal is required if discussing funding for an organization with whom a Management Conference member is associated. When APNEP offer Requests for Proposals or develops contracts it follows the federal grant requirements and the appropriated rules and regulations set by the State.

Annual workplans and budgets are developed by staff based principally on input from the Leadership Council. Staff often reaches out to other organizations for discussion of emerging project concepts. Workplans and budgets are drafted and reviewed by the Leadership Council in the spring each year. An approved workplan provides the narrative required for the annual 320 grant application submitted by APNEP under NC DEQ.

How is the NEP ensuring that its Management Committee includes input from diverse populations and interests?

APNEP's [Engagement Strategy](#) assesses the structure of APNEP's Management Conference and provides recommendations for the Partnership to improve upon engagement with a variety of community members and stakeholders. It recognizes the Partnership's long history of striving to be an organization that reflects the diverse populations and interests of the watershed. In 2019, APNEP began a formal process to ensure that Diversity, Equity, Inclusion, and Justice (DEIJ) principles were addressed in a more focused manner. Staff in coordination with the Leadership Council established APNEP's [2020 Diversity, Equity, and Inclusion Statement](#). The DEI statement accompanies the Engagement Strategy and provides more focused guidelines and a specific set of commitments for Management Conference members and staff to follow.

The DEI statement, affirmed September 1, 2020, highlights that increasing diversity, equity, and inclusion through our work is integral to our ecosystem-based management perspective, which views human communities as a vital component of the overall ecosystem. We are committed to approaching this work in a way that is inclusive of diverse connections to the environment, inclusive of perspectives that may otherwise be unheard, and increases equity through ecosystem protection and restoration efforts.

APNEP staff and the Management Conference recognize that there are still gains to be made to increase our partnerships and interactions with diverse populations, interests, and concerns for sound environmental and natural resource management and building resiliency in the Albemarle-Pamlico region. We are committed to engaging communities and stakeholders that are representative of the broader populations within our programmatic boundaries to implement and update the Comprehensive Conservation and Management Plan (CCMP) and the Partnership's Mission.

Since 2020, the STAC leadership has held several meetings to strategize ways to enhance diversity of the committee. Additionally, NC DEQ has provided numerous trainings for staff over the past few years with a focus on equity, unconscious bias, and other related topics. APNEP have started implementing the specific DEI commitments and will continue to evaluate its progress in annual workplans and reports and set annual goals to ensure the commitments are met. DEI efforts are further discussed in more detail below.

How do the NEP's staffing structure and planning promote stability and continuity of succession?

APNEP has a small core staff, so formal planning for succession is limited. Currently all staff are relatively senior. Regular staff meetings mean we are all aware of the work of other members of the team. APNEP projects often involve more than one staff member and staff regularly integrate and collaborate on projects.

How does the NEP plan to continue operations during emergencies?

APNEP participates in the NC DEQ Contingency Operation Plans as a unit of the Deputy Secretary's Office. The plan provides direction in the events that may impact the ability of the Department and its many programs to operate. Regardless, staff took steps to perform many of our core functions remotely years ago with the use of cell phones and hotspots, laptop computers, and the internet. Staff can regularly work from remote locations.

Highlight particularly beneficial characteristics as well as areas for improvement.

Emergency response activities for APNEP are generally limited, but potentially occur within the three following areas:

Operational Continuity: The recent COVID pandemic demonstrated unequivocally that APNEP can operate successfully when we are unable to access our offices for in-person meetings with the Management Conference or our partners. Our key organizational assets are our relationships with other organizations, and the expertise of our staff. A disaster of sufficient magnitude to disrupt operations would entail long-term (more than 48 hours) regional disruption of power, communications, or transportation networks. Such events do occur in the region (mainly hurricanes and ice storms) and under such circumstances our focus would initially be on ensuring the health and safety of our staff and families. APNEP would be able to restart our work soon after restoration of communication services.

The vulnerability to any accidents, illness, or even extended staff vacancies on a small team means that general staff awareness of the work of the entire organization is beneficial. The organization can shift job essential responsibilities quickly to cover for unavailable staff.

Emergency Response: APNEP does not have a formal role in emergency response in either North Carolina or Virginia, but we work regularly with organizations that do, and have discussed with them what role we could play relative to assisting with emergency response. Staff may be called on by NC DEQ to assist in emergency response if needed.

Information: Given that APNEP works with many partners throughout the region we are often in contact with individuals and organizations that can provide local observations or information on ecosystem condition. Additionally, our SAV image archive has been helpful in assessing environmental changes following major storm events.

Has the NEP consistently met all their EPA §320 grant obligations?

During the evaluation period APNEP met NEP-required documents: Annual workplans; Progress reports; Annual reports; NEPORT reporting; and financial reporting. APNEP complies with other EPA requirements, including Quality Assurance Project Plans (QAPP), Comprehensive Conservation Management Plan (CCMP), and associated Monitoring and Engagement Plans. We have a very limited ability to generate direct funds to support the program broadly as the result of being housed in a State regulatory agency, so we currently follow NC DEQ protocol for acquiring funding. The appropriate staff attends the annual Washington, D.C., and Association of National Estuary Programs meetings (although virtually during the past few years).

Has there been any challenges or problems encountered with cost sharing or implementing its federal NEP award?

No, cost sharing has not been a problem, but the lack of dedicated non-federal match remains a concern for APNEP. Our host, NC-DEQ provides the required 1:1 non-federal matching funds each year for the 320-grant. Match has consistently been provided through both In-kind positions and water quality improvement expenditures. As previously noted, our ability to raise direct funds are limited. However, we work to leverage additional funds and services where possible throughout our activities.

Implementing the award has not been a challenge, due in large part to the assistance from Region IV with questions, budget items, grant applications, workplan review, progress report reminders, quality assurance project plan review, other reports, and NEPORT submissions.

We are grateful of the open communications and support we have received from Rachel Hart, EPA Region IV project officer. We also appreciate the support and interactions we have had with Megan Mackey as our EPA Region III liaison. Her efforts have enhanced not only our relationship with EPA Region III, but enriched other

APNEP efforts, including the STAC, monitoring, and diversity discussions. Additionally, we have good support and relations with Vince Bacalan and other staff in the EPA HQ office in Washington, D.C. All are responsive to questions and issues that arise for the Partnership and have advocated on behalf of the program and the Management Conference on several occasions. During this evaluation period, relations with the EPA Region III and IV offices have greatly strengthened.

What were the sources of the required non-federal cost share of the NEP award?

In partnership with our host, NC-DEQ serves as the Section 320-grant applicant and thus provides the required non-federal matching funds each year. This match is provided through both in-kind positions (salaries and benefits) for two APNEP staff positions, and water quality improvement project(s) expenditures (mainly wastewater treatment upgrades) in one or more of the river basin areas within APNEP's programmatic jurisdiction. Water quality improvement projects are administered and tracked by the NC Division of Water Infrastructure in coordination with APNEP staff.

Have grant dollars been drawn down promptly in accordance with the terms and conditions of the grant for implementation of the EPA-approved workplan?

In general, yes, as the NC DEQ Controller submits reimbursement drawdowns monthly. When necessary, we have applied for and been granted a one-year no-cost extension of the affected grant if needed to support contacts and project expenditure delays.

Are there strategies in place for obtaining additional funding beyond the EPA §320 funds to implement CCMP actions (i.e., financial strategy)?

Yes, generally informally, but also with ongoing discussions with the Leadership Council, including the 2020 Strategic Planning Meeting. However, the Leadership Council has established a policy regarding match/leverage of certain types of projects proposed to APNEP. In the fall of 2022, the Leadership Council approved the development of one using NEP Bipartisan Infrastructure Law (BIL) funds. A formal plan is expected by the end of 2024. The council has not indicated a significant need for a formal strategy for the repeated ability of APNEP to find the required non-federal match and work with partners to provide leverage relative to its many activities.

Highlight particularly successful efforts and approaches as well as challenges or difficulties in obtaining funding.

APNEP successfully obtained at least \$4,700,359 in non-EPA funds to support following during this evaluation period:

- Funding of wastewater treatment upgrades (non-federal match),
- Funds to support SAV aerial imagery interpretation,
- Funds to support SAV aerial imagery acquisition efforts,
- In-kind support for SAV field work.
- Funds to purchase a boat, motor, and trailer,
- Funds to support installation of water level monitoring stations,
- In-kind partner support for the Action Teams, Monitoring & Assessment Teams, and workgroups ,
- Split funding of annual graduate fellowship with NC Sea Grant, and
- Funding from a VIMS-led NOAA Coastal Resilience Project utilized to develop resilience tools and resources for local governments.

APNEP collaborated on numerous grant proposals as a project partner and led development of several grant applications during the evaluation period, in addition to writing over 70 letters of support for partner applications. APNEP has increased collaboration with partners on the new National Estuary Program Coastal Watersheds Grant administered through Restore America’s Estuaries since 2020, guiding applicants through the process, connecting partners, collaborating on partner-led projects, and submitting applications directly. Other applications included proposals to the Enviva Forest Conservation Fund, National Fish and Wildlife Foundation Coastal Resilience Fund and others.

In 2019, APNEP took advantage of an opportunity to apply for supplemental funding from EPA headquarters for resiliency and nutrient reduction projects and submitted proposals for eight projects. We were awarded funding for the proposal to assist underserved communities with incorporating resiliency into local and regional planning processes, which led to the Tribal Coastal Resilience Connections Project described elsewhere.

Since 2017 staff served as a neutral convenor for the Scuppernong Study discussed in more detail earlier in this narrative. Despite multiple setbacks and hurdles encountered during the grant application process with changes in policy regarding the grant recipient, lack of comfort in committing to match along with capacity at the local level to administer grant funding in rural, economically distressed counties, staff worked closely with numerous partners to secure both grant funding and matching funds from five different partners for an engineering feasibility study and three additional partners to develop a stakeholder engagement process. Funding was awarded shortly after the end of the PE review period from the NCDEQ Water Resources Development Grant for the Study through a grant to the Albemarle Commission in partnership with APNEP as a consultant, and from a Digital Coasts Connects Grant through NOAA and the National Estuarine Research Reserve Association for the Strategy. The project teams have been actively meeting and we look forward to reporting completion of a successful project in more detail during the next PE period.

Funding outside of governmental or grant funding remains a challenge due to APNEP’s location within a regulatory agency. Accepting funds from corporations, individuals and some foundations raised ethics issues for both APNEP and our host.

Budget Summary

For the federal fiscal years associated this evaluation period FY2018-2022, APNEP received a total of \$3,187,500, and the remaining quarter of FY2017 \$150,000 in USEPA section 320 funds for a total of \$3,337,500. NC DEQ provided and corresponding 1:1 non-federal match. Table 3 shows the budgeted amounts for each year compared with the general expenditure over the period.

Differences in budget and expenditures are reflections of the state versus federal fiscal year, annual carryover, personnel vacancies, and non-federal supplement funding for budgeted projects, and Covid-19 impacts. More detailed expenditures (line items) can be generated from monthly reports from NC DEQ’s NCXCloud budget database and NCAS database. Appendix 1 contains an example of an NCXCloud budget report.

The NCXCloud database provides a detailed tracking of budget and expenditures but does not differentiate CCMP projects and administrative cost. For example, a purchase of trees for a restoration project will display as a purchase not a contracted service. The database can be used to track budget and expenditures and can provide a detail of any payment made using grant funds. All expenditures are tracked in NCXCloud, and a record of payments is kept by NC DEQ Financial Services.

APNEP has been involved in numerous CCMP implementation projects and activities over this evaluation period. During the evaluation period APNEP activities were funded under CE-00D2614 & CE-00D95519. Cooperative agreement CE-00D20614 allowed for funds to be carried over multiple years until the agreement ended on September 30, 2020. Further details on the specific grant funding for projects can be found in the annual workplans. Additionally, annual workplans for each year contain a table of all active and completed contracts to local entities.

Class Object	FY 2022		FY 2021		FY 2020		FY 2019		FY 2018		FY 2017 (partial 1/4)		Total	
	Budget	Expend	Budget	Expend	Budget	Expend	Budget	Expend	Budget	Expend	Budget	Expend	Budget	Expend
Personnel	380,588	338,681	369,101	336,170	360,098	276,766	346,094	276,766	341,874	334,546	83,509	39,591	1,881,264	1,602,520
Fringe	149,582	140,019	138,785	132,516	89,833	102,261	85,556	102,261	78,452	118,723	18,905	10,139	561,113	605,919
Longevity	6,953	7,126	6,783	7,150	4,193	6,318	3,864	6,318	2,601	3,397	641	2,964	25,035	33,273
Travel	10,000	2,204	10,000	0	12,000	0	12,000	3,903	10,000	11,417	2,500	451	56,500	17,975
Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supplies	1,104	2,179	1,429	1,656	4,500	2,315	4,800	2,508	13,400	14,020	3,350	6,297	28,583	28,975
Contractual	108,500	171,026	74,000	45,627	99,942	34,483	98,771	92,856	97,000	92,856	32,500	46,562	510,713	483,410
Other	4,453	3,384	4,453	260	1,500	26	1,500	8,109	5,050	21,800	1,330	8,450	18,286	42,029
Indirect	38,820	35,275	57,949	53,901	52,934	41,415	47,415	50,178	51,623	51,044	7,265	3,959	256,006	235,772
Total	700,000	699,894	662,500	577,280	625,000	463,584	600,000	542,899	600,000	647,802	150,000	118,413	3,337,500	3,049,873

Table 3: APNEP 320 Funds Summary FY2017 (partial) – FY2022.

