THE STATE OF NORTH CAROLINA
Wetland Program Plan

NORTH CAROLINA
Department of Environmental Quality

2021 - 2025

Submitted to the US Environmental Protection Agency by:

North Carolina Division of Water Resources
Department of Environmental Quality
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Date

NC DWR (North Carolina Division of Water Resources). 2021.
The State of North Carolina Wetland Program Plan 2021-2025
http://www.ncwetlands.org/wpp

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NORTH CAROLINA
Department of Environmental Quality

TABLE OF CONTENTS

Patsy Pond Nature Trail, Croatan National Forest, Newport, NC

LIST OF TABLES

LIST OF FIGURES

LIST OF FEATURE BOXES

List of Abbreviations

Abbreviation	Description
CAMA	Coastal Area Management Act
CEF	Core Element Framework
DCM	Division of Coastal Management
DEMLR	Division of Energy, Mineral, and Land Resources
DEQ	Department of Environmental Quality
DMF	Division of Marine Fisheries
DMS	Division of Mitigation Services
DWR	Division of Water Resources
EMC	Environmental Management Commission
EPA	Environmental Protection Agency
NC	North Carolina
NCSU	North Carolina State University
NC WAM	North Carolina Wetland Assessment Method
NOAA C-CAP	National Oceanic and Atmospheric Administration Coastal Change Analysis Program
NPDES	National Pollutant Discharge Elimination System
NWCA	National Wetland Condition Assessment
NWI	National Wetland Inventory
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WOTUS	Waters of the United States
WPP	Wetland Program Plan
WPS	Water Planning Section
WQPS	Water Quality Permitting Section
WQROS	Water Quality Regional Office Section
WRC	Wildlife Resources Commission

Introduction

Development of a state Wetland Program Plan (WPP) is encouraged by the US Environmental Protection Agency (EPA) as part of its Enhancing State and Tribal Programs Initiative. This update of the NC WPP provides brief summaries of North Carolina Department of Environmental Quality's (NC DEQ) wetland goals and specific activities, the respective Divisions/Sections addressing them through 2025, the appropriate EPA Core Element Framework (CEF) actions (US EPA 2009a), stakeholder members, and interests expressed by stakeholders. The NC WPP also provides direction and focus for proposed wetland work, allows planning of work directed towards achieving program goals, and serves as a communication tool with the public and other interested agencies to garner support for and encourage partnerships to accomplish NC wetland goals. This is not a regulatory document and does not impose any additional regulations.

The first full NC WPP (approved October 2015) was developed through a stakeholder process with the goal of enhancing the state wetland program. The original NC WPP addressed the functions and services of wetlands and listed goals and activities needed to further understand and manage North Carolina's wetlands. The original list of activities was extensive and provided guidance for anyone pursuing wetland projects in the state. The list of activities, along with other background and supporting information, can be found in the original NC WPP (NC DWR 2015).

Several wetland projects have been conducted since adoption of the NC WPP in 2015 (Table 1).

Jones Lake State Park, Elizabethtown, NC

Table 1: Highlighted wetland projects in response to the 2015 NC WPP

Project	EPA Grant #	Primary Investigator	Link to project information
Statewide wetland assessment through EPA 2016 National Wetland Conditions Assessment (NWCA)	N/A	NC DWR - Greg Rubino	http://www.ncwetlands.org/project/nwca/ or https://www.epa.gov/national-aquatic-resource-surveys/nwca
Identification and designation of Strategic Habitat Areas for marine and coastal fishery species (Cape Fear River Basin)	N/A	NC DCM – Anne Deaton & Casey Knight	http://portal.ncdenr.org/web/mf/habitat/SHAs
Assessment of 16 long-term wetland monitoring sites	CD-00D25014	NCSU – Dr. Michael Burchell	https://www.bae.ncsu.edu/people/mrburche/
Assessment of water quality benefits of urban wetlands in Raleigh's Walnut Creek Watershed	CD-00D65017	NC DWR-Greg Rubino	http://www.ncwetlands.org/project/urban-wetland-water-quality/
Development of North Carolina wetland educational materials through ncwetlands.org	CD-00D51216	NC DWR-Kristie Gianopulos & Amanda Mueller	http://www.ncwetlands.org/
Assessment of the accuracy of National Wetland Inventory Maps (NWI) for North Carolina	AA-01D03020 MPG	NC DWR – Susan Gale	In progress (to be completed June 2021)
Development and testing of wetland hydrology performance criteria for restoration sites	CD-00D83918	NCSU – Dr. Michael Vepraskas	In progress (to be completed September 2022)

"North Carolina's Wetland Program Plan 2021-2025" updates the original five-year plan and focuses on NC DEQ's projected wetland work through 2025. Representatives from NC DEQ Divisions/Sections (Figure 1, Appendix B) provided their program's wetland goals for the next five years. All the Divisions'/Sections' goals are categorized by their respective EPA CEF (US EPA 2009a) (i.e., Monitoring and Assessment, Regulation, Voluntary Restoration and Protection, and Water Quality Standards for Wetlands) and reference their respective EPA Objective and Action (Table 2,3,4, and 5, Appendix D).

Figure 1: NC Department of Environmental Quality Organization Chart of Division/ Sections with NC WPP activities (Division/Section summaries are provided in Appendix B)

Overview of NCDEQ Divisions/Sections

Albemarle-Pamlico National Estuary Partnership (APNEP) – APNEP is a federally funded program whose mission is to identify, protect, and restore the significant natural resources of the Albemarle-Pamlico estuarine system. APNEP utilizes an ecosystem-based management approach and engages citizens and organizations to ensure a coordinated approach to addressing pressing regional issues.

Division of Energy, Mineral, and Land Resources (DEMLR) – NC DEMLR regulates and provides technical assistance related to mining, dams, sediment and erosion control and stormwater management.

Division of Water Resources: Water Planning Section (DWR-WPS) – NC DWR-WPS develops standards, rules and management strategies to protect water quality, carries out water supply planning, provides guidance to local water systems, and monitors drought conditions.

Division of Water Resources: Water Quality Permitting Section (DWR-WQPS) – NC DWR-WQPS has six branches that are responsible for compliance, expedited permitting, non-discharge effluent land application and beneficial uses of reclaimed water, animal feeding operations, National Pollutant Discharge Elimination System (NPDES) permits for industrial and municipal projects, and 401 and buffer permitting.

Division of Coastal Management (DCM) – NC DCM carries out the state's Coastal Area Management Act (CAMA), the Dredge and Fill Law, and the federal Coastal Zone Management Act of 1972 in the 20 coastal counties. NC DCM also manages public beach and waterfront access and North Carolina Coastal Reserves.

Division of Marine Fisheries (DMF) – NC DMF regulates the state's marine and estuarine fisheries and habitats.

Division of Mitigation Services (DMS) – NC DMS offers four In-Lieu Fee mitigation programs designed to assist private and public developers in meeting state and federal compensatory mitigation requirements for streams, wetlands, riparian buffers, and nutrients.

Division of Water Resources: Water Sciences Section (DWR-WSS) – NC DWR-WSS has chemical and biological laboratories that provide DWR with the biological, chemical and technical support required to regulate and manage water quality throughout the state, as well as comply with federal monitoring requirements.

Division of Water Resources: Water Quality Regional Operations Section (DWR-WQROS) – NC DWR-WQROS is the public's first contact with the agency for environmental emergencies, permit acquisition and compliance, and groundwater well permitting and compliance.

2020-2021 NC WPP Stakeholder Group

Albemarle-Pamlico National Estuary Partnership
Carolina Wetlands Association
Duke University – Nicholas School of the Environment
NC Association of County Commissioners
NC Association of Environmental Professionals
NC Association of Floodplain Managers
NC Coastal Federation
NC Department of Transportation
NC Division of Water Resources - Water Planning Section
NC Division of Mitigation Services
NC Division of Water Resources - Water Quality Permitting Section (401 & Buffer Permitting)
NC Environmental Restoration Association
NC Farm Bureau Federation
NC Forestry Association
NC Home Builders Association
NC League of Municipalities (Regulatory Action Committee)
NC Regional Councils (COGs)
NC Wildlife Resources Commission
North Carolina State University
Professional Engineers of NC
RTI International
The Nature Conservancy
University of North Carolina - Wilmington
US Army Corps of Engineers
US Fish and Wildlife Services – Asheville

The NC WPP stakeholder group was reconvened in 2020-2021. NC DEQ recognizes that including a diverse group of individuals as part of a stakeholder process incorporates expertise and local knowledge to develop a stronger, comprehensive NC WPP. The stakeholder group consisted of representatives from government (local, state, and federal), professional, non-profit, and academic organizations. Stakeholders shared their group's needs related to NC wetlands, provided feedback on NC DEQ's projected wetland work, and reviewed the proposed NC WPP. Stakeholders responded to surveys and expressed their interest (yes/no) in individual activities proposed by NC DEQ and other stakeholder members. The level of support (percent of total responses) is noted in the DEQ proposed activity tables (Tables 2, 3, 4, 5, and 6) and the "Additional Stakeholder Interests" (p. 25). Given the diversity of interests represented within the stakeholder group, not all stakeholder group members support all the activities listed in the NC WPP.