Data source: Budget: Standard Form 424A for fiscal years 2017-2022. Expenditures: NCXCloud year-end reports. Detailed expenditures can be generated from NCXCloud database.

Opportunities for Improvement and NEP Priorities

How has the NEP addressed challenges (referred to in this guidance as opportunities for improvement) identified in the previous PE?

The following provides updates on the items identified as Challenges in the December 14, 2018, Program Evaluation Review letter (Appendix 2):

Program Planning and Administration - Develop a Common APNEP Vision to Promote its Program Identity: Following the 2018 Program Evaluation, APNEP conducted a series of planning activities and CCMP progress assessments, culminating in a strategy meeting in January 2020 by the Leadership Council, Science and Technical Advisory Committee leadership, and representatives of the EPA, under facilitation by CoastWise Partners. The results lead to a clearer strategic direction with near-term and long-term goals and settled some lingering questions about the host, direction, and programmatic focus areas of the partnership. A list of strategic topics and tasks were established, and a timeline developed to address the issues raised. By late autumn 2020 (despite Covid-19 impacts) all actions were addressed except for a new Governor’s Executive Order, although efforts were begun to replace the existing one. A new order was established in February 2022. As the CCMP revision process continues, APNEP and the Leadership Council continue to follow and build upon the topics addressed at the meeting.

Financial Management - Explore Additional Opportunities for Funding CCMP Implementation

Activities: Due to external funding limitations associated with being hosted by a regulatory agency and the prospects of a CCMP revision, APNEP has chosen not to develop a written strategy until the revised CCMP is approved by the Management Conference and accepted by the EPA. However, efforts have been in place to work through normal governmental funding mechanisms to request non-federal cash match for our annual 320 grant. During 2022, APNEP was included in the NC DEQ budget proposal to the NC Governor for the first time in more than 20 years. Similar efforts are currently underway. Additionally, the BIL-NEP funding for 2022-27 has allowed the APNEP Leadership Council to direct funds to develop a financial strategy to support the revised CCMP and the BIL long-term strategy.

As noted in the 2018 Program Evaluation, APNEP has successfully leveraged its non-federal match in the form of in-kind support for staff positions and expenditures by the NC Clean Water Management Trust Fund and the NC Division of Water Infrastructure. Over the past five years, APNEP has continued to acquire match from its host entity, NC DEQ. Additionally, during this period, APNEP has acquired additional funds \$617,569 to support SAV mapping support, the installation of water-level monitoring stations, and other projects in the watershed.

Absent from the 2018 Program Evaluation was recognition of APNEP's effort to leverage support for many of its activities. Each work plan notes the expected leverage (cash & in-kind) that support the implementation of a project. Additionally, APNEP continues to report for GPRa annually significant levels of leveraged funds that support CCMP implementation. For example, over the past five years APNEP has reported leverage of over \$1.32 billion in the significant category and over \$15.1 million in the primary category.

Assessment and Monitoring - Finalize Completion of a Monitoring Strategy:

In collaboration with APNEP's Science and Technical Advisory Committee and select SAV Team members, EPA Region III & VI, and other advisors, staff developed a proof-of-concept Integrated Monitoring Strategy with an initial scope focused on coastal SAV and estuarine water quality metrics associated with SAV habitats. The initial plan was accepted by the Leadership Council in March 2021, and work is currently underway on enhancing the estuarine water quality monitoring aspects of the strategy, to be adopted in 2023.

During 2017-2018 staff built upon MATs progress in 2007-2009 to facilitate the development of indicators and supporting metrics by hosting one or more meetings of individual MATs. Given capacity challenges to maintain progress, staff in 2019 pivoted to working with individual MAT members who had the bandwidth to help develop monitoring strategies for their assigned ecosystem component. The cumulative progress of each MAT is expected to bear fruit with additional monitoring strategies and metric reports during 2023-2024.

Reporting - Better Communicate Programmatic Accomplishments and Environmental Results:

Following internal and external needs assessments conducted by staff in 2016 and 2018 and input from the Management Conference, APNEP developed a comprehensive 2018-2019 [Engagement Strategy](#) for the Partnership, building upon its former Communications Plan released in 2012. The Engagement Strategy presents a detailed vision for 1) partner engagement, 2) public outreach, and 3) communications. The plan was updated in 2020-2021 and annual workplans are developed each year which outline detailed strategies consistent with the annual 320 Workplan and program objectives identified by the Management Conference. The Engagement Strategy will be updated in

2023 to reflect the updated CCMP and support implementation of the BIL Workplan and Equity Strategy.

As a result of previous program evaluation comments, staff redeveloped the Partnerships' Annual Work Plan to both better align it with EPA Guidance and to create a product that can serve as a public-facing document for those interested in APNEP's progress and plans. To further communicate program accomplishments, staff added a key accomplishments section to its annual workplan & year-end report to highlight program initiatives and projects more prominently. The first iteration of this redevelopment was released in 2019 and will continue to be improved based on EPA and Management Conference feedback.

A new website apnep.nc.gov was launched in 2019 with an updated look, feel and content that is mobile-friendly and designed to meet accessibility standards. The site allows APNEP to have its own domain independent of its host agency, NCDEQ, though located on a platform hosted by the State of North Carolina's Department of Information Technology that supports all cabinet agencies. All state agencies transitioned over to this new Digital Commons platform during the evaluation period and are required to have a basic consistent underlying style and format. However, APNEP was able to negotiate creating its own site rather than be listed as a division within NCDEQ and hosted on their domain.

The website creation and migration to a completely new platform was a significant undertaking for staff during 2018-2019. With guidance from NCDIT, staff outlined the structure and mapped out the design for the website, along with development of a plan to migrate content and documents from the old platform to the new one. Staff created new content and design literally for each page on the new site. Old content was updated and archived as appropriate to preserve historical information and context for current initiatives and projects, but streamlined to ensure a more modern, user-friendly experience. Staff have direct access to create, update, and edit content on the website, and attend NCDIT trainings and coordinate with their staff for technical assistance as needed.

Significant effort was spent during the evaluation period assessing and updating other digital and print communication tools. Our presence on various social media platforms was evaluated and updated, with focused effort being placed on maintaining a presence on targeted sites including Facebook, Twitter, and LinkedIn in accordance with guidelines in the Engagement Strategy. APNEP publishes a monthly newsletter, Soundings, showcases special projects and partner initiatives, and creates press releases to highlight special projects and events.

APNEP fully utilizes, through support from our host entity and with support from the NC Office of Environmental Education and Public Affairs, other tools to extend our outreach and engagement efforts. During the evaluation period, we supported printing of updated [River Basin booklets and maps](#) that highlight the Albemarle-Pamlico watershed and are provided on the [Educator Resource Webpage](#). Staff worked closely with NCDEQ Creative Services staff to modernize and create new displays for tabling at events and conferences. They also assisted with the development and design of new printed materials including fact sheets for different audiences, rack cards, and other materials for the public, which will be used at partner meetings, sponsorship/networking events, and outreach events. The materials were finalized in 2020, though printing has been on hold due to restrictions on in-person events due to COVID. In-person events are picking back up and APNEP anticipates printing materials in concert with the revised CCMP. Staff continue to consider the development of materials related to specific priority issues (SAV, coastal resiliency, aquatic invasives, etc.) as needed.

Over the years, APNEP has regularly hosted interns for additional capacity to assist with various engagement efforts. Since 2018, we have participated in the State of North Carolina's Internship Program run by the NC Department of Administration with support from the NC Council for Women and Youth Involvement and tailored [internships](#) towards science communications and outreach. Proposals were submitted every year and three interns were hosted during the evaluation period (in two years selected participants withdrew from the program for personal reasons). Interns worked on special projects including developing interactive maps for the website, a communications strategy for aquatic nuisance species, campaigns for SAV, and strategies for incorporating DEI into social media and outreach.

Our 2018 Summer intern created an interactive map of 2012-2018 APNEP-funded projects, with information about partnerships, funding amounts, and project details. Through this ArcGIS Online based [Project Map](#) prominently embedded on the new website, APNEP hopes to showcase the diverse and innovative projects we've funded throughout our watershed, as well as to provide our partners and public with information about those initiatives. Staff continue to add projects to the map annually.

Other efforts have largely been accomplished through targeted communications strategies for specific projects and initiatives. Examples include materials to illustrate the accomplishments of the [SAV Team](#) that APNEP has led since 2004, including an ESRI ArcGIS story map titled [The Albemarle-Pamlico's Underwater Meadows](#) and press releases. Our 2021 summer intern created infographics (one for the public, one for local governments), a [webpage](#), and social media campaign to highlight the release of the SAV economic valuation report. These tools help communicate the results to the public and decision makers and led to external press in [Coastal Review Online](#), [WUNC](#), [WITN](#), [Public Radio East](#), and the [Carolina Public Press](#).

Restrictions associated with the regulatory role of our host entity, NC DEQ, limit APNEP's ability to raise or use in-kind funds to support communication and programmatic actions. However, APNEP does work with its partners to distribute and extend communications throughout the region. The Partnership intends to continue to leverage communication and engagement activities where possible. For example, during the evaluation period APNEP worked with the North Carolina Coastal Federation, the NC Division of Marine Fisheries, and The Pew Charitable Trusts to enhance engagement and outreach related to coastal habitat protection. A major topic of these efforts was SAV and its role in ecosystem services, where habitat status, water quality, and resiliency were highlighted. From 2019-2022 there were numerous blogs, radio interviews, newspaper and [web articles](#), and social media posts that engage APNEP staff and Management Conference members in these efforts. These efforts enhanced APNEP staff-led targeted communication strategies described above and allowed for continued integration of CCMP and CHPP implementation.

As noted above, a public private partnership (PPP) has been formed to help with the implementation of the actions found in the 2021 CHPP Amendment. To help jump start this PPP, a Water Quality Summit was held in New Bern in October of 2022 with over 110 participants ranging from DEQ Division Directors and management staff to stakeholders, politicians, and academic researchers. A group was formed to become the PPP and help implement some of the actions found in the CHPP amendment. The initial action of the PPP has been in the form of a resolution seeking greater cost share funding to put more BMPs on the ground to help improve water quality. To date, four state commissions have endorsed the resolution as well as the board of Directors of the NC Coastal Federation.

Program Planning and Administration - Revise CCMP Before 2022: APNEP is currently in the process of updating its CCMP, a process that initially began in February 2017 with a joint Leadership Council and STAC meeting to discuss implementation progress, subsequent meetings with Leadership Council members and partners that participated in development of the current CCMP and APNEP's transition to EBM, and briefings for staff that were involved in the factor analysis, Management Conference meetings, and public workshops that informed CCMP development. In meetings in 2020, the Leadership Council developed a set of focus areas for the program when updating the CCMP. Staff and the Leadership Council were initially considering an Addendum to the current CCMP until early 2022. However, through discussions with EPA region and headquarters staff regarding consistency with current guidelines, and after consideration that a new Executive Order had been established, decided that an updated / revised version was more appropriate. Upon receiving approval of extending the update/revision process in to 2023 by EPA Region IV (Sept 2022), the staff and the Leadership Council approached the process in earnest and following the recommendations for CCMP updates/revisions provided by the [2021-2024 EPA NEP Funding Guidance](#).

What kind of obstacles, if any, has the NEP faced with CCMP implementation (political, institutional, etc.) and what has the NEP done to overcome those obstacles? How can EPA (Regions/HQ), support the NEP's efforts to address these obstacles?

During the evaluation period the major obstacle was robust partner engagement and contracting related to impact of the Covid-19 Pandemic. However, APNEP staff, Management Conference and partners adapted to virtual meeting and field work protocols changed. Overall, the program moved forward, but impacts were felt. In addition, staff assumed additional responsibilities had to shift workload due to multiple staff vacancies from 2020-2022. Meeting restrictions and other pressing issues, including increased workload associated with the CCMP update and simultaneously developing the BIL workplans and associated Equity Strategy (and awaiting guidance from EPA that was not issued until July 2022) delayed the formation of the new Citizen Advisory Committee (CAC). The initial membership has been formed and the CAC met in March 2023.

APNEP strives to remain apolitical, as it is important for it to remain impartial and trusted in the region regardless of politics. However, the program is still sometime seen by some as the DEQ program, the "government", or as "the State".

One of the greatest challenges to APNEP remain is geographic size of the program compared to its funding for CCMP implementation actions and staff capacity. The Albemarle-Pamlico ecosystem (Figure 1) spans a land area of more than 28,000 square miles. It includes 2 million acres of estuarine waters and 10,000 miles of streams and rivers). The program area touches 36 counties in North Carolina and 16 counties and independent cities in southeastern Virginia. The program area also crosses USEPA, USFWS, and USGS regions, and USACE districts. Additionally, numerous media outlets, school districts, state, regional, and local issues contribute to the complexity of adequately reaching out to all partners in the region.

Due to a large geographic area and the vast distances that often need to be traveled, extensive citizen participation and effective engagement environmental change remain difficult. Thus, the complexity of addressing and engaging stakeholders in environmental issues and estuarine at this scale remains a significant challenge for APNEP.

Limited resources constrain the program’s ability to impact the significant ecological / environmental change in the watershed. This underlines the importance of strategic stakeholder alliances and effective fund-raising efforts for projects or partner activities under the CCMP. Although the large geographic area makes efforts for effective environmental change difficult, APNEP’s pursuit of an ecosystem-based management paradigm is an effort to increase meaningful active citizen participation that will benefit the program and enhance CCMP implementation, leading to adaptive management for positive and trackable environmental change.

The headwaters of this ecosystem are found as far away as the mountains of Virginia and the North Carolina Piedmont. The ecosystem includes wetlands, forests, farms, and cities, all of which affect the downstream estuary in complex ways. Some areas are particularly susceptible to environmental degradation and impacts from major storms, including urban waterways and areas of low elevation. Actions have been initial for the past few years to acquire a dedicated appropriation of the required non-federal match, but efforts succumb to the normal challenges of securing items in the state budget.

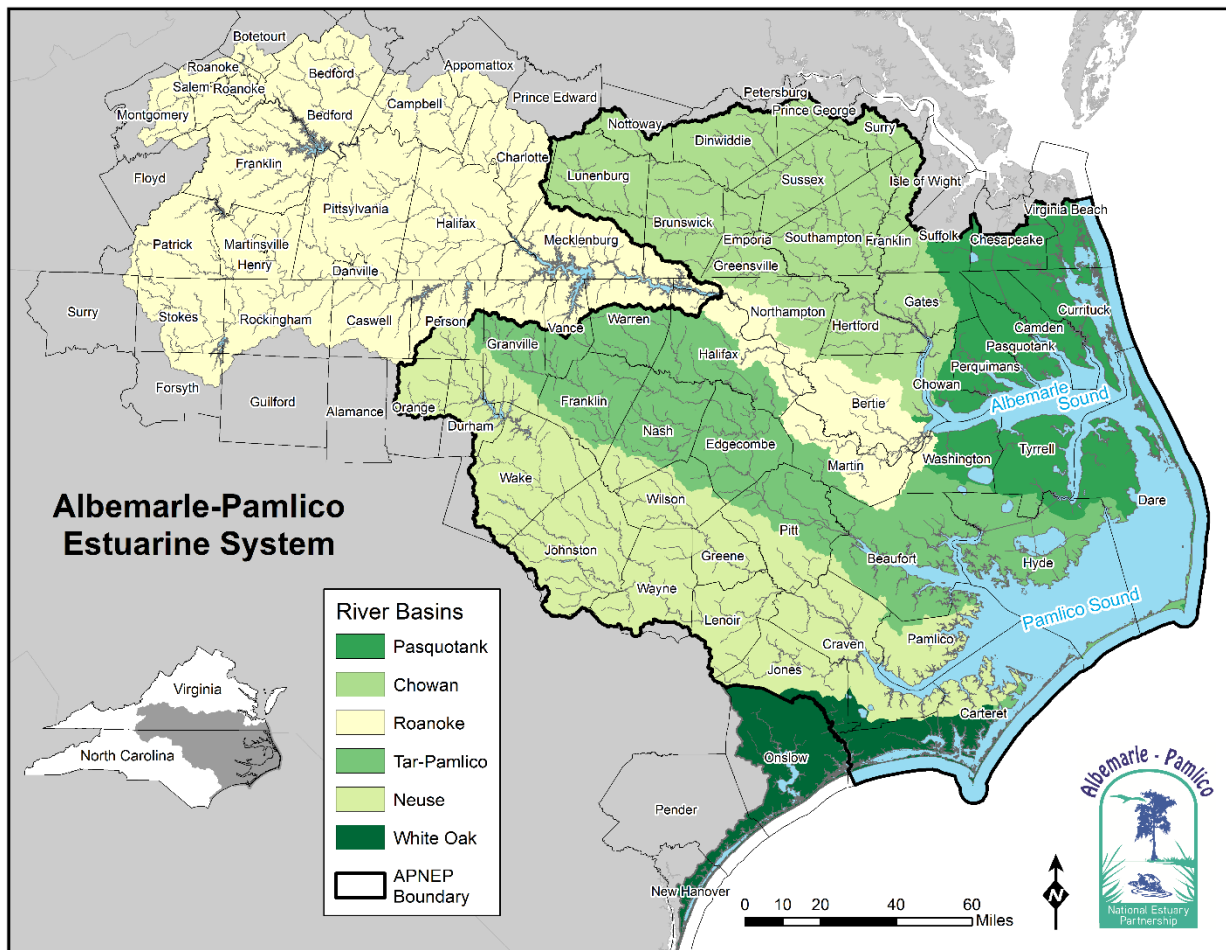


Figure 1. Watersheds and counties area of the Albemarle-Pamlico Region

How can EPA (Regions/HQ), states, and/or other Federal agencies support the NEP's efforts to more effectively address climate and equity priorities?

Four main areas of support that would benefit APNEP efforts to address climate and equity priorities more effectively:

Linkages for Community Support: As APNEP engages a variety of communities, we are always in search of program and funding streams to assist them with their role in supporting CCMP implementation. Opportunities for grants, loans, and other financial support are always welcome. Additionally, funding for studies or climate impact assessment or hazard mitigation of needed.

Communications: Given the large geographic area and the numerous jurisdictional boundaries (EPA, ACOE, FWS, etc.), having knowledge of activities that relate to CCMP implementation would be beneficial. Examples, include grant opportunities, planning or announcements of federal projects in the program area (e.g., brownfields, environmental justice), and opportunities for collaboration.

Monitoring and Assessment Support: Given the geographic extent of the program area, monitoring and assessment remains a challenge. Many of APNEP partners are also limited in the extent to which they can contribute to these efforts. Additional support or collaborations to help APNEP establish an integrative monitoring network is always welcome.

Expertise and Resources: Providing access to professionals with expertise in DEIJ principles and coordination, and resources for best practices would be particularly useful. While staff are taking advantage of training opportunities, none of the current staff have formal education or training in this field.

What difficulties or priorities does the NEP anticipate during the next five years?

APNEP anticipates publishing an updated CCMP prior to January 2023. The revised CCMP will serve as an update to the current [CCMP](#) and targeted for the calendar years 2023 through 2028 and is based primarily on direction from the Leadership Council and the STAC leadership determined during the Strategic Planning meeting held in January 2020 and subsequent guidance in May 2020 and September 2022. The APNEP focus themes for the next five years are:

- Water Quality,
- Submerged Aquatic Vegetation,
- Coastal Wetlands,
- Oyster Habitats, and
- Community Resilience.

The updated CCMP will remain consistent with APNEP's ecosystem-based management approach. Actions not prioritized in the update will be opportunity driven. However, the Leadership Council has currently identified at least ten actions within the CCMP that will be priorities under the forthcoming APNEP Long-term Bipartisan Infrastructure Law Funds Implementation Plan. Additional CCMP-associated documents developed in this time will include a monitoring plan expansion, financial strategy, and an updated engagement strategy to support the revised CCMP, as well as an equity strategy to be associated with the Long-term Bipartisan Infrastructure Law Funds Implementation Plan.

APNEP anticipates a dramatic increase in both administrative and programmatic workload associated with the additional funds from EPA under the Infrastructure Investment and Jobs Act, which was passed by Congress in November 2021. This Act known as the [Bipartisan Infrastructure Law](#) (BIL) is designed to be a significant investment in the nation's infrastructure and resilience. As with annual appropriations distributed to NEPs to implement CWA §320, the funds distributed under the BIL must be directed to implement a management conference and EPA approved CCMP and workplan. The BIL funding is available to the NEPs until fully expended and will be distributed over five years.

The EPA requires that National Estuary Program (NEP) expenditures for funds received under BIL support the national goals of the [Justice40 initiative](#). Each NEP must develop a long-term plan for using the funds to implement their CCMP and include an equity strategy detailing how the NEP will contribute to the national program-wide goal of ensuring that at least 40% of the benefits and investments from BIL funding flow to disadvantaged communities. The strategy will be reviewed prior to awarding FY 2024 – FY 2026 BIL funds and approved by EPA's Assistant Administrator for Water or by the relevant Regional Administrator. Upon approval, the EPA will waive the NEP non-federal match/cost-share requirements for the FY 2024 – FY 2026 BIL funds. The equity strategy will be included in the BIL long-term plan and must be submitted no later than June 1, 2023. Implementing and tracking of the benefits to disadvantaged communities will also place additional demands on staff.

APNEP is making changes to its staffing structure and will be adopting additional tracking measures to ensure that the BIL funds meet all requirements for CCMP implementation and EPA standards. Additional work will also be necessary for our Management Conference, particularly our Citizen Advisory Committee, as they will likely oversee much of the distribution of the project funding at the general direction of the Leadership Council.

APNEP under the guidance of the Management Conference will be striving for implementing methodologies and processes to ensure that CCMP implementation with CWA §320, BIL funds, or other resources is strategically targeted.

As noted earlier, due to external funding limitations associated with being hosted by a regulatory agency is limited in its access to additional funds to support implementation of the CCMP. While APNEP will be developing a formal financial strategy in the future, it anticipates difficulties to remain. However, APNEP and its Management Conference remain committed to partnering, collaborating, and leveraging resources and funds where available to support its mission and CCMP implementation.

Topic 3: NEP Ecosystem and Community Status

The following information highlights how APNEP applies and connects the everyday work of the NEP with the foundations in the Clean Water Act and to EPA priorities.

Community and Stakeholders Engagement

How does the NEP ensure that the public has access to the decision-making process and engagement opportunities?

APNEP works on many different levels to ensure that the public has access its activities, decision-making process, and engagement opportunities, as well providing publicly available and open access to its planning and budgeting documents, and its project reports. The Partnership continues to support citizen representatives throughout its Management Conference and ad hoc committees. The initial membership of the Management Conference as currently authorized under [North Carolina Governor's Executive Order #250 \(2022\)](#). The Leadership Council and each of the advisory committees is encouraged to expand their members and fill vacancies to meet programmatic goals and implement APNEP's Engagement Strategy and [2020 Diversity, Equity, and Inclusion Statement](#). All Leadership Council and Advisory Committee meetings are open to the public and publicized on the APNEP website in addition to the NCDEQ and Secretary of State's websites. The public, beyond our partners and media attend occasionally.

As discussed previously, APNEP's Engagement Strategy outlines a multi-pronged approach to partner engagement, education and outreach, and communications. The Strategy will be updated to reflect CCMP updates and development of a BIL Long-term Strategy and Equity Strategy. The Partnership regularly updates its new website, maintains a presence on social media, publishes blogs, press releases, and a monthly newsletter. Anyone from the public can sign up for the mailing list, prominently displayed along with contact information through our website. For years APNEP has provided full web access to its reports, guidance documents, as well as general information for stakeholders on its [Resources Page](#).

Staff spent significant time during the evaluation period time thoughtfully assessing its role and processes for funding long standing environmental education initiatives and other project proposals, in response to input from the Leadership Council and other Management Conference members. APNEP has developed a set of criteria that will be used as needed to evaluate the strength and applicability of external project proposals when a partner organization approaches APNEP to ask for funding, logistical, staff, or similar assistance as a part of their grant proposal. The criteria will also be utilized to evaluate the relevance of both staff participation in and financial sponsorship of workshops, conferences, and participating in other partner and public outreach events.

APNEP also developed a more transparent and competitive process for funding environmental education projects with significant support from its [Engagement and Stewardship Action Team](#). A set of evaluation criteria and performance metrics for environmental projects that increase citizen stewardship, volunteerism, and environmental literacy within the Albemarle-Pamlico region were created for both long standing watershed projects, and smaller initiatives that partners frequently request (i.e., Project WET workshops or Coastal Discovery Camps). A Request for Proposals was created to solicit applications for environmental projects that increase citizen stewardship, volunteerism, and environmental literacy within the Albemarle-Pamlico region and released in 2020, as discussed in more detail elsewhere. Our summer 2021 intern

assisted with broadening our reach to advertise the RFP, in accordance with DEIJ recommendations she created for the Partnership. She developed a video to assist applicants with the application process, assessed and researched accessibility of the information through our existing networks, and contacting new partners to assist in sharing the information through their networks. Each of these efforts assist the Partnership in ensuring the public has access to the decision-making process and engagement process, and help staff continue to refine our Engagement Strategy.

How has the NEP engaged the variety of community members and stakeholders in the NEP study area, including in underrepresented segments?

[APNEP's Engagement Strategy](#) assesses the structure of APNEP's Management Conference and provides recommendations for the Partnership to improve upon engagement with a variety of community members and stakeholders. The document includes the importance of considering issues of diversity, equity, inclusion, and justice when developing and implementing engagement strategies throughout. In recognition that there are many audiences that APNEP has been less successful at engaging and that are underrepresented in our efforts, established a [2020 Diversity, Equity, and Inclusion Statement](#) to accompany the Engagement Strategy and allow for more focused consideration of DEI for all of our efforts.

Through the statement, APNEP commits to addressing environmental inequities by continually reevaluating our partnerships, protection and restoration efforts, and engagement processes through the lens of increasing diversity, equity, and inclusion throughout the Albemarle-Pamlico estuarine system. We recognize the importance of considering the demographics of the region and ensuring diverse perspectives, communities, and populations are represented within all of Partnership's management and citizen advisory groups and efforts to implement our mission.

The DEI Statement includes specific commitments that APNEP is in the process of implementing. A key mechanism is ensuring that members of our advisory committees and project teams are representative of the broad populations within our region and programmatic boundaries. During the evaluation period, APNEP worked with the NC Governor's office to issue a new Executive Order that would reestablish its Citizens Advisory Committee which disbanded in 2012. Work began in 2020 and concluded with a new executive order in 2022. The CAC, STAC and LC will all work to engage diverse communities and populations in its decisions and represent diverse perspectives within the Management Conference. The Engagement Strategy and DEI statement will be updated to reflect the significant role that staff anticipate the CAC playing in assisting with recommendations to engage underserved and underrepresented communities.