North Carolina's Wetlands

National Wetland Inventory (NWI) maps show that North Carolina has 3.9 million acres of wetlands (94% are east of the fall line), based on a NC Division of Water Resources (NC DWR) wetland program staff assessment (Gale 2021). These wetlands are the focus of this plan. Based on the North Carolina Wetland Assessment Method (NC WAM 2016), 16 wetland types are found across North Carolina, from the mountains to the coast. North Carolina's wetlands perform many functions (Figure 2) and the value of a wetland varies depending on the type, size, and location of the wetland, the functions the wetland performs, the ecosystem services it provides, and the needs of the individuals or communities assessing the wetland. Wetlands are an indispensable part of North Carolina's environment; therefore, continued understanding and protection of these systems are important.

NC WAM Wetland Types

- Basin
- Bog
- Bottomland Hardwood Forest
- Estuarine Woody Wetland
- Floodplain Pool
- Hardwood Flat
- Headwater Forest
- Non-riverine Swamp Forest
- Non-tidal Freshwater Marsh
- Pine Flat
- Pine Savanna
- Pocosins
- Riverine Swamp Forest
- Salt/brackish Marsh
- Seep
- Tidal Freshwater Marsh

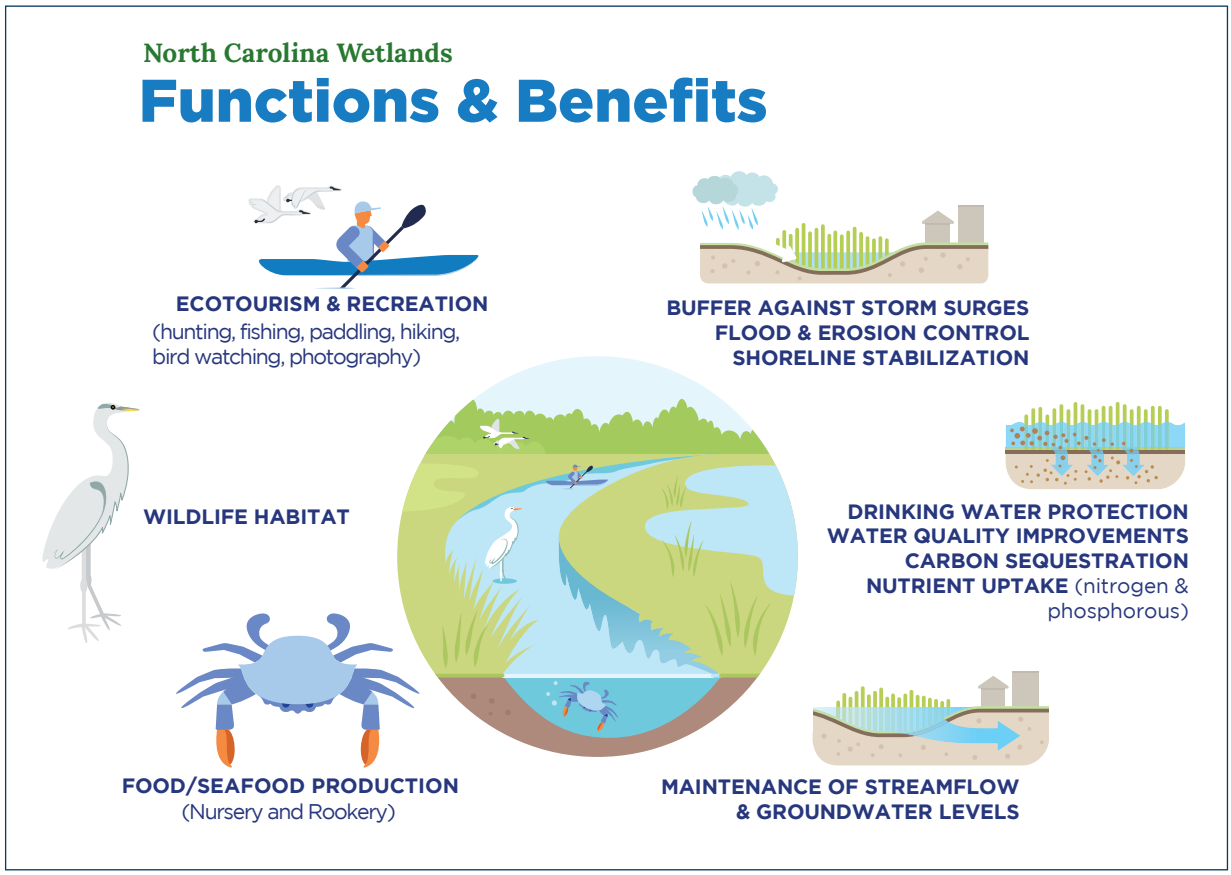


Figure 2: Functions performed by wetlands (ncwetlands.org)

Alterations to NC's wetlands (Figure 3) occur due to human activities and natural changes. Ongoing land use changes including development (e.g., transportation, residential, industrial, multiuse), logging, and farming are compounded by increased pollution and nature-based changes (e.g., climate change, sea level rise, droughts, severe storm events). These impacts cause changes in water levels, salinity, sediment, plant communities, and ultimately water quality.

Figure 3: Causes of human induced and natural changes to North Carolina wetlands (ncwetlands.org)

Statewide between Jan. 1, 1990 and Dec. 31, 2019, a total of 17,984 acres of human induced wetland impacts were permitted through 12,386 issued 401 certifications and Isolated Wetlands and Waters permits (Mueller 2020; Figure 4). Since 1990, most of the permitted impacts have occurred in NC's Coastal Plain wetlands, due in part to the majority and largest of NC's wetlands occurring there. The large permitted impacts in Beaufort, Carteret, Lenoir, and Wilson counties are attributed to mining, aquafarming, industrial/commercial development, and reservoir creation, respectively. The total acres of wetland permitted impacts have steadily decreased over the past three decades due to a decrease in the number of requested permits and fewer proposals for very large projects (e.g., mining, aquafarming, reservoirs). Projects with permitted wetland impacts above established thresholds require compensatory mitigation. The acres of required compensatory mitigation (i.e., preservation, enhancement, restoration, creation, mitigation banks, in-lieu fees) for 1990-1999 and 2000-2009 were greater than the acres of permitted impacts; however, for 2010-2019 the acres of permitted impacts were greater than the acres of required compensatory mitigation. This change may be attributed to changes in the thresholds requiring compensatory mitigation and to a greater number of small projects that did not meet those thresholds.

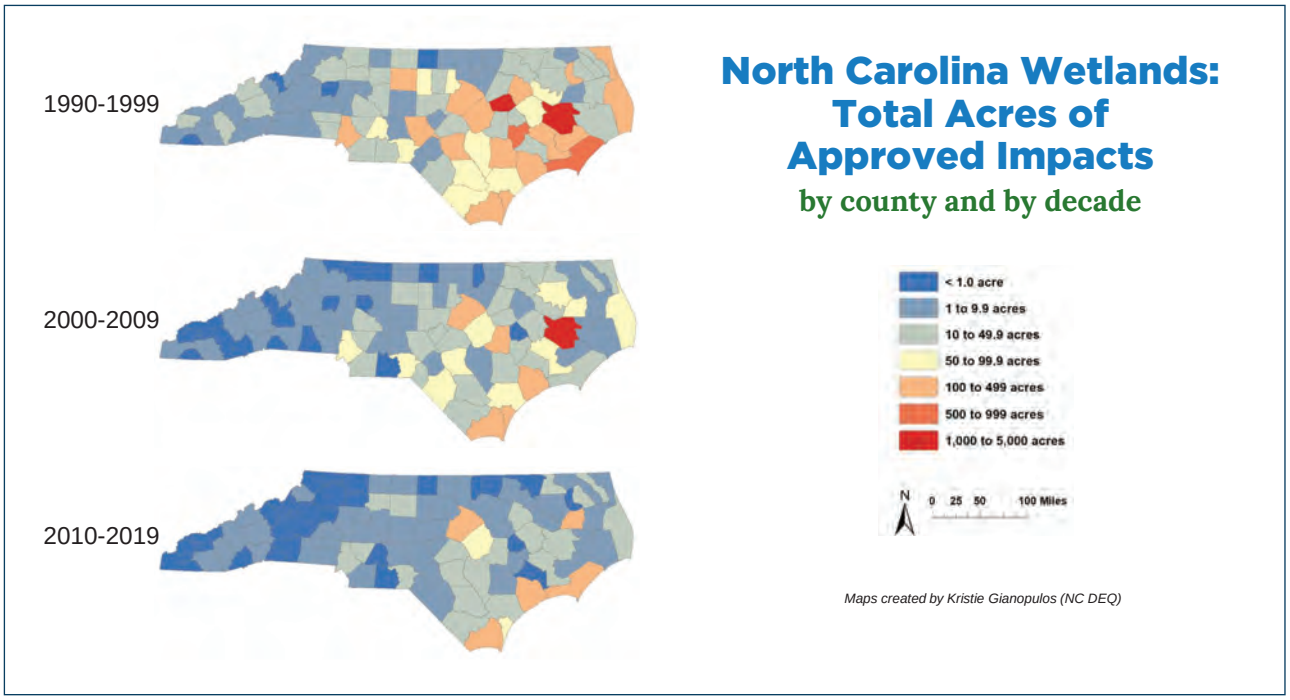
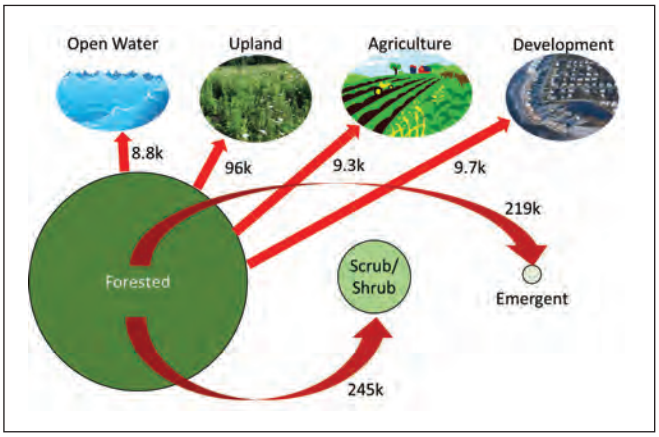


Figure 4: Total acres of wetland impacts approved under NC DWR 401 certifications or Isolated Wetlands and Waters permits.