The commitment includes a requirement to report annually on actions taken to enact these commitments in our Annual Work Plan. Recent efforts include the STACs efforts to evaluate and diversify its membership, grant applications for funding to strengthen community engagement in protection and restoration efforts (NFWF America the Beautiful Challenge), and specific projects detailed below.

APNEP's Summer 2021 intern, Abby McNaughton, developed a document entitled *Recommendations for Incorporating Diversity, Equity, Inclusion, and Justice in APNEP Communications & Outreach*. She interviewed APNEP staff and partners including the NCDEQ Office of Environmental Education and Public Affairs, which assists with the NCDEQ Diversity and Inclusion Committee, and conducted online research. Her recommendations included starting with social media and grants. She assisted with diversifying outreach and targeting new audiences for the 2021 Engagement & Stewardship RFP which was released during her tenure. APNEP staff have begun implementing other recommendations including updating website content and will be considering them during the 2022 CCMP revision. Staff will include the document in the next update to its Engagement Strategy and the BIL Equity Strategy.

In addition to target audiences identified in the Engagement Strategy, the Management Conference has directed APNEP to work more closely with local governments in the region. Notable accomplishments during the evaluation period include the Partnership's efforts engage Tribal communities in climate resilience and adaptation planning and a non-320 funded project in the Scuppernong River Watershed to address flooding issues that engages a wide variety of interested parties. Both projects are described more thoroughly elsewhere in this PE narrative.

What is the level of engagement from the stakeholders and the public?

We have different levels of engagement for different organizations, local governments, federal agencies, universities, and individuals and communities in region. Given that the program area is 23,803 square miles (76% of total basin), engagement must be acquired through targeted and focused efforts.

APNEP's many working groups and collaborators generate consistent engagement with existing partners and members of the Management Conference. APNEP also engages many others, including federal and state (NC & VA) agencies, NGOs, community groups, and local governments via direct technical assistance.

In 2020, to further relationships and collaborations, APNEP established a Memorandum of Understanding (MOU) with six environmental and natural resources agencies from North Carolina and Virginia that reaffirms their commitment to foster interstate collaboration within the shared waterways of the Albemarle-Pamlico estuarine system. This MOU built upon the MOU signed at the beginning of the evaluation period in 2017, and reaffirmed partners' commitment to work together across state lines.

Additionally, with a small staff and limited capacity, APNEP does not typically directly engage "the public" in traditional ways. We work with our partners to leverage further focused engagement through traditional presentations, citizen science initiatives, and community level projects and events. However, APNEP engages the broad public at events and conferences and through our website and social media channels.

Where and how could the level of engagement be improved?

As an outcome of the 2020 Strategic Planning effort, APNEP is currently working to expand its engagement and partnerships with local governments in the region. The current CCMP update efforts include a review of projects that would engage local governments and communities. Given a large program area and limited capacity, meaningful engagement of local governments will be an ongoing challenge for APNEP. The Scuppernong Study and Tribal engagement have taken significant staff time to build relationships and coordinate to ensure community needs are heard. Staff capacity at the local level and community readiness to participate in environmental projects present significant challenges in this arena. There is also a strong mistrust of government with many of the communities in the region, so building trust and being flexible--understanding that deliverables and projects may not be completed within contract milestones and agency timelines is important. Other challenges include fatigue at the local level from past promises of organizations coming in to "help" then leaving or not completing projects, or the products not being useful at the local level. Staff are hoping to learn from the community engagement project we are currently involved with to assess our role, capacity for community projects, and ability to be effective.

For "general public" engagement, APNEP could provide more public education events such as webinars, field workshops, and presentations at more public venues. However, given the large geographic area, the efforts would need to be focused and targeted under the new CCMP. An updated Engagement Strategy to accompany the updated CCMP will address this topic as appropriate given the emerging CCMP priorities and our DEI efforts.

Education and Outreach

Is the NEP effectively promoting and creating widespread recognition of the Program?

A stated goal of APNEP's Engagement Strategy is to increase the visibility of APNEP and its core partner accomplishments towards implementing our mission and the CCMP. Target audiences include both partners that can assist with CCMP implementation and specific audiences identified throughout the CCMP or recommended by the Management Conference. These include target audiences that are well positioned to support and implement the CCMP most effectively. During the evaluation period focus has been on refining our approach and engagement with partners, restrengthening relationships with old partners, creating new ones, and increasing the visibility of the program through its communications and outreach strategies.

APNEP has been particularly effective at strengthening relationships by facilitating connections across state lines, connecting Virginia partners with counterparts in North Carolina and vice versa. Two MOUs with Virginia were signed during the PE period, in 2017 and 2020. Additionally, we are working to increase our relationship interstate partners in Virginia and the Chesapeake Bay watershed,

Given the focus on partner engagement, APNEP staff have been effective at hosting APNEP-led events such as the 2017 Ecosystem Symposium, and SAV and Water Quality Technical Workshop, and maintaining and increasing its presence at partner events. APNEP is often invited to participate in partner led events and conferences and frequently tables at these events, organizes panels and sessions, participates as a speaker or panelist, or supports and promotes partners speaking on APNEP-funded projects. The events included WRRRI's Annual Conference, NC Sea Grant's Coastal Conference, NC Oyster Summit, and Virginia Beach Sea Level Rise Symposium. Through participation in partner-led workgroups, staff sit on steering committees and play a key role helping plan regional events such as the Resilience Workshops and Summit for local governments, North Landing / Albemarle Sound Estuarine Symposium, Carolina Integrated Sciences and Assessments Conference, CHPP Outreach Events, Grant Writing Workshops. APNEP has organized panels on resilience, ecological flows, and Tribal community engagement at state and regional events including WRRRI, Sea Grant, and Carolinas Integrated Sciences & Assessments (CISA).

Program recognition is also created through active participation in external workgroups and committees to expand our reach, facilitate regional collaboration, and reciprocate volunteer involvement, as noted in the Engagement Strategy. Groups that staff engaged with regularly during the PE period include the NC Oyster Steering Committee, Currituck Sound Coalition, Sentinel Landscapes Partnership, Watershed Restoration Improvement Team, Watershed Stewardship Network, NC Aquatic Data Hub, Fish Consumption Advisory Workgroup, VA Alosa Task Force Coordination Committee, NC Aquatic Nuisance Species Management Plan Steering Committee, and numerous EO80/Resilience workgroups discussed in detail elsewhere.

APNEP participated in numerous environmental education events geared towards the public, teachers, and K-12 students such as the Chowan Edenton Environmental Group Celebrating Sound Waterways, Sound Rivers Kids Fest, Envirothon, and Scientific Research and Education Network (SciRen).

In addition, as described elsewhere, APNEP produces a wide variety of communication materials to improve the Partnership's ability to reach a variety of different audiences, including its partner organizations, local government, the public, and scientists and researchers. APNEP accomplishes this through print and digital materials, including its website, social media platforms, blog, e-newsletter, and printed fact sheets and brochures.

The objectives of our outreach, as outlined in the Engagement Strategy, are to increase awareness of and access to APNEP and partner resources, increase knowledge and understanding of Albemarle-Pamlico region issues and promote environmental stewardship behaviors. Since APNEP is not a member organization capable of fundraising, our promotional approach may be different from other NEPs that are set up as non-profits.

What are some of the impacts of outreach and educational activities?

Desired impacts from outreach and educational activities are generally geared towards improving awareness and understanding of environmental issues facing the Albemarle-Pamlico region, as well as encouraging individual and collective stewardship of the region's resources, including support for the planning, policies, and actions required to sustain the Albemarle-Pamlico estuarine system and its human communities. Results anticipated from CCMP actions include increased awareness and engagement, and implementation of the CCMP, and increase in voluntary citizen action to protect and restore the estuarine system.

APNEP spent considerable time during the evaluation period evaluating its long-term funding of environmental education projects and working with its Engagement and Stewardship Team to develop standardized evaluation criteria for project selection, and to measure success, outcomes, and effectiveness of projects, including developing guidelines and a list of output and outcome metrics for use in preparing engagement and stewardship applications and planning project evaluations. In addition, the team assisted APNEP in creating a new transparent process for funding the frequent requests the Partnership receives to fund outreach, engagement, and educational activities and participate in outreach events. Considerations include relevance towards CCMP implementation, focus areas, and current priorities, partner reach, underserved populations, and target audiences.

We recognize in the current CCMP that the desired outcomes of many of the engagement and stewardship actions are challenging, if not impossible to measure, as many require changes in behavior or intergenerational transfer of knowledge that may occur long after the life of a project. Most funded projects require some sort of survey of participants to gauge increase in knowledge or skills because of the project.

What are some ways these activities could be improved?

APNEP worked closely with its Engagement and Stewardship Team (EST) during the review period to evaluate its approach and reach over such a large management region and focused on making improvements that are currently being implemented. Staff conducted a survey of team members in 2017 to prioritize actions and identify gaps that need to be filled, and an action plan was developed for the team. The team conducted mapping exercises to identify who is doing what in the basin to help further identify gaps that the Partnership may be positioned to help fill and developed the evaluation metrics described above. Staff also conducted a critical steps analysis in 2018 as part of an initial internal review of CCMP actions and related action teams, including the EST which was active during most of the review period.

Overall, continued self-reflection by staff and input from the Management Conference are helping APNEP refine its role and focus areas for education and outreach and will help the Partnership continue to improve its role in these activities. APNEP's capacity has been limited the past few years since the Communications and Outreach Specialist position has been vacant since 2020. The position was eliminated late in 2022, with duties being absorbed under the new Partnership Coordinator position and by other staff. APNEP will have

to critically evaluate staff capacity to accomplish CCMP objectives moving most effectively forward. Once the CCMP is updated, changes will be made to update the Engagement Strategy and annual workplans to appropriately target engagement efforts on the focus areas of the CCMP. The Engagement Strategy will aim to identify potential audiences and use more targeted messaging to communicate in ways that appeal to different identities, priorities, and cultural frameworks. This may include employing communication strategies that address the different languages, literacy, accessibility, and abilities of target audiences.

Monitoring and Assessment

How do the NEP's monitoring plan and indicators produce data to support a comprehensive and integrated analysis of environmental conditions (e.g., environmental progress report that communicates ecosystem status and trends, aka State of the Bay/Estuary Reports)?

With the input of APNEP's STAC and SAV Team, staff developed a proof-of-concept integrated monitoring plan with an initial scope focused on coastal SAV and estuarine water quality metrics associated with SAV habitats. The initial plan was accepted in 2021 by the Leadership Council, and work is currently underway on enhancing the water quality monitoring aspects of the initial plan.

As first stated in 2021, we envision that this initial plan represented one of the steps in building an ecosystem monitoring master plan whose scope eventually will broaden to include designs that collectively direct the monitoring of all regional ecosystem value ecosystem components (VECs). Origins of and rationale for each VEC, including their linkages with other ecosystem components, will be gained from the APNEP ecosystem monitoring framework (under development), the complementary APNEP monitoring element that reveals a strategy or course map for developing a robust and comprehensive APES monitoring infrastructure (network). Full implementation of the tandem framework and master plan in turn would lead to targeted information on the condition of the entire Albemarle-Pamlico ecosystem.

An effective and efficient monitoring design must be guided by explicit objectives, often posed in the form of questions. The assessment questions to guide the focused 2021 monitoring design were developed by a consensus of lead science (STAC Monitoring Subcommittee) and policy (Leadership Council) bodies of APNEP's Management Conference. The challenge was to determine the specific parameters or metrics whose monitoring data will enable assessors to answer these questions with an explicit level of certainty desired by managers who are responsible for ecosystem condition. Recognizing the benefit of utilizing explicit hierarchical and causal relationships to guide our metrics search, we opted to reference conceptual models.

How does the NEP use monitoring results to re-direct management actions and programs implemented under the CCMP?

APNEP's adaptive management cycle provides a framework on how to use monitoring results to influence management actions through two sequential activities: assessment and planning. The first activity, assessment, uses monitoring data either to evaluate (1) whether ecosystem condition metric(s) are achieving their "assessment points" thresholds by responding to APNEP stressor management as system-wide models suggest, or in cases where APNEP has yet to initiate directed management actions (2) whether these metric(s) are maintaining their thresholds. The primary APNEP assessment deliverables for technically inclined managers are metric reports, where discussion questions such as "Why is this

Happening”, “What are the Implications for Management?”, and “What are the Proposed Ultimate and Interim Targets for this Indicator?” are addressed. The metric reports where available form the basis of indicator evaluation for past and upcoming APNEP regional ecosystem assessments.

In cases where an assessment dictates that a management action has proved ineffective or at worse harmful at the target scale, or that a management action is needed, the focus shifts to APNEP’s second activity, planning. Here scientists and technologists work with managers within the appropriate APNEP action team to consider management action revisions and associated funding, which may include allocations for additional research to improve the accuracy of model forecasts.

A recent application of APNEP’s adaptive management approach is the use of the program’s extensive monitoring of SAV to assess and report on the changes in areal extent of seagrass for the entire high-salinity zone of the APES, as well as broken down by North, Central, and South zones. This analysis identified that the APES seagrass resource is declining and that the more developed South Zone has experienced a faster and greater decline of seagrass than the other more remote zones, suggesting that degradation of water clarity in the South Zone needs management priority. The information generated by this APNEP-led monitoring and assessment effort was a primary component of the scientific basis for new SAV protection and restoration targets and associated recommended actions established in the 2021 Amendment to the NC Coastal Habitat Protection Plan.

How are research efforts used to identify missing data that warrant additional monitoring or sampling (if applicable)?

APNEP directly collects little of the data being gathered about conditions in the estuarine system, apart from SAV. Instead, we act as a coordinator in developing an integrated monitoring network to assist in assessing ecosystem condition and in measuring the impacts of CCMP implementation.