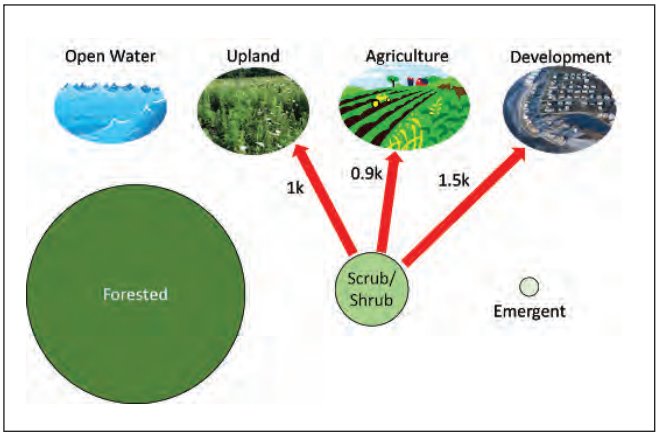
The wetland impacts associated with approved permits do not account for human induced wetland impacts that are not reported or fall below reporting/application thresholds, and they do not account for natural wetland changes. These additions can vastly increase the calculated acres of wetland change. The National Oceanic and Atmospheric Administration Coastal Change Analysis Program (NOAA C-CAP) provides nationally standardized, raster-based inventories of land cover for the coastal areas of the U.S. using remotely sensed 30-meter data imagery. Based on 2016 aerial imagery, all wetland changes (natural and human induced) in NC's Coastal Plain have resulted in the loss of 134,878 acres of non-tidal, freshwater (i.e., palustrine) wetlands between 1996 and 2016, with forested wetlands experiencing the greatest loss (Baillie 2020, Figure 5).

NOAA C-CAP data also shows an estuarine wetland loss of 144 acres since 2006 (Baillie 2020). These losses were initially due to conversions to agriculture (1996-2006), uplands (1996-2001 and 2006-2011), and development (2001-2016), but are more recently due to conversions to unconsolidated shorelines (2006-2016) and open water (2011-2016), most likely caused by sea level rise, erosion from increasingly frequent and intense storms, and water quality degradation (Baillie 2020). It is possible that there have been additional losses or gains in estuarine wetlands that the 30-meter data imagery is unable to detect. Natural wetland losses can only be compensated for through voluntary wetland enhancement and restoration initiatives.



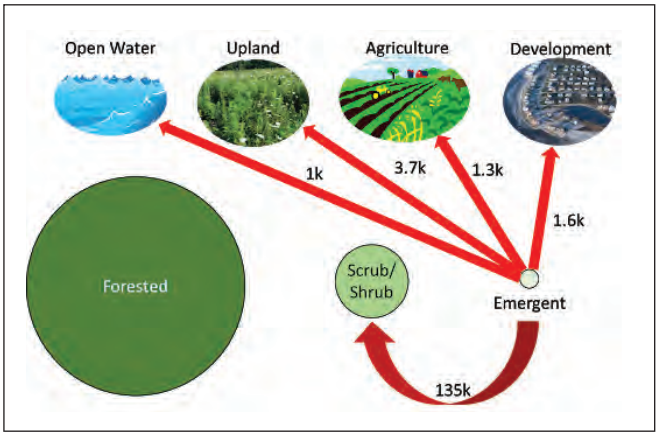
Changes in Palustrine Forested Wetlands:

- 115,096 acres converted to upland, agriculture, and development.
- 464,000 acres converted to scrub/shrub or emergent palustrine wetlands.
- 8,800 acres were converted to open water



Changes in Palustrine Scrub/Shrub Wetlands:

- 380,000 acres gained when forested and emergent palustrine wetlands were converted to palustrine scrub/shrub wetlands.
- 3,400 acres converted to upland, agriculture, and development.



Changes in Palustrine Emergent Wetlands:

- 219,000 acres gained when forested palustrine wetlands were converted to emergent palustrine wetlands.
- 6,600 acres converted to upland, agriculture, and development.
- 135,000 acres converted to palustrine scrub/shrub wetlands
- 1,000 acres converted to open water

Figure 5: Changes to NC's Coastal Plain palustrine wetlands from 1996 to 2016 (NOAA C-CAPS data provided by Nate Herold (NOAA) with summaries by Christopher Baillie (ECU)).

Summary of NC DEQ WPP Key Goals

Below are NC DEQ's key goals for this plan that relate to each of the four EPA Core Elements.

Monitoring and Assessment:

1. Continue collecting, analyzing, comparing, and sharing baseline measurements for a variety of NC wetland types
2. Determine status and trends in wetland acreage, condition, and functions

Regulations:

1. Provide a clear understanding of the jurisdictional scope of North Carolina's regulatory program
2. Administer regulatory activities efficiently and consistently to enforce North Carolina's wetland requirements
3. Evaluate regulatory activities to ensure regulatory compliance and intended environmental quality protection
4. Work with NC's citizens to wisely manage and restore the state's wetland resources

Voluntary Restoration and Protection:

1. Provide guidance and promote statewide voluntary wetland restoration and protection (including wetland acres, condition, and functions)
2. Assist with public outreach and education for NC voluntary restoration efforts

Water Quality Standards for Wetlands: (also incorporated with regulations)

1. Support and provide consistency in applying the narrative wetland standards

EPA Core Elements and NC DEQ'S Proposed Activities

MONITORING AND ASSESSMENT

The EPA CEF (Wetland) Monitoring and Assessment document states, "Monitoring is the systematic observation and recording of current and changing conditions, while assessment is the use of that data to evaluate or appraise wetlands to support decision-making and planning processes." Utilizing monitoring data is important in obtaining an accurate assessment of the state's wetlands.

Since 2004, NC DWR has been monitoring wetlands to describe baseline conditions and to assess the status and trends of wetlands across the state. Short-term and long-term monitoring has been conducted gathering water quality, soil chemistry, hydrology, and biological (i.e., vegetation, amphibian, and macroinvertebrates) data. NC DEQ wetland monitoring projects have focused on certain wetland types (e.g., natural, restored, isolated, headwater), unique wetlands, reference and disturbed wetlands, wetlands in focused watersheds and regions, specific wetland characteristics (e.g., amphibian usage, hydrology, connectivity), and wetland assessment tools. Raw data (http://www.ncwetlands.org/research/wetland-raw-data/) and project summaries/final reports (http://www.ncwetlands.org/research/wetland-project-summaries/) can be accessed at ncwetlands.org.

NC DEQ's wetland monitoring and assessment data have many potential uses throughout the state and can continue to be integrated into other state programs through various partnerships, collaborations, and sharing of data.

Future Direction:

While a large amount of work has been done on wetland monitoring and assessment throughout NC, more information still needs to be collected, analyzed, compared, and shared. In the wake of recent destruction due to drought, flooding, hurricanes, and severe storm damage, North Carolina is currently emphasizing coastal resiliency and environmental justice. Along with data collection for new parameters, early and ongoing monitoring of new and currently monitored wetlands is needed to determine baseline conditions and evaluate statuses and trends in wetland quantity and quality as they relate to natural or human-induced events. Monitoring wetlands in areas prone to strong weather events can provide valuable information for addressing the effects of natural and anthropogenic changes, especially along the coast.

NC DEQ's Primary Monitoring and Assessment Goals:

1. Continue collecting, analyzing, comparing, and sharing baseline measurements for a variety of NC wetland types
2. Determine status and trends in wetland acreage, condition, and functions

NC DEQ's Proposed Monitoring and Assessment Activities:

The NC DEQ Monitoring and Assessment activities are listed and associated with their respective EPA Objective and Action[1] (Some activities may be applicable to more than one Core Element.). The Divisions/Sections working on the activities are noted by the adjacent icons. When appropriate, activities have been combined and all relevant Divisions/Sections noted. **An asterisk (*) by an activity denotes that greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents** (based on a 2021 NC DWR survey).