APNEP’s assessment deliverables, such as metric reports, include in their evaluations not only what the available monitoring and associated data show to answer the guiding assessment questions, but also address policy questions such as “What is Not Shown by This Metric?”, where assessors have an opportunity to convey perceived data gaps and limitations, plus “What are the Implications for Management?”, where assessors can propose how those data gaps and limitations may be reduced in future partner surveys, including new research funded by APNEP and/or its partners.

During the last five years, APNEP has supported many research projects aimed at filling important data gaps on topics relevant to CCMP actions and ecosystem assessment needs. The following are key examples of APNEP-funded research that supports identifying and filling data gaps:

APNEP – NC Sea Grant Research Fellowships: APNEP and the NC Sea Grant (NCSG) Program have supported an annual Joint Graduate Fellowship in Estuarine Research since 2015 (first awarded project began in 2016). The fellowship provides funding for a graduate student based in North Carolina to conduct applied research within the North Carolina portion of the APNEP management boundary. Program objectives include fostering interest in research related to CCMP goals and associated ecosystem outcomes, as well as obtaining research that can be used to inform APNEP and regional partner efforts to protect and restore ecosystem processes. Five fellows were supported during the PE period, with projects focused on topics including invasive species, algal toxins, seagrass restoration, marsh sediment delivery, and shoreline erosion. [Learn more.](#)

Bio-optical Model for SAV to Inform Development of Water Quality Standards: APNEP funded several research projects centered on calibrating and using a bio-optical model for SAV to 1) describe chlorophyll-a and turbidity thresholds protective of high- and low-salinity SAV habitats including quantification of uncertainty in those thresholds; 2) document data sets and data analyses to validate the bio-optical model or similarly functioning empirical models for determining thresholds; and 3) identify data gaps that could improve threshold estimates. Specific details on various aspects of these studies were described earlier in the PE document.

Water Quality Data Reporting Tool: APNEP funding supported the development of [wqReports](#), a tool to automate the compilation, computation, and visualization of state and national water quality data from actively maintained databases. One key utility of this tool is the ability to identify spatial and temporal gaps in specific parameters for all watersheds (HUC 10 or HUC 8) of interest within the APES. We anticipate relying heavily on this tool to guide the ongoing development of our estuarine water quality monitoring strategy and to advise managers where to direct additional monitoring resources if available.

SAV Economic Valuation Study: Following up on APNEP’s recent metric report on the areal extent of high-salinity SAV indicating a decline in seagrass coverage over a period of approximately six years, we contracted research to quantify potential economic losses resulting from future declines in SAV coverage in the APES over the next decade. The quantitative findings of this study were limited to four categories of ecosystem services where data are readily available and modeling relationships between SAV abundance and economic value are established. The report identifies some of the shortcomings of the different analyses performed that were due in part to data or modeling gaps. Priorities for future research that would result in refinements to the current analysis was described.

Ecological Flows Study for Trent River: APNEP funded a research project to support Phase I of the Partnership’s Ecological Flows action team framework, whose output was the 2018 project report, “Existing Data for Evaluating the Coastal Plain Ecological Flows in the Albemarle-Pamlico Estuary Region”. The recommendations therein led to a subsequent research project to support Phase II of the framework, where a tidally influenced watershed with sufficient historical data was selected for a pilot study. This study, still underway, involves a minimum of two years of relatively intensive monitoring that is applying various technologies to form the basis of deriving relationships between flow regime and ecological responses, leading in turn to recommendations in deriving ecological monitoring and flow requirements for that target watershed as well as other APNEP coastal plain watersheds.

Clean Water Act Programs Relationship

How does the NEP support the goals of the CWA? Highlight the best examples not identified in previous sections.

In addition to the items highlighted in the Clean Water section under Topic 1, a large portion of the non-federal match for our annual 320 grant during the evaluation period was provided as wastewater system upgrades. The NC Division of Water Infrastructure provides financial assistance for projects that improve water quality in the APNEP region. Programs within this agency fund many types of projects, including sewer collection and treatment systems, drinking water distribution systems, water treatment plants, storm water management systems, and stream restoration. The Division supports the State Water Infrastructure (SWI) Authority, which was created in 2013, under North Carolina General Statute 159G-70. The SWI Authority is an independent body with primary responsibility for awarding both federal and state funding for water and wastewater infrastructure projects. The projects directly support CCMP actions to improve quality in receiving waters.

Strengthening Water Quality Standards

NC Nutrient Criteria Development Plan Support: Since 2014, APNEP staff and select STAC members have led or participated in the NC Nutrient Criteria Development Plan (NCDP) process for estuarine waters, now focused on the Albemarle Sound and Chowan River. Staff assisted the NC Division of Water Resources (NCDWR) with gaining a complete understanding of the system and recommended candidates for the NCDP's Scientific Advisory Council (SAC) who are experts in high- and low-salinity SAV, and water quality issues. NCDWR has selected SAV as a biological indicator for the health of the Albemarle Sound and Chowan River. APNEP staff will continue to actively participate in nutrient criteria development for the Albemarle Sound and Chowan River until recommendations are accepted by NCDWR, approved by the NC Environmental Management Commission, and submitted to EPA.

SAV-Water Quality Workshop: In March 2020, APNEP led a coordinated effort to host a full-day technical workshop called "Clean Waters and SAV: Making the Connection" that brought together regional experts in both water quality and SAV to discuss linkages between the two resources. The recommendations and priorities developed during the workshop were synthesized in a [summary report](#) and used to inform the 2021 CHPP Amendment. The workshop discussion was also used to identify short-term actions for APNEP and partners to focus on for SAV protection within the Albemarle-Pamlico region. [Learn more.](#)

Research Study to Develop Chlorophyll-*a* Standards for SAV Protection: To set SAV protection and restoration goals for the Albemarle-Pamlico Estuarine System and make the connection to needed nutrient and sediment load reductions, quantitative linkages between chlorophyll-*a* concentrations and SAV light requirements are needed. APNEP contracted with the UNC Institute for Marine Sciences (IMS) to develop recommendations for scientifically defensible chlorophyll-*a* standards that are protective of SAV in high- and low-salinity zones. A final report is available [here](#).

Water clarity indicator research for SAV protection: To set SAV protection and restoration goals for the Albemarle-Pamlico Estuarine System and make the connection to needed nutrient and sediment load reductions, quantitative linkages between the concentrations of optical constituents and SAV light requirements are needed. APNEP previously contracted with the UNC IMS to conduct this analysis for both high- and low-salinity SAV. While the bio-optical model performed well for APES high-salinity waters where it was originally developed, further calibration is needed to utilize the model for low-salinity SAV. Extensive compilation and review of available water quality data revealed limited measurements of the critical parameters, CDOM and PAR, in low-salinity waters that are necessary for further calibration of the bio-optical model. This project will collect these data, calibrate the model, and develop recommendations for scientifically defensible chlorophyll-*a* standards that are protective of SAV for low-salinity zones. These findings, in association with the findings for high-salinity SAV, will help guide the development of water quality management strategies for the protection of SAV, particularly through the NC Nutrient Criteria Development Plan and the NC Coastal Habitat Protection Plan.

Improving Water Quality Monitoring

In addition to the items highlighted in the Clean Water section under Topic 1, the Partnership funded several projects in support of this mission. Through support for Sound River's Swim Guide program and NC Division of Marine Fisheries' Recreational Water Quality Monitoring Program, APNEP is expanding the collection of water quality data for our region that prioritizes public health. Both programs monitor water quality with the primary goal of alerting local communities to potentially hazardous conditions, and the Swim Guide program with Sound Rivers has the added educational benefit of operating through citizen scientists. [Learn more.](#)

Controlling Nonpoint Source Pollution on a Watershed Basis

APNEP is an active member of the Watershed Restoration Improvement Team (WRIT) led by the NCDEQ Division of Water Resources. WRIT is a team of interagency state employees dedicated to breaking down “silos” and working collaboratively in identifying solutions and finding ways to work synergistically on water resources and non-point solutions projects across the state. WRIT includes representatives from several divisions within DEQ and several from outside including the NC Wildlife Resources Commission (WRC), NCDA&CS Division of Soil & Water Conservation (DSWC) and NC Forest Service (NCFS), and the NC Land & Water Fund (NCLWF). The group includes staff working on nonpoint source pollution issues including basin planners, TMDL/303d listing and Watershed Action Plans, and implementing recommendations in the state’s river basin plans which are updated on 5-year cycles. Staff involvement in this team has led to collaboration on numerous projects and assisted with both CCMP and CHPP implementation.

Supporting Sustainable Wastewater Infrastructure

As noted, a large portion of the non-federal match for our annual 320 grant during the evaluation period was provided as wastewater system upgrades in the region in coordination/partnership with the NC Division of Water Infrastructure.

EPA Priorities

How does the NEP incorporate relevant aspects of EPA priorities into their workplans consistent with locally generated concerns? Highlight the best examples of where the NEP has made collective impacts not already identified in previous sections.

Examples have been discussed previously, and specific topics are highlighted in the following:

Reduction in Nutrient Pollution and Harmful Alga Blooms (HABs)

Many of the river basins in the APNEP region have numerous dedicated partners working towards addressing nutrient pollution and HABs. However, algal blooms have been re-occurring in the Chowan River and Albemarle Sound after an absence of three decades, in a region that is lacking the regulatory requirements compared to other areas of the Albemarle-Pamlico region (buffer rules, nutrient reduction strategies, etc.). During the evaluation period, APNEP worked to assist regional partners in supporting research and studies to identify watershed sources and the causes of the blooms, fund monitoring and rapid detection test kits to improve communication to the public, and to leverage its status as a bi-state program by connecting partners and agency staff across state lines. Significant effort was spent to re-strengthen relationships and coordinating closely with the Virginia Natural Heritage Program on the Chowan Healthy Waters Program. Staff have worked to identify opportunities to implement recommendations from the [Stream Ecological Health Assessment for the Chowan River Basin, Virginia and North Carolina, which includes the Watershed-based Ecological Healthy Conservation Plan for the Raccoon](#) Creek, Nottoway River, and Chowan Basin (2017). Implementation of this plan can also help meet recommendations from APNEP's MOU with Virginia, the NCDEQ Chowan River Basin Plan, and the Tribal Coastal Resilience Connections project.

Green Infrastructure

APNEP has been involved with “green infrastructure” and “nature-based solutions” in for many years. During the evaluation period, efforts focused on coordination with the Living Shorelines Action Team and coordination on a Virginia-based resilience project described elsewhere. Additional activities of interest include the following:

Living Shorelines Action Team

This team is co-led by APNEP and the North Carolina Coastal Federation and is also called the NC Living Shorelines Steering Committee. Work by these members in 2019 includes research and monitoring of natural marshes and living shorelines, wave attenuation and transformation, and the use of alternative living shoreline construction materials. Education and outreach efforts by members have increased the awareness and shown the benefits of living shoreline techniques to the public as well as to real estate agents, contractors, and engineers.

Living Shorelines Tech Transfer Workshop

APNEP staff worked with Restore America’s Estuaries and the NC Coastal Federation to organize a workshop in Beaufort, North Carolina. In October 2019, staff participated on the steering committee that developed the agenda and coordinated field trips for all attendees. There were approximately 250 professionals from the U.S. and Canada who attended. All aspects of living shoreline work in the state, including the APNEP region were discussed with the participants.

Environmental Justice

In addition to the items highlighted earlier, APNEP works in collaboration with NC DEQ's Environmental Justice Program, which works to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.

The Department, including APNEP, adhere to policies and programs for enhanced public participation and nondiscrimination. The law provides that no person shall, on the grounds of race, color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, the Rehabilitation Act of 1973, and all other pertinent nondiscrimination laws and regulations.

NC DEQ and APNEP strive to incorporate this perspective into the core mission of the department, along with the legal and scientific lens guiding how DEQ employees pursue their work now. DEQ’s mission, “Provide science-based environmental stewardship for the health and prosperity of all North Carolinians,” can only be accomplished if advancing Environmental Justice is part of every DEQ activity.

Climate Change

Scientists have identified the Albemarle-Pamlico region as one of the country's most vulnerable areas to climate change and associated sea level rise. In the coming years, coastal communities will increasingly consider adopting strategies to minimize the impacts of a changing climate to their residents and natural resources. Rising seas are expected to significantly impact the ecosystems which sustain many of the region's industries, including agriculture, forestry, fishing, development, and tourism. Furthermore, increased flooding and more severe coastal storms may cause considerable economic and emotional hardship to coastal residents.

In conjunction with its partner organizations, APNEP has a long history of working to protect and restore coastal ecosystems and communities as they face climate and natural hazard challenges, with a focus on estuarine ecosystems and the river basins and surrounding watersheds that flow into the Albemarle-Pamlico estuarine system. In addition to supporting research and the development of tools and models to help resource managers make informed decisions, APNEP continues to dedicate resources and support towards connecting communities to the best available science and tools as they develop resilience and adaptation planning strategies. APNEP's focus on protecting and restoring water quality and submerged aquatic vegetation, protecting natural ecosystems and coastal habitats, supporting the use of natural infrastructure, and working with local governments and communities to incorporate climate resilience into local planning align with the coastal resources and infrastructure and ecosystem strategies outlined in the state and regional initiatives described below.

During fall 2019, APNEP staff conducted a climate change [vulnerability assessment](#) to determine the risks from relevant climate stressors to implementation of CCMP actions. Identifying risks associated with climate change and managing them to reduce their impacts is essential for implementation of the CCMP actions. The CCMP was developed with the potential impacts of a changing climate in mind, thus the reassessment was a way to confirm and update APNEP's perception of risks to implementation of the CCMP actions. The updated CCMP will be developed using a similar "climate lens" to anticipate threats and promote resilient implementation actions.