- Albemarle-Pamlico National Estuary Partnership (APNEP)
- Division of Coastal Management (NC DCM)
- Division of Energy, Mineral, and Land Resources (NC DEMLR)
- Division of Marine Fisheries (NC DMF)
- Division of Mitigation Services (NC DMS)
- Division of Water Resources (NC DWR)
  - Water Planning Section
  - Water Quality Permitting Section
  - Water Quality Regional Operations Section
  - Water Sciences Section

Table 2: NC DEQ Monitoring and Assessment Activities

ID	NC DEQ Monitoring and Assessment Activities	EPA Core Element Action[1]	NC DEQ Divisions/ Sections
A*	Seek improvements for wetland predictive mapping (DCM: NC CREWS currently the best coastal maps; need updated estuarine shoreline maps, interested in the effects of salinity changes on shoreline forests)	Obj. 1 Action c.	
B*	Assess changes in the quantity and quality of coastal wetlands (e.g., sea level rise, wetland migration, general data, hotspots, landowners, and constitutional, financial, and legal implications)	Obj. 2 Action e.	
C*	Develop maps the public can access (e.g., wetland condition, conservation easements, assets, monitoring data interface)	Obj. 3 Action d.	
D*	Support the US Army Corps of Engineers' (Wilmington District) assessment of the ability of wetlands to limit the impacts of hurricanes and flooding in the Neuse, Tar-Pam, and Lumber River basins	Obj. 2 Action e.	
E*	Explore a program to create flood storage using nature-based solutions (DMS received legislative authority to develop a program which would create flood storage using nature-based solutions. The Division is establishing an Advisory Board and applying for grants to develop pilot projects and test cases. These efforts aim to determine the goals, strategies, and funding sources for this new program.)	Obj. 3 Action c.	
F*	Focus on improvements in stream water quality	Obj. 3 Action d.	
G*	Restore, enhance, and preserve wetlands to improve stream water quality	Obj. 3 Action d.	
H	Develop tools to assist with wetland evaluation	Obj. 1 Action d.	
I	Assess urban wetlands and their influence on water quality	Obj. 2 Action b.	
J	Research successful shoreline stabilization alternatives, with an emphasis on living shorelines	Obj. 2 Action b.	
K	Investigate current dam safety practices and sediment impacts on wetlands and streams below existing dams	Obj. 2 Action e.	
L	Watch for potential impacts to downstream wetlands from low and intermediate hazard dam removal projects that are exempt from state permitting	Obj. 2 Action e.	
M	Map and monitor coastal habitats (including wetlands) to assess status and regulatory effectiveness	Obj. 2 Action e.	
N	Continue to collect data on wetland condition and fish use at selected sites as part of the “Strategic Habitat Area” validation study (See Table 1)	Obj. 2 Action b.	
O	Continue participation in EPA’s National Wetland Condition Assessment	Obj. 2 Action b.	

[1] EPA Core Element Framework: Monitoring and Assessment Objectives and Actions (US EPA 2009b) can be viewed at https://www.epa.gov/sites/production/files/2015-09/documents/monitoring_and_assessment_cef.pdf

* Greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ’s pursuit of that activity would be beneficial to their organization’s members or constituents (based on a 2021 NC DWR survey).

Cedar Point Tideland Trail in Swansboro, NC

REGULATION

"Regulation," as expressed in the EPA CEF, provides a mechanism for states to protect their aquatic resources by authorizing impacts to aquatic resources and assuring compliance. An effective regulatory program requires clear explanation and consistent application of the regulations.

North Carolina wetlands are protected by a combination of rules, regulations, and policies at the federal, state, and local levels. This combination affords protection of wetlands, allows opportunities for permitting unavoidable wetland impacts, and establishes compensatory mitigation requirements for permitted wetland impacts that are above designated thresholds. Wetland mitigation can be achieved through approved mitigation banks, an in-lieu fee program (administered by NC DMS), and permittee-provided mitigation projects.

Rules, Regulations, and Policies Relevant to North Carolina Wetlands

FEDERAL:

- Clean Water Act (Sections 401 & 404)
- Food Security Act of 1985
- Agricultural Act of 2014
- Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (USACE 33 CFR Parts 325 & 332, EPA 40 CFR Part 230)

STATE:

- Wetland Standards (15A NCAC 02B)
- Procedures for Permits (15A NCAC 02H)
- Isolated Wetland and Water Rules (15A NCAC 02H .1300, IWGP100000)
- Coastal Area Management Act (§113A Article 7)
- Areas of Environmental Concern (15A NCAC 07H)
- Sedimentation Pollution Control Act of 1973 (§113A-50 to §113A-69)
- Sedimentation Control (15A NCAC 04)
- Stormwater Rules (15A NCAC 02B and 02H, various Session Laws)

LOCAL ORDINANCES

Future Direction:

North Carolina will continue to work with the regulated community to evaluate the wetland regulatory program to improve upon areas of concern (e.g., clarity, consistency, and efficiency in program operations). Quarterly assessments of permitted impact and mitigation activities, average review times, compliance visits, and other factors will continue (Sullivan 2021). NC DEQ will continue to work with the NC Environmental Management Commission (EMC, https://deq.nc.gov/about/divisions/water-resources/water-resources-commissions/environmental-management-commission) and stakeholders to appropriately respond to federal rule changes (e.g., Clean Water Act Section 401 Certification Rule [US EPA 2020]; Navigable Waters Protection Rule's federal definition of "Waters of the United States" [WOTUS; USACE 2020]).

NC DEQ's Primary Regulation Goals:

1. Provide a clear understanding of the jurisdictional scope of North Carolina's regulatory program
2. Administer regulatory activities efficiently and consistently to enforce North Carolina's wetland requirements
3. Evaluate regulatory activities to ensure regulatory compliance and intended environmental quality protection
4. Work with North Carolina citizens to wisely manage and restore the state's wetland resources

NC DEQ's Proposed Regulation Activities:

The NC DEQ Regulation activities are listed and associated with their respective EPA Objective and Action[2] (Some activities may be applicable to more than one Core Element.). The Divisions/Sections working on the activities are noted by the adjacent icons. When appropriate, activities have been combined and all relevant Divisions/ Sections noted. **An asterisk (*) by an activity denotes that greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents** (based on a 2021 NC DWR survey).

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- Division of Marine Fisheries (NC DMF)
- Division of Mitigation Services (NC DMS)
- Division of Water Resources (NC DWR)
  - Water Planning Section
  - Water Quality Permitting Section
  - Water Quality Regional Operations Section
  - Water Sciences Section

Table 3: NC DEQ Regulation Activities

ID	NC DEQ Regulation Activities	EPA Core Element Action[2]	NC DEQ Divisions/ Sections
A*	Revise NC DCM's Program Assessment & Strategy and NC DWR's Wetland Program Plan (every five years)	Obj. 1 Action d.	
B*	Continue collaboration (supported by the NC DEMLR and NC DWR MOU) on permitting projects that affect NC wetlands, streams, and buffers	Obj. 2 Action e.	
C*	Continue requiring installation/implementation of stormwater control measures, per current law and rules, prior to flow into streams and wetlands (unless low flow requirements are met)	Obj. 2 Action b.	
D*	Review and comment on federal wetland rule changes	Obj. 3 Action b.	
E*	Work with EMC and stakeholders to respond to changes in the definition of "Waters of the United States" (USACE 2020) and provide guidance to the regulated community	Obj. 1 Action a.	
F*	Continue to implement successful compensatory mitigation projects to offset permitted wetland impacts and minimize loss of wetland functions	Obj. 2 Action f.	
G*	Explore the use of wetland mitigation and stormwater wetlands to meet nutrient reduction requirements for existing developments	Obj. 2 Action f.	
H	Complete Coastal Habitat Protection Plan (CHPP) Amendment, which includes several issue papers with recommended actions related to wetlands: • Ensure environmental rule compliance to protect habitat and water quality • Promote wetland protection and enhancement with focus on nature-based methods	Obj. 1 Action d.	
I	Facilitate Unique Wetland classifications for appropriate wetlands	Obj. 2 Action a.	
J	Enforce NC wetland standards and continue management of CWA Section 401 certifications, buffer authorizations, and isolated wetlands and waters permits	Obj. 3 Action b.	
K	Review NC wetland General Certifications every five years	Obj. 1 Action c.	
L	Review wetland mitigation reports and participate in the Interagency Review Team (IRT)	Obj. 3 Action c.	
M	Continue implementation of Coastal Area Management Act (CAMA) regulations	Obj. 2 Action c.	
N	Continue coordination with regional offices (NC DWR) on buffers and stream and wetland delineations in riparian buffers requiring certification for sediment and erosion control measures	Obj. 2 Action e.	
O	Continue to protect marine fisheries by minimizing wetland impacts via commenting on environmental permits near coastal waters (collaboratively with NC DWR and other resource agencies)	Obj. 2 Action c.	

[2] EPA Core Element Framework: Regulation Objectives and Actions (US EPA 2009c) can be viewed at https://www.epa.gov/sites/production/files/2015-09/documents/regulation_cef.pdf

* Greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents (based on a 2021 NC DWR survey).