Additionally, APNEP continues to work with its partners to understand potential climate change impacts and to engage federal and state agencies, local governments, and the public. The following are a few examples from the evaluation period:

- From 2017 to present, APNEP staff participated in the [NC Climate Risk and Resiliency Plan](#) (RARP) development process required by [NC Executive Order 80](#) and led by its host NC-DEQ, designed to assist North Carolina cabinet agencies in assessing risks and vulnerabilities associated with climate change on agency programs and services. Staff participated in numerous activities established under this initiative and led development of a strategy to engage with Tribal communities in the coastal plain (described elsewhere) upon realizing Tribes were initially underrepresented in these efforts.
 - A steering committee that planned and hosted a series of workshops and summit for local governments to listen to their needs and concerns and share knowledge and resources related to coastal resilience issues. The group has continued to meet as a Coastal Resilience Community of Practice.
 - The Coastal Habitats and Pocosin Wetlands subcommittees of the Natural and Working Lands (NWL) Stakeholder Group that developed the [NWL Action Plan](#).
 - Workgroups that conducted vulnerability assessments on state agency programs and resources and wrote the ecosystems and coastal structures chapters of the plan.
 - Staff also collaborated on a multi-state U.S. Climate Alliance (USCA) project led by Duke University to expand spatial analyses to map and prioritize coastal habitats that store carbon, enhance natural and human community resilience to coastal hazards, and support a variety of species.
 - Staff facilitated or participated in several NC Interagency Climate Council meetings discussing implementation of EO80.
- Using supplemental EPA 320 funds designated to work with underserved and under-represented communities on climate resilience, APNEP partnered with the NC Commission of Indian Affairs (NCCIA), NC State University (NCSU), and Virginia Coastal Policy Center to work with tribal communities in the Albemarle-Pamlico region. The goal of this initiative is to develop a strategy for incorporating resilience into tribal planning and community engagement processes. The Tribal Coastal Resilience Team has been successful in generating research on tribal engagement in climate

and resilience planning efforts throughout the U.S., launching a social media campaign, conducting outreach at conferences and events, and creating partnerships and building the groundwork for a sustainable program. The second phase of the project was initiated in 2022. [Learn more](#).

- Resilience strategies listed in of the Climate Risk Assessment and Resilience Plan for Submerged Aquatic Vegetation (SAV) include mapping and monitoring, water quality improvement and protection, and protection from physical disturbance. APNEP and its partners have made significant contributions towards implementing these strategies through facilitating it's SAV Team and supporting research and economic valuation studies to highlight the importance of protecting this critical habitat.
- At the request of the NC Division of Parks and Recreation, APNEP has been leading development of the Scuppernong Regional Water Management Study since 2018, serving as a neutral, science-based convener of a diverse group of stakeholders and local communities to address flooding and water management issues on the northern Albemarle-Pamlico peninsula. APNEP has partnered with the NC Division of Parks and Recreation, NC Division of Soil and Water Conservation, U.S. Fish and Wildlife Service, Albemarle Commission, and Washington and Tyrrell Counties to develop a collaborative approach for a hydrologic study that will characterize the hydrology of the region, update water management plans, and address recurrent flooding. APNEP worked with members of the Coastal Resilience Community of Practice from the NC Coastal Reserve, NC Sea Grant, and The Nature Conservancy to secure additional funding to ensure equitable community engagement and input from regional stakeholders. Staff spent significant time during the evaluation period on coordinating with technical partners and stakeholders, grant application preparation, and securing partners, grant funding, and match for the project. The outcomes from the study will be utilized to build a comprehensive plan to address water management issues on both privately and publicly owned land.
- APNEP participated on a Virginia Institute of Marine Sciences (VIMS)-led team on a NOAA-funded Coastal Resilience project from 2017-2022. The team developed a spatial analysis tool for Virginia local governments to identify opportunities and criteria for using Natural and Nature Based Features (NNBFs) that increase resilience to flooding and generate credits for local governments in water quality (TMDL) and hazard mitigation (FEMA CRS) programs. The tool was released on [ADAPTVA](#) in 2021. To evaluate the tool's applicability in North Carolina, APNEP is working with Wetlands Watch to conduct a needs assessment, build a template resilience tool database, and develop outreach materials and resources that local government staff can use to compare tools and the types of NNBFs that can meet their needs. These outreach materials will promote the use of natural infrastructure to build community and ecosystem resilience, and complement outreach being conducted for the CHPP and by the Living Shorelines Committee.
- The [APNEP Air Resources Monitoring & Assessment Team](#) (AR-MAT) includes two working groups (chemical deposition and climate) working to identify metrics to assess ecosystem health and develop monitoring and assessment plans for the Albemarle-Pamlico region. The chemical deposition group has proposed "ammonia deposition" as their initial featured parameter and plans to finalize a draft metric (assessment) report for total nitrogen deposition during spring 2022. The climate group has proposed "annual and seasonal series of daily precipitation maxima" as the initial parameter reported at two scales: region/basin-wide and individual basins or sub-basins for inclusion in in the Air Resources monitoring plan. APNEP staff continue to participate in activities stemming from implementation of the 2020 NC Climate Risk and Resilience Plan, including the NWL teams, [Coastal Resilience Community of Practice](#), Statewide Resilience Clearinghouse Committee, and the [Regions Innovating for Strong Economies and Environment Program](#) (RISE).
- APNEP's involvement in these efforts have led to identification needs for integrating resilience activities with existing programs and initiatives, including working closely with NC Division of Marine Fisheries staff to develop actions that complement the goals and objectives of both APNEP's CCMP and the NC CHPP.

- Staff are also leading specific projects that will inform development of resilience strategies for communities and ecosystems including Ecological Flows and the Scuppernong Regional Water Management Study described elsewhere. APNEP reports annually on its progress on these projects towards as they also support statewide strategies for NCDEQ and the [Office of Recovery and Resiliency](#) (NCORR).

Appendix

1. NCXCloud Financial Reports
 - a. Monthly Budget for Current Year Example
 - b. NCXCloud Closeout Annual Report 2021 Example
 - c. NCXCloud Payment by Center 20-21 Example
2. 2018 EPA Program Evaluation Letter

Appendix 1: NCXCloud Budget Reports

Monthly Budget for Current Year Example

STATE OF NORTH CAROLINA GENERAL LEDGER SYSTEM
 CERTIFIED MONTHLY BUDGET REPORT
 FOR THE PERIOD ENDING FEBRUARY 28, 2023
 RUN DATE: 02/27/2023
 ATSD701

STATE OF NORTH CAROLINA GENERAL LEDGER SYSTEM
 CERTIFIED MONTHLY BUDGET REPORT
 FOR THE PERIOD ENDING FEBRUARY 28, 2023
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 CERTIFIED MONTHLY BUDGET REPORT
 FOR THE PERIOD ENDING FEBRUARY 28, 2023
 RUN DATE: 02/27/2023
 ATSD701

ACCOUNT	DESCRIPTION	CERTIFIED	AUTHORIZED	CURRENT-MONTH	YEAR-TO-DATE	UNRECORDED / UNREALIZED	AUTHORIZED	ENCUMBRANCES	RATE
531211	SPA-REG SALARIES-AFF	153,097.00	153,097.00	12,146.00	80,866.51	75,230.49	75,230.49	.00	.79
531212	SPA-REG SALARIES-REC	398,453.00	398,453.00	25,508.16	210,478.77	187,974.23	187,974.23	.00	.79
531461	EPASPA-JOBCTY PAY	4,170.00	4,170.00	1,812.00	1,812.00	2,358.00	2,358.00	.00	.65
531462	EPASPA-JOBCTY PAY	6,911.00	6,911.00	.00	3,110.00	3,801.00	3,801.00	.00	.68
531511	SOCIAL SEC CONTRIB-A	12,031.00	12,031.00	845.30	5,668.13	6,362.87	6,362.87	.00	.71
531512	SOCIAL SEC CONTRIB-B	30,527.00	30,527.00	1,828.14	15,335.01	15,191.99	15,191.99	.00	.75
531521	REC RETIRE CONTRIB-A	38,444.00	38,444.00	2,975.77	20,256.23	18,187.77	18,187.77	.00	.79
531522	REC RETIRE CONTRIB-B	93,208.00	93,208.00	6,249.51	52,329.29	40,878.71	40,878.71	.00	.84
531561	MED INS CONTRIB-AFFR	14,794.00	14,794.00	1,169.92	6,874.86	7,919.14	7,919.14	.00	.70
531562	MED INS CONTRIB-RECF	44,382.00	44,382.00	2,339.84	23,467.62	20,914.38	20,914.38	.00	.79
531576	FLEXIBLE SPENDING SA	329.00	329.00	78.88	689.36	360.36	360.36	.00	1.68
531631	WATER COMP-MED PAYME	98.00	98.00	.00	98.00	98.00	98.00	.00	.00
531XX1	PERSONAL SERVICES	796,444.00	796,444.00	53,141.52	420,897.78	375,556.22	375,556.22	.00	.79
532143	LAN SUPPORT SERVICES	514.00	514.00	.00	514.00	514.00	514.00	.00	.00
532145	SERVER SUPPORT SVC	10.00	85.00	.00	84.89	74.89	74.89	.00	1.50
532170002	ADMIN SVC-TEMP AGENC	24,561.00	20,000.00	1,294.15	11,602.54	12,958.45	8,397.45	25,000.00	2.75
532182	LAUNDRY SER AGREEMEN	148.00	148.00	.00	148.00	148.00	148.00	.00	.00
532186	SECURITY SERVICES MCR	410.00	410.00	81.66	489.96	489.96	489.96	801.29	4.72
532188	MISC CONTRACTUAL SER	86,708.00	335,614.00	.00	22,500.00	64,208.00	313,114.00	.00	1.10
53219018	MISC-HAFTING SERVICE	.00	250,000.00	.00	12,233.56	12,233.56	237,776.44	164,560.53	1.06
53219028	MISC-TRAINING	32,650.00	140,000.00	.00	7,103.84	25,546.46	132,896.46	4,461.06	.12
532321	REPAIRS-MOTOR VEHICLE	460.00	.00	.00	.00	460.00	.00	.00	.00
532390	REPAIRS-OTHER	175.00	.00	.00	.00	175.00	.00	.00	.00
532512	RENT/LEASE-BUILDING/O	12,645.00	9,500.00	418.00	3,762.00	8,883.00	5,738.00	1,254.00	.79
532513	RENT/LEASE-OTR FACIL	3,110.00	.00	.00	.00	3,110.00	.00	.00	.00
532521	RENT/LEASE-MOTOR VEH	15,812.00	9,596.00	154.17	1,059.87	14,752.13	8,536.13	.00	.17
532536	RENT/LEASE-SERVER EQ	500.00	500.00	.00	.00	500.00	500.00	.00	.00
532590	RENT/LEASE OTHER PRO	728.00	120.00	.00	.00	728.00	120.00	.00	.00
532712	TRANS AIR-OUT STATE,	725.00	.00	433.20	291.80	433.20	433.20	.00	.00
532714	TRANS-CHND - IN STA	2,774.00	1,720.00	56.65	264.65	2,509.35	1,455.35	.00	.23
532715	TRANS-CHND-OUT STA,I	44.00	.00	.00	.00	44.00	.00	.00	.00
532716	LOOKING - IN STATE	7,919.00	5,210.00	.00	1,398.90	6,520.10	3,811.10	.00	.40
532722	LOOKING-OUT STATE, I	5,438.00	.00	495.24	495.24	4,942.76	4,942.76	.00	.00
532724	MEALS - IN STATE	3,255.00	2,001.00	32.30	230.83	3,024.17	1,770.17	.00	.17
532725	MEALS-OUT OF STATE-I	4,222.00	.00	.00	.00	4,222.00	.00	.00	.00
532726	MEALS-OUT OF STATE-I	962.00	132.30	.00	279.20	682.80	279.20	.00	.00
532727	MISC - IN STATE	1,231.00	36.00	.00	40.23	1,190.77	1,109.77	.00	.05
532728	MISC - OUT STATE, IN	125.00	.00	.00	.00	125.00	.00	.00	.00
532811	TELEPHONE SERVICE	6,094.00	4,170.00	29.47	1,070.15	5,023.85	3,099.85	.00	.38
532812	TELECOMMUN DATA CERG	1,060.00	1,060.00	48.70	354.55	705.45	705.45	.00	.50
532814	CELLULAR PHONE SERVI	5,632.00	3,000.00	424.65	943.48	4,688.52	2,056.52	.00	.47
532815	EMAIL AND CALENDARIN	609.00	601.00	8.29	73.24	535.76	537.76	.00	.18
532821	COMPUTER/DATA PROCES	448.00	150.00	.00	448.00	448.00	150.00	.00	.00
532822	MANAGED LAN SVC CBR	1,000.00	1,000.00	88.66	646.01	353.99	353.99	.00	.97

NCXCloud Closeout Annual Report 2021 Example

RMDSD16 STATE OF NORTH CAROLINA GENERAL LEDGER SYSTEM PAGE: 3
 80701-2A CERTIFIED MONTHLY BUDGET REPORT-ORG-BAKX D16-GL-80701-CERT-DET-ACCT
 160 DEPT OF ENVIRONMENTAL QUALITY FOR THE PERIOD ENDING JUNE 29, 2021 RUN DATE: 08/07/2021
 14300 DEQ-GENERAL 139.36 250.64 110.64
 1610 ADM -NRP /CONC(NRP/CFC)(LNS) 664.29 235.71 610.71
 6106 ADM -ALB-FAM ESTUARY2003(NSP)(LNS)

DETAIL REPORT

ACCOUNT	DESCRIPTION	CERTIFIED	AUTHORIZED	CURRENT-MONTH	YEAR-TO-DATE	UNRENDERED / CERTIFIED	UNREALIZED / AUTHORIZED	ENCUMBRANCES	RATE
EXPENDITURES--BUDGET AND ACTUAL									
534521	OFFICE EQUIPMENT	200.00	.00	.00	.00	200.00	.00	.00	***
534534	PC/PRINTER EQUIPMENT	300.00	525.00	.00	524.93	254.93	.07	.00	1.00
534713	PC SOFTWARE	400.00	250.00	.00	139.36	250.64	110.64	.00	.56
534XXX	PROPERTY, PLANT & EQ	900.00	1,275.00	.00	664.29	235.71	610.71	.00	.52
535640	INDIRECT (OVERHEAD)	53,310.00	28,035.00	.00	.00	53,310.00	28,035.00	.00	.00
535830	MEMBERSHIP DUES&FES	600.00	558.00	.00	.00	600.00	558.00	.00	.00
535890	OTHER ADMIN EXPENSE	.00	304.00	.00	.00	304.00	.00	.00	.00
535900	OTHER EXPENSES	.00	55.00	.00	.00	.00	55.00	.00	.00
535XXX	OTHER EXPENSES & ADJ	53,910.00	28,952.00	.00	.00	53,910.00	28,952.00	.00	.00
536236	AFNRP GRANTS - NCO	50,000.00	.00	.00	.00	50,000.00	.00	.00	***
536426	AFNRP GRANTS-GOVERNH	50,000.00	16,810.00	.00	.00	50,000.00	16,810.00	.00	.00
536XXX	AID & PUBLIC ASSISTN	100,000.00	16,810.00	.00	.00	100,000.00	16,810.00	.00	.00
5381CS	I TRF TO GREEN SQUAR	2,500.00	.00	.00	.00	2,500.00	.00	.00	***
538129	I TRF TO REC FIELD O	6,500.00	3,000.00	927.00	2,259.78	4,240.22	740.22	.00	.75
538XXX	INTRAGOVERNMENTAL TR	9,000.00	3,000.00	927.00	2,259.78	6,740.22	740.22	.00	.75
	TOTAL NON-SALARY ITE	636,606.00	217,387.00	25,444.78	151,439.12	485,166.88	65,947.88	66,371.59	1.00
	EXPENDITURES	1,145,672.00	217,387.00	25,444.78	151,439.12	994,232.88	65,947.88	66,371.59	1.00
REVENUES--ESTIMATED AND ACTUAL									
437300	INDIRECT(OVERHD) COG	53,310.00	.00	.00	.00	53,310.00	.00	.00	***
538833	EPA IMPLEMENTATION C	1,092,362.00	217,387.00	53,057.19	151,439.12	940,922.88	65,947.88	.00	.70
	REVENUES	1,145,672.00	217,387.00	53,057.19	151,439.12	994,232.88	65,947.88	.00	.70
	APPROPRIATION	.00	.00	27,612.41	.00	.00	.00	.00	***

NCXCloud Payment by Center 20-21 Example

PAGE: 263
A16-AP-PTMG-TO-VENDORS
RUN DATE: 08/06/2021

STATE OF NORTH CAROLINA ACCOUNTING SYSTEM
PAYMENTS TO VENDORS
FOR THE PERIOD 07/01/2020 - 06/29/2021

RMDS 1610
REPORT DAPC89
COMPANY: 1601
1610 ACH_NRP /CONS(NRP/CPC) (LMS)
16PT AGENCY

CENTER	ACCOUNT	DATE	CHECK NO	INVOICE	AMOUNT	VENDOR NO	CRP NO	VENDOR NAME	MATCHING PO/LINE NBR	CHK
6105	532170002	06/09/2021	134905	44341489302	469.74	561130957	12	OGP TEMPORARY SOLUTIONS		E
6105	532170002	06/24/2021	135727	44358093253	229.42	561130957	12	OGP TEMPORARY SOLUTIONS		E
6105	532170002	06/24/2021	135727	44358489302	474.79	561130957	12	OGP TEMPORARY SOLUTIONS		E
6105	532199028	01/21/2020	2571921	CM00163590	9,358.12	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	03/18/2021	2576466	1606CBANT	4,417.36	561240806	02	FRIENDS OF THE NC STATE MUSEUM	EP504819000001	E
6105	532199028	01/24/2020	2573786	CM00168935	7,154.77	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	08/12/2020	2576231	CM00161819	1,257.02	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	11/24/2020	2572796	CM00162577	2,110.28	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	11/12/2020	2572449	CM00162584	8,235.15	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	11/24/2020	2572796	CM00163564	1,712.32	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	01/27/2021	2574172	CM00164498	1,234.34	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	11/24/2020	2572796	CM00165423	1,232.47	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	12/22/2020	2573439	CM00166424	1,260.41	566001393	24	UNC CHAPEL HILL	NC1068820600001	E
6105	532199028	05/05/2021	2577038	CM00171169	1,074.89	566001393	24	UNC CHAPEL HILL	EP499248700001	E
6105	5328115	07/22/2020	125846	200600420	1.09	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	09/16/2020	127238	200700413	1.12	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	10/28/2020	128352	200800415	1.09	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	12/08/2020	138578	200900424	1.11	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	01/06/2021	130357	201000419	1.11	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	02/18/2021	134604	2011085733	1.00	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	02/24/2021	131757	2101066201	0.95	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	04/07/2021	133011	2102056213	1.19	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	04/14/2021	133149	2103014329	0.95	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	05/05/2021	133640	2104014330	0.94	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	05/26/2021	134467	2105014335	0.93	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	07/22/2020	125846	200600420	25.06	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	09/16/2020	127238	200700413	25.06	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	10/28/2020	128352	200800415	25.06	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	12/08/2020	138578	200900424	25.06	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	01/06/2021	130357	201000419	25.06	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	02/18/2021	134604	2011085733	24.48	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	04/07/2021	133011	2102056213	25.06	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	04/14/2021	133149	2103014329	24.48	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	05/05/2021	133640	2104014330	24.48	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	5328115	05/26/2021	134467	2105014335	24.48	562032825	04	NC DEPT OF INFORMATION TECHNOLOG		E
6105	533150	05/26/2021	10127546	CL167701736328AEY	64.41	510331454	A	BANK OF AMERICA		E
6105	533150	05/26/2021	10127547	CL167701736328AEZ	64.41	510331454	A	BANK OF AMERICA		E
6105	535840	06/23/2021	135558	456155	28.48	300712287	12	NC DFC ENTERPRISE OPERATIONS		E
6105	535199	08/12/2020	2570220	CM50119243	3,696.61	566000756	I	NC STATE UNIVERSITY	NC1065703000001	E
6105	535199	08/12/2020	2570220	CM50112346	7,078.83	566000756	I	NC STATE UNIVERSITY	NC1065703000001	E
6105	535199	09/02/2020	2570782	CM50113325	5,646.13	566000756	I	NC STATE UNIVERSITY	NC1065703000001	E
6105	535199	11/12/2020	2572442	CM50144862	13,098.29	566000756	I	NC STATE UNIVERSITY	NC1065703000001	E
6105	535199	12/02/2020	2572942	CM50171737	1,178.70	566000756	I	NC STATE UNIVERSITY	NC1065703000001	E
6105	532199018	11/05/2020	2572301	90746510	35,440.20	566000967	15	NC DEPT OF TRANSPORTATION	NC1061823700001	E
6105	532199028	01/27/2021	130910	INVOICE5	1,350.05	566000372	40	NC DEPT OF ENVIRONMENT QUALITY	EP501916900001	E
6105	532199028	01/27/2021	130910	INVOICE6	7,838.11	566000372	40	NC DEPT OF ENVIRONMENT QUALITY	EP501916900001	E
6105	532199028	06/23/2021	135703	INVOICE7	10,833.43	566000372	40	NC DEPT OF ENVIRONMENT QUALITY	EP510489800001	E
6105	532199028	06/23/2021	135703	INVOICE8	7,382.82	566000372	40	NC DEPT OF ENVIRONMENT QUALITY	EP510489800001	E
6105	532199028	06/23/2021	135703	INVOICE9	4,524.00	566000372	40	NC DEPT OF ENVIRONMENT QUALITY	EP510489800001	E
6105	532199028	08/19/2020	2570395	CM50122360	479.56	566000756	I	NC STATE UNIVERSITY	NC1057311000001	E
6105	532199028	04/29/2021	2576817	CM50124574	811.90	566000756	I	NC STATE UNIVERSITY	EP499414000001	E



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 4 2018

OFFICE OF WATER

Dr. William L. Crowell, Jr.
Director
Albemarle-Pamlico National Estuary Partnership
1601 Mail Service Center
Raleigh, NC 27699-1601

Dear Dr. Crowell:

Thank you, Bill, and the Albemarle-Pamlico National Estuary Partnership (APNEP) staff, as well as your many partners, for contributing to a successful 2018 PE process. We recognize that everyone involved put considerable effort into both the PE package and the responses to our follow-up questions. We also appreciate your facilitation of the PE Review Team's site visit that enabled the Review Team to meet your staff and visit projects and people in your program area. The purpose of this letter is to provide the results of the Environmental Protection Agency's (EPA) 2018 Program Evaluation (PE), which covers a review period from July 1, 2012 through June 30, 2017.

I would like to note that your evaluation benefited from the voluntary participation of Dr. Duane De Freese, Executive Director of the Indian River Lagoon National Estuary Program (IRLNEP), who served in an ex-officio capacity on the PE Review Team. Dr. De Freese's participation provided the Review Team members with an invaluable National Estuary Program (NEP) perspective. Dr. De Freese also shared information about the Indian River Lagoon NEP that may be useful for your Partnership, and took several lessons learned back to his NEP.

The primary purpose of the EPA PE is to help EPA determine whether the 28 programs included in the NEP are making adequate progress implementing their Comprehensive Conservation and Management Plans (CCMPs). The evaluation process has considerably enhanced EPA Headquarters and Regional knowledge of each individual NEP and promoted sharing of innovative projects and approaches across all 28 NEPs. In addition, EPA uses the evaluation process to assess how the NEPs support Clean Water Act (CWA) core programs and to evaluate the extent and effectiveness of the NEPs' contributions to achievement of one relevant EPA 2016 - 2020 Strategic Plan goal—Goal 2: Protecting America's Waters, Objective 2.1, Protect Human Health and Objective 2.2, Protect and Restore Watersheds and Aquatic Ecosystems.

Based on the PE Review Team's findings, we believe your Partnership continues to make significant progress in implementing the APNEP CCMP. *We are pleased to announce that you have passed the 2018 PE and are eligible for funding authorized by CWA §320.*

2018 Program Evaluation Findings

The following summary highlights the Review Team's key findings by identifying APNEP's: (I) Progress Made in the Areas Highlighted in the 2013 Program Evaluation, (II) Support of CWA Core Programs, (III) Strengths, and (IV) Challenges. This summary is intended both to recognize the Partnership's successes and to recommend efforts to further strengthen the Partnership. The Partnership's response to these recommendations will be evaluated in the next PE cycle.

I. Progress Made in the Areas Highlighted in the 2013 Program Evaluation Review

Program Implementation and Reporting - Maintaining Visibility and Independence

2013 letter recommendations:

- APNEP should maintain current staffing levels (Director, Project Manager, Program Scientist, Policy and Engagement Manager, Coastal Habitat Coordinator)
- The Host Agency (formerly NCDENR, now NCDEQ) should provide APNEP with direct administrative support

During a portion of the review period (2014-2016), APNEP staff was reduced to Director, Program Scientist, and Coastal Habitats Coordinator. Additionally, the Director and Coastal Habitats Coordinator positions were reduced to half time in order to support North Carolina Clean Water Management Trust Fund operations. This is contrary to the 2013 recommendation to maintain 2013 staffing levels; however, towards the end of the review period (Spring 2017), APNEP was allowed to fill vacancies and is now staffed at the level recommended by the Policy Board in 2014. The staff positions, all approved by the Policy Board, include Ecosystems Analyst, Communications and Outreach Specialist, and a new position of Watershed Manager. It is our understanding that the Virginia position has now been filled as well.

APNEP's host agency was reorganized by the North Carolina General Assembly from the North Carolina Department of Environment and Natural Resources (NCDENR) into the North Carolina Department of Environmental Quality (NCDEQ) in 2015. With this reorganization, NCDEQ moved APNEP into the Planning Section of the Division of Water Resources within NCDEQ. During this restructuring period, APNEP lacked direct administrative support, but was able to maintain limited autonomy and continued to fulfill its mission via active engagement of the Policy Board, Science and Technical Advisory Committee (STAC), and its partners. The Review Team's positive interactions with the leadership from NCDEQ's Office of the Secretary during the site visit are hopeful indications that as APNEP's host entity, NCDEQ reaffirms its administrative and fiduciary responsibilities as called out in the EPA-APNEP cooperative agreement.