VOLUNTARY RESTORATION AND PROTECTION

Voluntary restoration and protection include improvements in, and protection of, wetlands that are not required by state or federal laws or mandates. Voluntary restoration and protection in North Carolina are encouraged and implemented on federal, state, local, and public-private partnership levels. The goals of the projects may include, but are not limited to, improvements in habitat, flood and stormwater management, recreation, and/or water quality. Efforts made to restore or protect wetlands using voluntary methods may include compensating landowners to change land altering practices (e.g., cultivation, grazing), purchasing of wetland land titles or easements by various land trust groups, or removing invasive species and/or planting native vegetation within or near wetlands.

Potential Partners for Voluntary Restoration and Protection

FEDERAL:

- United States Army Corps of Engineers
- United States Department of Agriculture
- United States Fish and Wildlife Service

STATE:

- Albemarle-Pamlico National Estuary Partnership
- Department of Justice
- Division of Coastal Management
- Division of Soil and Water Conservation
- Division of Water Infrastructure
- Division of Water Resources
- North Carolina Land and Water Fund
- Wildlife Resources Commission

ADVOCACY AND CONSERVATION:

- Carolina Wetlands Association
- Defenders of Wildlife
- Ducks Unlimited
- Environmental Defense Fund
- NC Coastal Federation
- NC land trusts (multiple organizations)
- NC Sierra Club
- NC Wildlife Federation
- Southern Environmental Law Center
- The Nature Conservancy

Independent work as well as consolidated efforts can be combined to ultimately contribute to the increase in amount, function, services, value, and/or condition of the aquatic resources across the state. Voluntary protection and restoration of wetlands throughout the state can provide additional storm buffers, prevent erosion, help abate flooding, moderate groundwater levels and stream flow, filter/assimilate nutrients, improve water quality, provide economic benefits, increase recreational and aesthetic values, improve wildlife habitat, and accomplish watershed goals.

Future Directions:

North Carolina state agency support for voluntary restoration and protection includes project guidance, low-interest loans, and grant funding for proposed projects. Conducting research and sharing resultant data will also provide guidance and assist with implementing successful restoration and protection methods to help improve water quality. State agency staff will continue to use their expertise to assist with outreach and education efforts and encourage the use of nature-based solutions to meet wetland protection and restoration goals within North Carolina.

NC DEQ's Primary Voluntary Restoration and Protection Goals:

1. Provide guidance and promote statewide wetland restoration and protection goals (including wetland acres, condition, and functions)
2. Assist with public outreach and education for voluntary restoration efforts

NC DEQ's Proposed Voluntary Restoration and Protection Activities:

The NC DEQ Voluntary Restoration and Protection activities are listed and associated with their respective EPA Objective and Action[3] (Some activities may be applicable to more than one Core Element.). The Divisions/Sections working on the activities are noted by the adjacent icons. When appropriate, activities have been combined and all relevant Divisions/Sections noted. **An asterisk (*) by an activity denotes that greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents** (based on a 2021 NC DWR survey).

- Albemarle-Pamlico National Estuary Partnership (APNEP)
- Division of Coastal Management (NC DCM)
- Division of Energy, Mineral, and Land Resources (NC DEMLR)
- Division of Marine Fisheries (NC DMF)
- Division of Mitigation Services (NC DMS)
- Division of Water Resources (NC DWR)
  - Water Planning Section
  - Water Quality Permitting Section
  - Water Quality Regional Operations Section
  - Water Sciences Section

Table 4: NC DEQ Voluntary Restoration and Protection Activities

ID	NC DEQ Voluntary Restoration and Protection Activities	EPA Core Element Action[3]	NC DEQ Divisions/ Sections
A*	Continue outreach and education (e.g., explaining use of living shorelines)	Obj. 1 Action c.	
B*	Promote wetland restoration and preservation to improve water quality through Watershed Action Plans (e.g., Walnut Creek in Raleigh)	Obj. 1 Action b.	
C*	Explore the use of wetland mitigation and constructed stormwater wetlands to meet existing development nutrient reduction requirements	Obj. 3 Action c.	

[3] EPA Core Element Framework: Voluntary Restoration and Protection Objectives and Actions (US EPA 2009d) can be viewed at https://www.epa.gov/sites/production/files/2015-09/documents/restoration_and_protection_cef_1.pdf

* Greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents (based on a 2021 NC DWR survey).

WATER QUALITY STANDARDS FOR WETLANDS

North Carolina's water quality standards for wetlands (15A NCAC 02B .0231 and 15A NCAC 07H .0205) are narrative in nature (non-numeric) and were designed to protect, preserve, restore and enhance the quality and uses of wetlands and other waters of the state that are influenced by wetlands. These designated uses are maintained and/or enhanced through narrative standards that have provided NC DEQ with the basic regulatory structure needed to protect wetlands from various detrimental activities (15A NCAC 02B .0231 (b)). Due to the wide variety of wetland types, sizes, locations, hydrologic conditions, vegetation structures, and flow patterns, narrative standards (see Feature Box below) have been utilized for NC wetlands instead of the discrete numeric standards that are used for NC Class C waters (e.g.; "Chlorophyll a (corrected): not greater than 40 µg/l..., Dissolved oxygen: not less than 6.0 mg/l for trout waters..." (15A NCAC 02B .0211)). NC's DCM and DWR-Water Quality Permitting Section enforce these narrative standards through compliance visits and in response to reports by concerned citizens.

Designated Wetland Uses in the NC Wetland Standards (15A NCAC 02B .0231)

- Storm and flood water storage/retention
- Hydrologic functions such as groundwater discharge and groundwater recharge
- Filtration/storage of pollutants
- Shoreline protection
- Habitat for the propagation of wetland-dependent aquatic organisms and other wildlife species.

Use Standards for NC Coastal Wetlands (15A NCAC 07H .0205)

- First Priority: conserve existing coastal wetlands
- Second Priority: development that requires water access (e.g., utility easements, fishing piers, docks, some agricultural)
- Some mowing and cutting allowed
- Unacceptable land uses (e.g., businesses, residences, parking lots, private roads)

Future Directions:

North Carolina utilizes the existing wetland-specific, narrative water quality standards as part of its regulatory program and agency decision-making process. It is important to continue to ensure that North Carolina's wetland water quality standards provide the best protection of these aquatic resources.

NC DEQ's Primary Water Quality Standards for Wetlands Goal:

1. Support and provide consistency in applying the narrative wetland standards

NC Narrative Wetland Standards Designed to Protect Designated Wetland Uses (15A NCAC 02B .0231)

- Liquids, fill or other solids or dissolved gases may not be present in amounts which may cause adverse impacts on existing wetland uses
- Floating or submerged debris, oil, deleterious substances, or other material may not be present in amounts which may cause adverse impacts on existing wetland uses
- Materials producing color, odor, taste or unsightliness may not be present in amounts which may cause adverse impacts on existing wetland uses
- Concentrations or combinations of substances which are toxic or harmful to human, animal or plant life may not be present in amounts which individually or cumulatively may cause adverse impacts on existing wetland uses
- Hydrological conditions necessary to support the biological and physical characteristics naturally present in wetlands shall be protected to prevent adverse impacts on:
    - Water currents, erosion or sedimentation patterns
    - Natural water temperature variations
    - Chemical, nutrient and dissolved oxygen regime of the wetland
    - Movement of aquatic fauna
    - The pH of the wetland; and
    - Water levels or elevations.
- The populations of wetland flora and fauna shall be maintained to protect biological integrity as defined at 15A NCAC 02B .0202.

Tallulah Bog in Robbinsville, NC

NC DEQ's Proposed Water Quality Standards for Wetlands Activities:

The NC DEQ Water Quality Standards for Wetlands activities are listed and associated with their respective EPA Objective and Action[4] (Some activities may be applicable to more than one Core Element.). The Divisions/Sections working on the activities are noted by the adjacent icons. When appropriate, activities have been combined and all relevant Divisions/Sections noted. **An asterisk (*) by an activity denotes that greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents** (based on a 2021 NC DWR survey).

Table 5: NC DEQ Water Quality Standards for Wetland Activities

ID	NC DEQ Water Quality Standards for Wetlands Activities	EPA Core Element Action[4]	NC DEQ Divisions/ Sections
A*	Enforce NC wetland standards	Obj. 3 Action a.	

[4] EPA Core Element Framework: Water Quality Standards for Wetlands Objectives and Actions (US EPA 2009e) can be viewed at https://www.epa.gov/sites/production/files/2016-07/documents/program_building_activities_menu.pdf

* Greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents (based on a 2021 NC DWR survey).

Jack Smith Creek Wetlands in New Bern, NC

OUTREACH AND EDUCATION

While “Outreach and Education” is not a separate Core Element, it is an important part of the EPA’s CEF. Several of NC DEQ’s proposed activities cross multiple EPA Core Elements and are best described as outreach and education.

NC DEQ’s mission is, “Providing science-based environmental stewardship for the health and prosperity of ALL North Carolinians.” Outreach and education are important components of successfully achieving that mission. Education at all levels and in all locations is important for helping all North Carolinians understand the value of their natural surroundings, including wetlands, and the importance of ensuring its sustainability into the future. Outreach is important for sharing up to date information on work being done in North Carolina’s wetlands to avoid duplication and facilitate future collaborations.

Future Directions:

NC DEQ recognizes much excellent work is being done for NC’s wetlands; however, improvements can be made in communications. NC DEQ is working to improve communications among state agencies, with the larger research and academic community, and with the public at large.