Though technically outside the review period for this Program Evaluation, the Review Team would like to acknowledge the new NC Governor's Executive Order (EO), signed in November 2017. This new EO prescribes that APNEP will be housed within NCDEQ's Office of the Secretary, establishes a new Leadership Council (replacing the Policy Board), and details programmatic support from Executive Branch agencies and Council of State agencies as well as state universities to ensure they work cooperatively with APNEP in implementing the CCMP. In addition to the EO, a cooperative Memorandum of Understanding (MOU) between the State of North Carolina and the Commonwealth of Virginia was also signed in the Fall of 2017. These two documents illustrate continued commitment to APNEP's role as a visible, trusted, independent source of information for the communities and partners within the region.

Ecosystem Status and Trends - Need for Assessment and Monitoring

2013 letter recommendations:

- Develop long-term monitoring plan and indicators of ecosystem and socio-economic conditions
- Leverage support from NCDEQ senior leadership as well as other state and federal partners

Development and implementation of a monitoring plan or strategy have been requested by the EPA since the 2002 Program Evaluation. Over the years, multiple efforts at finalizing indicator development have been attempted (2004-2006, 2006-2007, 2012-2013) but never quite materialized into a strategy or plan. APNEP published an Ecosystem Assessment in 2012 that contained the core indicators for the bi-state estuary system to accompany their new CCMP based on an Ecosystem Based Management (EBM) approach, and some monitoring

and assessment work was performed during the review period, including submerged aquatic vegetation (SAV) mapping and intensification of the National Aquatic Resource Survey in 2015. However, the need for a robust monitoring strategy and development of ecosystem and socio-economic indicators was not fully met during this review period.

Although implementation of this goal stalled during the review period, APNEP has made significant progress since 2017. APNEP has formed several Monitoring and Assessment Teams, which include STAC members, that are on track to provide indicators to the Management Conference for review in 2018. The Review Team encourages APNEP to continue to leverage support from NCDEQ leadership and other state and federal partners to prioritize limited resources and strategize monitoring efforts over APNEP's large program area.

Ecosystem Restoration and Protection - Need to Measure and Report on Short-term Project Outcomes

2013 letter recommendations:

- Develop protocol to measure short-term outcomes of projects
- Establish project baselines to measure, track, and report on project progress

APNEP is currently developing an outcome tracking protocol that includes baseline data from funded projects to better assess their effectiveness. These metrics will then be compiled together for APNEP management to make long-term decisions about overall effectiveness in implementing the CCMP. Because APNEP is still developing ecosystem and management indicators, they were not able to report out on the collective status of short-term project outcomes during the review period. However, the Review Team is encouraged that the Partnership will continue to request metrics information in future project requirements. Additionally, the Review Team encourages APNEP to better align funded projects to meet programmatic outcomes that also lead to measurable environmental results.

Ecosystem Restoration and Protection - Need to Address Nutrient Criteria

2013 letter recommendations:

- Work with partners to collect water quality monitoring data
- Support the development of models
- Facilitate stakeholder involvement in nutrient management
- Investigate relationships between contaminant loads and living resources
- Propose scientifically-based targets that DWR may consider as numeric criteria

The Review Team commends APNEP leadership, particularly the STAC, for taking a leadership role in convening scientists, stakeholders, and agency staff to build consensus on appropriate water quality nutrient criteria parameters. A series of nine meetings took place between 2014 and 2016, and the workgroup utilized NC's Nutrient Criteria Development Plan (NCDP) to facilitate their deliberations. While ultimately no criteria recommendations emerged from this effort, the workgroup identified many research priorities which the state lead, NC Division of Water Resources, is currently undertaking. Nutrient management is central to APNEP's many CCMP objectives. The Review Team encourages APNEP to cultivate and sustain continued engagement with the NC Scientific Advisory Council and the Nutrient Criteria Implementation Committee on this issue during the next cycle of criteria evaluation.

Program Implementation and Reporting - Financial Strategy for Communications

2013 letter recommendations:

- NCDEQ to assist APNEP in leveraging other NCDEQ program resources
- Develop a strategy and funding plan for communication efforts

- Identify a tool for assessing impacts of investment in communication plan

APNEP continues to rely on the strong support of its partners to leverage communication and engagement activities throughout the region. Its communication plan serves as an effective guide for reaching out to a variety of audiences, partnering with the NC Environmental Education and Public Affairs Office to help spread the word about APNEP's wide-ranging activities. The Review Team commends the Partnership for developing a new communications strategy – the 2018 Engagement Strategy – that refines their engagement approach. The Review Team is pleased that APNEP is in the process of assessing the impact of its investments in communications and outreach efforts to better identify areas for improvement or new opportunities.

II. Support of CWA Core Programs

Addressing Diffuse, Non-Point Sources of Pollution

APNEP played a primary role in providing approximately \$75,000 of FY2013 EPA Section 320 funds to support a restoration project that enabled storage and filtration of surface runoff from 3,700 acres of cropland in Hyde County, NC. One water control structure, ten swales, and 8,750 feet of dike were cored as part of this project. This investment resulted in diverting approximately 100 million gallons of runoff generated by a 24-hour rain event through restored wetlands and away from the Alligator River, Long Shoal River, and Pamlico Sound. In addition to improved water quality benefits, this landscape-scale effort helps reverse decades of hydrological modifications and eventually restore these waters with a thriving shellfish population. A project of this magnitude also demonstrates effective, non-traditional partnerships among environmental organizations such as the NC Coastal Federation (the project lead); academia (NC State University); federal government (U.S. FWS, USDA-NRCS); and private landowners (Mattamuskeet Ventures).

Supporting Sustainable Wastewater Infrastructure

APNEP provided \$12,000 to the towns of Columbia and Manteo in 2013 to quantify risks posed by rising sea levels on the towns' wastewater infrastructure. The project team used the EPA Climate Risk Evaluation and Assessment Tool (CREAT) under the EPA's Climate Ready Water Utilities initiative. The project team provided technical and financial recommendations for the towns to improve resiliency to coastal hazards and made suggestions for the towns to consider in their capital improvement planning.

III. Strengths Related to:

Program Implementation and Reporting - Program Planning and Administration

The EPA commends APNEP and its leadership for sustained focus on performance. Seventy-nine Section 320-funded projects contributed to restoring and protecting nearly 75,000 acres of habitat during the review period. APNEP also maintained its reputation as a trusted source for information sharing throughout the region. APNEP's strength during this review period was demonstrated in its strong leveraging capacity; it collaborated with partners to deliver 6:1 in primary leveraging and 13:1 overall. Much of the credit goes not only to its diverse network of partners but also to strong support from its Management Conference and staff, effectively returning APNEP to full staff capacity in a year.

Program Implementation and Reporting - Outreach and Public Involvement

APNEP's outreach during this review period is one of its biggest accomplishments due to its multiple approaches for stakeholder engagement. Programs such as Shad in the Classroom and the Teacher Institute have encouraged greater environmental stewardship from both students and educators. The partnership with the

North Carolina Office of Environmental Education and Outreach is vital to the continued success of these programs.

APNEP hosted a 2013 symposium to report on the overall status of APNEP's natural habitats and resources and also led topical discussions (Low Impact Development Summit, Oyster Summit, Living Shorelines Workshop) meant to foster greater discussions and knowledge transfer among academia, research, and businesses.

Two Economic Valuations (2012 and 2016) were published with the goal of assisting APNEP in communicating the important economic and societal contributions made by the natural resources in the APNEP region. Above all, APNEP's excellent mechanism for sharing news and available resources, particularly through online media, assures that their stakeholders have access to the most current information. APNEP has a new draft Engagement Strategy which outlines even more methods for information sharing and stakeholder engagement.

While APNEP no longer has a dedicated Citizen Advisory Committee per se, the Review Team looks forward to seeing how the newly-formed Implementation Committee integrates the general public's input into the decision-making process.

Ecosystem Status and Trends - NCCA 2015 Coastal Intensification Survey

Every five years, the EPA's National Coastal Condition Assessment (NCCA) typically includes some sites within NEP boundaries in its survey design. In 2015, APNEP was the first NEP to participate in an intensification survey in which additional sites were added for better statistical estimates of the condition of its waters. This meant having to conduct training, coordinate sampling logistics, and procure needed supplies and equipment in a relatively short period of time. Since much of the current monitoring around the APNEP region has been focused in tributaries, the 2015 NCCA intensification survey complemented limited efforts along the Sounds, even in the absence of an APNEP monitoring strategy. You also gave a presentation on APNEP's experience and efforts during the national EPA-NEP workshop in March 2018. The Review Team commends the Partnership for taking this leadership opportunity and serving as a model for other NEPs that may choose to participate in the next NCCA survey in 2020.

IV. Challenges Related to:

Program Planning and Administration - Develop a Common APNEP Vision to Promote its Program Identity

While APNEP has successfully formed productive alliances over the years, the reviewers noted that APNEP lacks a strategic direction with clear year-to-year goals and objectives that focus its efforts. APNEP has a recent CCMP, but its implementation depends on EBM-based indicators that are still being developed. Developing a strategic plan would allow the Partnership to be recognized by the public and to receive appropriate credit for all the efforts it puts into CCMP implementation.

Over the course of the next review period, the EPA recommends that APNEP develop a vision statement, informed by its entire Management Conference and approved by its newly-formed Leadership Council, that articulates its exact role and explains APNEP's value to this bi-state estuary system. This statement should serve as a guiding principle for showcasing what the Partnership can offer and for elaborating how its partners can better support the APNEP brand in implementing the CCMP. This vision should also direct APNEP in prioritizing its limited resources to serve the large area within its boundaries.

Financial Management - Explore Additional Opportunities for Funding CCMP Implementation Activities

APNEP has successfully leveraged much of its non-federal match in the form of in-kind support from staff (Coastal Habitats Coordinator, Watershed Manager) and expenditures by the Clean Water Management Trust Fund and the Division of Water Infrastructure. The extensive list of partners throughout this large watershed has not translated to additional revenue for CCMP implementation. This means that a considerable portion of APNEP's base funding is used to support state staff, leaving limited EPA Section 320 base funds available to cover other important implementation activities.

Because APNEP has not yet developed a long-term funding strategy that enables it to target diverse funding sources, the EPA recommends that APNEP take steps to develop such a strategy to identify priorities, catalog potential funding sources, and obtain funds. APNEP should consider integrating strategic financial planning (i.e., cost-benefit analysis) into its current annual workplan process so it can better identify projects with the most likelihood of delivering environmental results. The EPA also recommends that APNEP use economic valuations to communicate the value of the estuary to the state(s) and encourage more direct financial support.

Assessment and Monitoring - Finalize Completion of a Monitoring Strategy

The Review Team is aware that an initial suite of indicators is being considered for Management Conference approval by the end of 2018 now that APNEP has returned to full staff capacity. These indicators should be linked to a robust monitoring strategy, which serves as both a scientific tool and a decision-making tool that informs policy.

Given the increased public-sector emphasis on accountability and government stakeholder requests to demonstrate environmental results, APNEP leadership—from the Monitoring and Assessment Teams (MATs) and STAC to the Leadership Council—should prioritize completion of a monitoring strategy which reflects the Partnership's implementation priorities. Implementation of the monitoring strategy should begin by 2020, ahead of making revisions to the CCMP. To ensure timely delivery of the monitoring strategy, the Review Team requests that a progress report on its status be submitted to EPA to accompany APNEP's semi-annual reporting. To help meet this challenge, the EPA recommends that APNEP consult the latest NEP Funding Guidance for directions on developing a monitoring strategy. The Review Team also encourages APNEP to take advantage of technical resources from the EPA that can better inform the role of citizen science in APNEP's monitoring strategy.

Reporting - Better Communicate Programmatic Accomplishments and Environmental Results

As previously mentioned in Section I, identifying metrics to gauge the effectiveness of short-term outcomes is critical for determining continued support of implementation projects. Even in the absence of measurable environmental results, CCMP activities should still demonstrate that APNEP is directly benefiting from these investments because they support its overall programmatic priorities. In the first iteration of the narrative section in the PE package, the significance of the projects chosen to highlight accomplishments in support of the six workplan elements (Habitat, Water Quality, Living Resources, Healthy Communities, Trainings, Direct Assistance) was not readily apparent to the Review Team because content was lacking in detail. The subsequent revision and multiple interactions at the site visit further illustrated the important role that partners play in advancing APNEP's mission through their own work.

It is important that programmatic milestones and environmental results be communicated to the public and to APNEP stakeholders to continue building long-term support for the Partnership. In addition to highlighting projects in the annual work plan, the EPA recommends the Partnership enhance its website by dedicating prominent space to more clearly emphasize accomplishments. This would supplement APNEP's other means of communication (mail list, blogs, social media) and could also help attract potential partners who might be interested in knowing how funds have been used to date and any plans for additional funding. The EPA also

recommends publishing an annual comprehensive report on projects and accomplishments to distribute to the public.

Program Planning and Administration - Revise CCMP Before 2022

One key theme that has emerged from other NEPs undergoing CCMP revision is the value of using the revision process to better identify existing and emerging impediments to effective implementation. As APNEP will likely have the next iteration of its CCMP in place before the next PE review, it is crucial that the Partnership consider how it can continue benefiting from its current suite of investments while positioning itself for long-term success.

The Review Team recommends that APNEP conduct a formal revision of its CCMP before 2022 by developing a process for assessing its priorities and identifying measurable environmental goals and targets. The revised CCMP should also include specific criteria for evaluating which projects are implemented over the next five to ten years. APNEP is reminded to consult the NEP Funding Guidance for directions and other deadlines pertaining to CCMPs.

Thank you again for participating in the PE process. We welcome any additional thoughts you may have either about the evaluation process itself or about EPA's involvement in the implementation of APNEP's CCMP. If you have any questions or comments, please contact me at (202) 566-2954 or Vince Bacalan at (202) 566-0930.

Sincerely,



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