NC DEQ's Proposed Outreach and Education Activities:

The NC DEQ Outreach and Education activities are listed and associated with their respective EPA Objective and Action[5] (Some activities may be applicable to more than one Core Element.). The Divisions/Sections working on the activities are noted by the adjacent icons. When appropriate, activities have been combined and all relevant Divisions/Sections noted. **An asterisk (*) by an activity denotes that greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents** (based on a 2021 NC DWR survey).

- Albemarle-Pamlico National Estuary Partnership (APNEP)
- Division of Coastal Management (NC DCM)
- Division of Energy, Mineral, and Land Resources (NC DEMLR)
- Division of Marine Fisheries (NC DMF)
- Division of Mitigation Services (NC DMS)
- Division of Water Resources (NC DWR)
  - Water Planning Section
  - Water Quality Permitting Section
  - Water Quality Regional Operations Section
  - Water Sciences Section

Table 6: NC DEQ Outreach and Education Activities

ID	NC DEQ Outreach and Education Activities	EPA Core Element Action[5]	NC DEQ Divisions/ Sections
A*	Continue outreach and education (especially living shorelines)	Regulations Obj.3 Action e.	
B*	Include wetlands as part of sustainability models (i.e., long term balance of social, environmental, and economic impacts) for watersheds and local communities	Regulations Obj. 3 Action d.	
C*	Support State agencies' wetland needs	Mon. & Assess Obj.3. Action d.	
D*	Communicate and coordinate work related to North Carolina's wetlands (e.g., government, education, non-profits)	Regulations Obj. 3 Action e.	
E	Monitoring NC WPP progress (2021-2025)	All	

[5] EPA Core Element Framework Objectives and Actions (US EPA 2009a) can be viewed at https://www.epa.gov/sites/production/files/2015-10/documents/2009_03_10_wetlands_initiative_cef_full.pdf

* Greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents (based on a 2021 NC DWR survey).

Ev-Henwood Nature Preserve in Leland, NC

Additional Stakeholder Interests

While NC DEQ serves a primary role in protecting NC wetlands through activities listed in this plan, inclusive partnerships among government agencies (local, state, and federal), non-government organizations, academics, private sector, etc. are necessary to make substantial progress. NC DEQ surveyed the stakeholders to discover their wetland interests. In addition to stakeholder interests noted with the NC DEQ proposed activities (Tables 2, 3, 4, 5, and 6), there was strong stakeholder interest in NC DEQ addressing the activities listed below. Each suggested activity is followed by the percentage of stakeholder group members that believed pursuit of that activity would be beneficial to their organization's members or constituents (based on a 2021 NC DWR survey). These suggested activities will be shared with NC DEQ staff for consideration in future project planning. (Given the diversity of interests represented within the stakeholder group, not all stakeholder group members support all the activities listed in the NC WPP.):

- Consider alternative/unique urban stream restoration opportunities (e.g., creation of floodplain wetlands in an incised stream system [The value of the credits needs to outweigh the higher cost of land acquisition, construction, and monitoring.]) (**60%**).
- Ensure that watershed restoration plans prioritize future wetland restoration projects and hydrology restoration to enhance water quality and reduce flooding (**56%**).
- Look at the difference in ecosystem services between created wetlands in urban areas and restored wetlands in rural areas (**52%**).
- Update available wetland mitigation guidance, success criteria, etc. (**52%**).
- Promote the use of living shorelines as the preferred regulatory alternative for bank stabilization. Revise 401 water quality certification for bank stabilization to ensure compliance with 404(b)(1) guidelines – avoidance and mitigation – i.e. – that whenever living shorelines are a practical and effective alternative, and would have the least impact on the environment, they are permitted as the preferred environmental alternative (**48%**).
- Develop standard sampling procedures and units of measure for wetland monitoring and assessment (**48%**).
- Address how the State intends to assist local communities (especially poor/underserved communities) that are impacted by the effects of climate change and sea level rise on wetlands (e.g., fisheries, flood control, shoreline stabilization, tourism, hunting, agriculture) (**44%**).
- Establish statewide restoration and protection goals (by watersheds, ecoregions, wetland types, etc.) (**44%**).
- Support voluntary, incentive-based wetlands enhancement, restoration and preservation (**44%**).
- Work with the National Resources Conservation Service (NRCS) to provide/secure additional funding to promote enhancement of wetland restoration projects (44%).
- Work with federal, state, and local governments and NGOs to secure additional state and federal funding for large-scale wetland restoration opportunities in the coastal plain (**44%**).
- Develop a statewide monitoring and assessment strategy (**44%**).

- Make wetland monitoring and assessment data available as a reference for restoration projects (**44%**).
- Use wetland monitoring data to support current narrative standards (**44%**).
- Consider increasing the value assigned to urban wetlands, and urban wetland mitigation. Urban wetlands are rare; therefore, there are limited areas available to perform their ecosystem services, so more value needs to be placed on them to preserve, restore, or create them (**40%**).
- Update maps to show wetlands types/boundaries with overlay of river basins (**40%**).
- Attempt to establish numeric wetland water quality standards (**36%**).
- Acknowledge that NC does not receive its share of federal funding for restoration, and seek federal funding for wetland protection and restoration activities in NC that will combine and focus wetland restoration opportunities to achieve multiple concurrent benefits (e.g., flood control, water quality protection and enhancement, resiliency against extreme weather and droughts, fisheries productivity, nutrient and carbon reduction) (**36%**).
- Identify locations where hard structure seawalls/bulkheads impede coastal marsh migration and establish priority areas for land conservation easements/buy-outs in coastal areas (**36%**).
- Allow local and regional governments to develop mitigation banks (**36%**).
- Funding for a baseline wetland monitoring program (**36%**).
- Report on the state of wetlands in NC (emphasis on quality similar to stream water quality) (**36%**)
- Address the importance of Southern Appalachian bogs and fens (**32%**).
- Prioritize, or give extra weight, to preservation, restoration, or creation that has an education component (**28%**).
- Work with the EPA to develop geographic funding initiatives for NC wetland restoration needs. (Division G – Department of the Interior, Environment, and Related Agencies Appropriations Act, 2021. https://docs.house.gov/billsthisweek/20201221/BILLS-116RCP68-JES-DIVISION-G.pdf Associated with House Report 116-448, examples of other funded programs on p. 59-60 and 164-165) (% unknown, not included in the survey).

Theodore Roosevelt Natural Area in Pine Knoll Shores, NC

References

Baillie, Christopher. 2020. Personal Communication: Assessment of change in North Carolina's Coastal Plain wetlands using National Oceanic and Atmospheric Administration Coastal Change Analysis Program (NOAA C-CAP, data provided by Nate Herold [NOAA]). Data provided February 2020.

Gale, Susan. 2021. Personal Communication: Assessment of North Carolina wetland acreage using appropriate wetland identifiers from the National Wetland Inventory maps. Data collected February 2021.

Mueller, Amanda. 2020. Personal Communication: Assessment of approved 401 certifications and Isolated Wetlands and Waters permits using NC DEQ Basinwide Information Management System. Data collected February 2020.

NC Division of Water Resources. 2018. North Carolina Wetlands Information. http://www.ncwetlands.org. Published by the North Carolina Division of Water Resources, Water Sciences Section.

NC DWR (North Carolina Division of Water Resources). 2015. North Carolina's Wetland Program Plan 2015-2019. http://www.ncwetlands.org/wp-content/uploads/Final-NC-WPP-submittal-to-EPA-03072016.pdf

NC WAM. 2016. N.C. Wetland Assessment Method User Manual: Version 5. February 2016. https://files.nc.gov/ncdeq/Water%20Quality/Environmental%20Sciences/ECO/Wetlands/NC%20WAM%20User%20Manual%20v5.pdf

Sullivan, Shelton. 2021. Personal Communication: Quarterly reports on NC DEQ's 401 certification and Isolated Wetlands and Waters permitting programs.

USACE. 2020. 33 CFR Part 328 – The Navigable Waters Protection Rule: Definitions of "Waters of the United States."

US EPA. 2020. 40 CFR Part 121 - Clean Water Act Section 401 Certification Rule

US EPA. 2009a. Core Elements of an Effective State and Tribal Wetland Program. https://www.epa.gov/sites/production/files/2015-10/documents/2009_03_10_wetlands_initiative_cef_full.pdf

US EPA. 2009b. Core Element Framework: Monitoring and Assessment Objectives and Actions https://www.epa.gov/sites/production/files/2015-09/documents/monitoring_and_assessment_cef.pdf

US EPA. 2009c. Core Element Framework: Regulation Objectives and Actions can be viewed at https://www.epa.gov/sites/production/files/2015-09/documents/regulation_cef.pdf

US EPA. 2009d. Core Element Framework: Voluntary Restoration and Protection Objectives and Actions https://www.epa.gov/sites/production/files/2015-09/documents/restoration_and_protection_cef_1.pdf

US EPA. 2009e. Core Element Framework: Water Quality Standards for Wetlands Objectives and Actions https://www.epa.gov/sites/production/files/2016-07/documents/program_building_activities_menu.pdf

Referenced Regulations

NC General Statutes §113A Article 4. Sedimentation Pollution Control Act of 1973.

NC General Statutes §113A Article 7. Coastal Area Management Act of 1974

NC IWGP100000. 2017. State of North Carolina Department of Environmental Quality Division of Water Resources: State General Permit for Impacts to Isolated and Other Non-404 Jurisdictional Wetlands and Surface Waters. https://files.nc.gov/ncdeq/Water%20Quality/Surface%20Water%20Protection/401/Certs%20and%20Permits/2017-gcs-4000s/IWGP100000--2-.pdf

NC S.L. 2015-286 §4.18

NC Title 15A, Chapter 02B – Surface Water and Wetland Standards (15A NCAC 02B) of the North Carolina Administrative Code with Sections .0100, .0200, and .0300 known collectively as "Classifications and Water Quality Standards Applicable to the Surface Waters and Wetlands of North Carolina." The Wetland Standards are found in Section .0231.

NC Title 15A, Chapter 02H – Procedures for Permits: Approvals (15A NCAC 02H) of the North Carolina Administrative Code provides the requirements and procedures for applying for and issuance of State permits, including wetland impacts and mitigation requirements. Section .1300 addresses "Discharges to Isolated Wetlands and Isolated Waters."

NC Title 15A, Chapter 04 – Sedimentation Control (15A NCAC 04) of the North Carolina Administrative Code with Subchapter 04B addressing "Erosion and Sediment Control."

NC Title 15A, Chapter 07H, Section .0205 – Coastal Wetlands (15A NCAC 07H .0205) of the North Carolina Administrative Code addresses Coastal Wetlands as one of the areas of Environmental Concern covered under Chapter 07H – State Guidelines for Areas of Environmental Concern.

Public Law 99-198 (P.L. 99-198). Food Security Act of 1985. December 23, 1985.

Public Law 113-79 (P.L. 113-79). Agricultural Act of 2014. February 7, 2014.

USACE. 33 CFR Part 325 – Navigation and Navigable Waters: Processing of Department of the Army Permits.

USACE. 33 CFR Part 332 – Navigation and Navigable Waters: Compensatory Mitigation for Losses of Aquatic Resources.

USACE. 33 U.S.C. Chapter 26 (§1251 et seq. [1972]) – Navigation and Navigable Waters: Water Pollution Prevention and Control

US EPA. 40 CFR Part 230 – Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material.

Robertson MillPond Preserve in Raleigh, NC

Appendix A: 2020-2021 NC Wetland Program Plan Stakeholder Group

Albemarle-Pamlico National Estuary Partnership
Carolina Wetlands Association
Duke University – Nicholas School of the Environment
NC Association of County Commissioners
NC Association of Environmental Professionals
NC Association of Floodplain Managers
NC Coastal Federation
NC Department of Transportation
NC Division of Water Resources - Water Planning Section
NC Division of Mitigation Services
NC Division of Water Resources – Water Quality Permitting Section (401 & Buffer Permitting)
NC Environmental Restoration Association
NC Farm Bureau Federation
NC Forestry Association
NC Home Builders Association
NC League of Municipalities (Regulatory Action Committee)
NC Regional Councils (COGs)
NC Wildlife Resources Commission
North Carolina State University
Professional Engineers of NC
RTI International
The Nature Conservancy
University of North Carolina - Wilmington
US Army Corps of Engineers
US Fish and Wildlife Services – Asheville

Appendix B: NC DEQ Division/Section Summaries

Albemarle-Pamlico National Estuary Partnership (APNEP) - APNEP is a federally funded program whose mission is to identify, protect, and restore the significant natural resources of the Albemarle-Pamlico estuarine system with guidance and support from its overarching Comprehensive Conservation and Management Plan (CCMP), the Management Conference (advisory groups), and regional partners. APNEP was among the first 28 National Estuary Programs established by the Clean Water Act in the late 1980's and is hosted by NC DEQ under a cooperative agreement with the U.S. EPA. APNEP works closely with the Commonwealth of Virginia on water resources that start in the headwaters of the Virginia Mountains and cross state boundaries to ultimately reach the Albemarle-Pamlico estuary. APNEP utilizes an ecosystem-based management approach and engages citizens and organizations, through communication and collaboration, to ensure a coordinated approach to addressing pressing regional issues. (https://apnep.nc.gov/)

Division of Coastal Management (DCM) – NC DCM works to protect, conserve and manage NC's coastal resources through an integrated program of planning, permitting, education and research. DCM carries out the state's Coastal Area Management Act (CAMA), the Dredge and Fill Law, and the federal Coastal Zone Management Act of 1972 in the 20 coastal counties, using rules and policies of the NC Coastal Resources Commission. DCM is responsible for several programs, including permitting and enforcement, CAMA land-use planning, public beach and waterfront access, North Carolina Coastal Reserves, and grants for marine sewage pumpout. (https://deq.nc.gov/about/divisions/coastal-management)

Division of Energy, Mineral, and Land Resources (DEMLR) – NC DEMLR seeks to promote the wise use and protection of North Carolina's land and geologic resources. The division regulates and provides technical assistance related to mining, dams, sediment and erosion control and stormwater management. (https://deq.nc.gov/about/divisions/energy-mineral-land-resources)

Division of Marine Fisheries (DMF) – NC DMF is responsible for the stewardship of the state's marine and estuarine resources. DMF's jurisdiction encompasses all coastal waters and extends to 3 miles offshore. They are responsible for recreational and commercial fishing licenses and permits; finfish, crustaceans, and shellfish programs; artificial reefs program; fisheries management; habitat enhancement; and the Coastal Habitat Protection Plans (CHPP). (https://deq.nc.gov/about/divisions/marine-fisheries)

Division of Mitigation Services (DMS) - NC DMS restores and protects wetlands and waterways while offsetting unavoidable environmental damage from economic development. DMS offers four In-Lieu Fee mitigation programs designed to assist private and public developers in meeting state and federal compensatory mitigation requirements for streams, wetlands, riparian buffers, and nutrients. DMS utilizes receipts from these programs to restore streams, wetlands, and forested buffers by working with state and local partners, including willing landowners to concentrate mitigation resources in areas where they will have the greatest watershed benefit. DMS works hard to ensure that cost effective mitigation alternatives succeed in order to improve the state's water resources. (https://deq.nc.gov/about/divisions/mitigation-services)

Appendix B: NC DEQ Division/Section Summaries

Division of Water Resources: Water Planning Section (NC DWR-WPS) – NC DWR's Water Planning Section develops standards, rules and management strategies to protect water quality, carries out water supply planning, provides guidance to local water systems, and monitors drought conditions. The section develops Basinwide Plans; manages the Central Coastal Plain Capacity Use Area; prepares and administers rule-making for stream classifications, nutrient sensitive waters, and unique wetlands; evaluates surface and ground water standards; administers grants; creates reports on surface and ground waters of the state; and develops Total Maximum Daily Loads (TMDL) for waters with high pollutant sources. (https://deq.nc.gov/about/divisions/water-resources/planning)

Division of Water Resources: Water Quality Permitting Section (NC DWR-WQPS) – NC DWR's Water Quality Permitting Section has six branches that are responsible for compliance, expedited permitting, non-discharge effluent land application and beneficial uses of reclaimed water, animal feeding operations, National Pollutant Discharge Elimination System (NPDES) permits for industrial and municipal projects, and 401 and buffer permitting. The 401 and buffer permitting branch is responsible for the implementation of state waters, wetlands, and riparian buffer regulatory programs. (https://deq.nc.gov/about/divisions/water-resources/water-resources-permits)

Division of Water Resources: Water Quality Regional Operations Section (NC DWR-WQROS) – NC DWR's Water Quality Regional Operations Section focuses on the protection and enhancement of the state's surface and ground water. The regional office personnel are often the public's first contact with the agency for environmental emergencies, permit acquisition and compliance, and groundwater well permitting and compliance. There are seven regional offices across NC. (https://deq.nc.gov/about/divisions/water-resources/water-quality-regional-operations)

Division of Water Resources: Water Sciences Section (NC DWR-WSS) – Water Sciences Section (NC DWR-WSS) – NC DWR's Water Sciences Section has chemical and biological laboratories that provide DWR with the biological, chemical and technical support required to regulate and manage water quality throughout the state as well as comply with federal monitoring requirements. The section conducts ambient and intensive survey monitoring of estuaries, lakes, rivers, streams, and wetlands. Water chemistry, aquatic toxicology, and biological assessments (e.g., macroinvertebrates, amphibians, fish communities and tissues, plants and algae) provide valuable data on NC's various aquatic ecosystems. (https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page)

Appendix C: Agency Contact Information

APNEP
https://apnep.nc.gov/
(919-707-8362) · 217 West Jones St. · Raleigh, NC 27604

NC DCM
https://deq.nc.gov/about/divisions/coastal-management
(252-808-2808) · 400 Commerce Ave. · Morehead City, NC 28557

NC DEMLR
https://deq.nc.gov/about/divisions/energy-mineral-land-resources
(919-707-9220) · 512 N. Salisbury Street, 5th Floor · Raleigh, NC 27604

NC DMF
https://deq.nc.gov/about/divisions/marine-fisheries
(252-726-7021) · 3441 Arendell Street · Morehead City, NC 28557 v

NC DMS
https://deq.nc.gov/about/divisions/mitigation-services
(919-707-8976) · 217 West Jones St. Suite 3000A · Raleigh, N.C. 27603

NC DWR—Water Planning Section
https://deq.nc.gov/about/divisions/water-resources/planning
(919-707- 3630) · 512 N. Salisbury Street, 11th Floor · Raleigh, NC 27604

NC DWR—Water Quality Permitting Section
https://deq.nc.gov/about/divisions/water-resources/water-resources-permits
(919-707-3631) · 512 N. Salisbury Street, 9th Floor · Raleigh, NC

NC DWR—Water Quality Regional Operations Section
https://deq.nc.gov/about/divisions/water-resources/water-quality-regional-operations
(919-707-9129) · 512 N. Salisbury Street · Raleigh, NC
(or Individual Regional Office)

NC DWR—Water Sciences Section
https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page
(919-743-8409) ·4401 Reedy Creek Rd · Raleigh, NC 27607

Weymouth Woods Sandhills Nature Preserve State Park, Southern Pines NC

Appendix D: Quick Reference Sheets - NC DEQ's Proposed Activities

The NC DEQ activities are listed and associated with their respective EPA Objective and Action (Some activities may be applicable to more than one Core Element.). The Divisions/Sections working on the activities are noted by the adjacent icons. When appropriate, activities have been combined and all relevant Divisions/Sections noted. **An asterisk (*) by an activity denotes that greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ's pursuit of that activity would be beneficial to their organization's members or constituents** (based on a 2021 NC DWR survey).

MONITORING AND ASSESSMENT

ID	NC DEQ Monitoring and Assessment Activities	EPA Core Element Action[1]	NC DEQ Divisions/ Sections
A*	Seek improvements for wetland predictive mapping (DCM: NC CREWS currently the best coastal maps; need updated estuarine shoreline maps, interested in the effects of salinity changes on shoreline forests)	Obj. 1 Action c.	
B*	Assess changes in the quantity and quality of coastal wetlands (e.g., sea level rise, wetland migration, general data, hotspots, landowners, and constitutional, financial, and legal implications)	Obj. 2 Action e.	
C*	Develop maps the public can access (e.g., wetland condition, conservation easements, assets, monitoring data interface)	Obj. 3 Action d.	
D*	Support the US Army Corps of Engineers' (Wilmington District) assessment of the ability of wetlands to limit the impacts of hurricanes and flooding in the Neuse, Tar-Pam, and Lumber River basins	Obj. 2 Action e.	
E*	Explore a program to create flood storage using nature-based solutions (DMS received legislative authority to develop a program which would create flood storage using nature-based solutions. The Division is establishing an Advisory Board and applying for grants to develop pilot projects and test cases. These efforts aim to determine the goals, strategies, and funding sources for this new program.)	Obj. 3 Action c.	
F*	Focus on improvements in stream water quality	Obj. 3 Action d.	
G*	Restore, enhance, and preserve wetlands to improve stream water quality	Obj. 3 Action d.	
H	Develop tools to assist with wetland evaluation	Obj. 1 Action d.	
I	Assess urban wetlands and their influence on water quality	Obj. 2 Action b.	
J	Research successful shoreline stabilization alternatives, with an emphasis on living shorelines	Obj. 2 Action b.	
K	Investigate current dam safety practices and sediment impacts on wetlands and streams below existing dams	Obj. 2 Action e.	
L	Watch for potential impacts to downstream wetlands from low and intermediate hazard dam removal projects that are exempt from state permitting	Obj. 2 Action e.	
M	Map and monitor coastal habitats (including wetlands) to assess status and regulatory effectiveness	Obj. 2 Action e.	
N	Continue to collect data on wetland condition and fish use at selected sites as part of the “Strategic Habitat Area” validation study (See Table 1)	Obj. 2 Action b.	
O	Continue participation in EPA’s National Wetland Condition Assessment	Obj. 2 Action b.	

[1] EPA Core Element Framework: Monitoring and Assessment Objectives and Actions (US EPA 2009b) can be viewed at https://www.epa.gov/sites/production/files/2015-09/documents/monitoring_and_assessment_cef.pdf

* Greater than 50% of the 2020-2021 NC WPP stakeholder members agreed that NC DEQ’s pursuit of that activity would be beneficial to their organization’s members or constituents (based on a 2021 NC DWR survey).

REGULATION

ID	NC DEQ Regulation Activities	EPA Core Element Action[2]	NC DEQ Divisions/ Sections
A*	Revise NC DCM's Program Assessment & Strategy and NC DWR's Wetland Program Plan (every five years)	Obj. 1 Action d.	
B*	Continue collaboration (supported by the NC DEMLR and NC DWR MOU) on permitting projects that affect NC wetlands, streams, and buffers	Obj. 2 Action e.	
C*	Continue requiring installation/implementation of stormwater control measures, per current law and rules, prior to flow into streams and wetlands (unless low flow requirements are met)	Obj. 2 Action b.	
D*	Review and comment on federal wetland rule changes	Obj. 3 Action b.	
E*	Work with EMC and stakeholders to respond to changes in the definition of "Waters of the United States" (USACE 2020) and provide guidance to the regulated community	Obj. 1 Action a.	
F*	Continue to implement successful compensatory mitigation projects to offset permitted wetland impacts and minimize loss of wetland functions	Obj. 2 Action f.	
G*	Explore the use of wetland mitigation and stormwater wetlands to meet nutrient reduction requirements for existing developments	Obj. 2 Action f.	
H	Complete Coastal Habitat Protection Plan (CHPP) Amendment, which includes several issue papers with recommended actions related to wetlands: • Ensure environmental rule compliance to protect habitat and water quality • Promote wetland protection and enhancement with focus on nature-based methods	Obj. 1 Action d.	
I	Facilitate Unique Wetland classifications for appropriate wetlands	Obj. 2 Action a.	
J	Enforce NC wetland standards and continue management of CWA Section 401 certifications, buffer authorizations, and isolated wetlands and waters permits	Obj. 3 Action b.	
K	Review NC wetland General Certifications every five years	Obj. 1 Action c.	
L	Review wetland mitigation reports and participate in the Interagency Review Team (IRT)	Obj. 3 Action c.	
M	Continue implementation of Coastal Area Management Act (CAMA) regulations	Obj. 2 Action c.	
N	Continue coordination with regional offices (NC DWR) on buffers and stream and wetland delineations in riparian buffers requiring certification for sediment and erosion control measures	Obj. 2 Action e.	
O	Continue to protect marine fisheries by minimizing wetland impacts via commenting on environmental permits near coastal waters (collaboratively with NC DWR and other resource agencies)	Obj. 2 Action c.	

[2] EPA Core Element Framework: Regulation Objectives and Actions (US EPA 2009c) can be viewed at https://www.epa.gov/sites/production/files/2015-09/documents/regulation_cef.pdf

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VOLUNTARY RESTORATION AND PROTECTION

ID	NC DEQ Voluntary Restoration and Protection Activities	EPA Core Element Action[3]	NC DEQ Divisions/ Sections
A*	Continue outreach and education (e.g., explaining use of living shorelines)	Obj. 1 Action c.	
B*	Promote wetland restoration and preservation to improve water quality through Watershed Action Plans (e.g., Walnut Creek in Raleigh)	Obj. 1 Action b.	
C*	Explore the use of wetland mitigation and constructed stormwater wetlands to meet existing development nutrient reduction requirements	Obj. 3 Action c.	

[3] EPA Core Element Framework: Voluntary Restoration and Protection Objectives and Actions (US EPA 2009d) can be viewed at https://www.epa.gov/sites/production/files/2015-09/documents/restoration_and_protection_cef_1.pdf

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WATER QUALITY STANDARDS FOR WETLANDS

ID	NC DEQ Water Quality Standards for Wetlands Activities	EPA Core Element Action[4]	NC DEQ Divisions/ Sections
A*	Enforce NC wetland standards	Obj. 3 Action a.	

[4] EPA Core Element Framework: Water Quality Standards for Wetlands Objectives and Actions (US EPA 2009e) can be viewed at https://www.epa.gov/sites/production/files/2016-07/documents/program_building_activities_menu.pdf

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OUTREACH AND EDUCATION:
(ACTIVITIES CROSS MULTIPLE CORE ELEMENTS)

ID	NC DEQ Outreach and Education Activities	EPA Core Element Action[5]	NC DEQ Divisions/ Sections
A*	Continue outreach and education (especially living shorelines)	Regulations Obj.3 Action e.	
B*	Include wetlands as part of sustainability models (i.e., long term balance of social, environmental, and economic impacts) for watersheds and local communities	Regulations Obj. 3 Action d.	
C*	Support State agencies' wetland needs	Mon. & Assess Obj.3. Action d.	
D*	Communicate and coordinate work related to North Carolina's wetlands (e.g., government, education, non-profits)	Regulations Obj. 3 Action e.	
E	Monitoring NC WPP progress (2021-2025)	All	

[5] EPA Core Element Framework Objectives and Actions (US EPA 2009a) can be viewed at https://www.epa.gov/sites/production/files/2015-10/documents/2009_03_10_wetlands_initiative_cef_full.pdf

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THE STATE OF NORTH CAROLINA

Wetland Program Plan

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