NORTH CAROLINA'S COASTAL HABITAT PROTECTION PLAN

2021 - 2022

ANNUAL REPORT

Submitted to
The Environmental Review Commission and the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources of the NC General Assembly
Pursuant to G.S. 143B-279.8

From

Marine Fisheries Commission
Environmental Management Commission
Coastal Resources Commission
Department of Environmental Quality

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2021-2022 CHPP Annual Report

Background

North Carolina's Coastal Habitat Protection Plan (CHPP) is mandated by the Fisheries Reform Act of 1997 (FRA; G.S. 143B-279.8) for the purpose of long-term enhancement of coastal fisheries by protecting, enhancing, and restoring coastal habitats. The statute specifies that the plans be drafted by the N.C. Department of Environmental Quality (DEQ), with direction and approval from the three environmental commissions (Marine Fisheries Commission - MFC, Coastal Resources Commission - CRC, and Environmental Management Commission - EMC). The FRA also states that the CHPP must be reviewed and revised, if needed, on five-year cycles. The MFC, CRC, and EMC must approve the revised plan and implement the recommendations. The N.C. Division of Marine Fisheries (DMF) and the Albemarle-Pamlico National Estuarine Partnership (APNEP – hosted by DEQ) co-lead CHPP efforts including coordination of the CHPP Team which also includes staff from other DEQ divisions and other agencies. To implement recommendations of the CHPP, the CHPP Team develops specific implementation actions and recommendations for the CHPP Steering Committee (CSC) to review. The CSC, a subset of commissioners from the MFC, CRC, and EMC, leads in setting implementation priorities and serve as liaisons to their full commissions.

The CHPP was initially adopted in 2004 by the MFC, CRC, and EMC with the overarching legislative goal of *"…long-term enhancement of coastal fisheries associated with coastal habitats."* Following adoption, DEQ's staff developed two-year implementation plans in 2005, 2007, 2009, and 2011. These plans detailed specific steps each participating agency agreed to work on during those timeframes to implement the CHPP recommendations. Beginning with the 2016 CHPP, specific implementation actions were included in the plan rather than drafting separate implementation documents.

Implementation progress and accomplishments were reported annually from 2006 through 2016 through the *CHPP Annual Report* which was legislatively required. However, in 2017, the General Assembly amended the legislation to only require an annual report after "significant revisions to the Plan are made." Past accomplishments from the CHPP include enhanced oyster restoration, increasing use of living shorelines, management changes to ensure permitted activities minimize impacts to coastal habitats like seagrass, wetlands, and oysters, and increased communication and coordination across commissions and agencies.

The *2021 CHPP Amendment* was approved by the MFC, CRC, and EMC at their business meetings in November 2021 with each commission recommending to "further encourage that all avenues to obtain federal, state, local and private funds to implement the actions in the plan be pursued, including forming the private/public partnership that the plan recommends." The *2021 CHPP Amendment* was approved by the DEQ Secretary in December 2021 and is considered a significant revision requiring an annual report to the General Assembly.

2021 CHPP Amendment

Process

In the fall of 2019, the CSC determined that an amendment was most appropriate for the current CHPP cycle and that the 2016 CHPP Source Document could continue to stand as the scientific background to the Amendment. The 2021 CHPP Amendment focuses on five priority issues selected by the CSC:

1. Submerged Aquatic Vegetation (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
5. Coastal habitat mapping and monitoring to assess status and trends

A substantial effort was made to broadly engage stakeholders in the 2021 CHPP Amendment process including collaboration and assistance with the North Carolina Coastal Federation (NCCF) and the Pew Charitable Trust (Pew). During the 30-day public comment period, an unprecedented amount of public comment was received by DEQ through emails, an online survey, and public comment at five MFC Advisory Committee (AC) meetings. There was overwhelming public support for all the recommendations, with protecting and restoring SAV through water quality improvements and enhancing wetlands receiving the most support. These collective actions will increase coastal ecosystem and community resilience through nature-based solutions. Each of the five MFC ACs voiced their support through approved motions to the MFC.

During the MFC AC meetings, the committee members and the public discussed what they perceived as the driving causes of water quality degradation. Some of the water quality concerns mentioned included intense coastal development, runoff, logging in wetlands, and atmospheric deposition of nitrogen originating from animal waste lagoons. Support was voiced for more significant buffers especially around farmland, increased use of nature-based solutions and Best Management Practices, and public outreach on habitat protection. Further, it was noted that clean water is essential for sustaining shellfish mariculture, fisheries, tourism, and thus the coastal economy.

One significant recommendation that came from public comment was the need to create a public/private partnership to focus on water quality improvements. A partnership that included stakeholders with a variety of expertise was considered beneficial for advancing a range of voluntary actions to maintain and restore water quality essential to estuarine habitats and fish. Building strong partnerships with stakeholders and aligning actions with existing and new programs and resources was supported as a strategic and necessary approach for successful implementation of actions that will benefit water quality. A public/private partnership could provide needed resources to further implement CHPP recommendations and elevate public awareness and support for coastal habitat protection and restoration. The non-government partners would be able to advocate for recommendations and hopefully broaden funding and additional support opportunities for them.

2021 CHPP Steering Committee Members

Dr. Martin Posey (*Chair*) – MFC
Mr. Pete Kornegay – MFC
Mr. David Anderson - EMC
Ms. Yvonne Bailey – EMC
Mr. Larry Baldwin - CRC
Mr. Bob Emory – CRC

Recommendations

To aid successful implementation and habitat improvement, the *2021 CHPP Amendment* focuses action on five priority issues, and strategically includes actions with co-benefits such as coastal resiliency. Healthy fish habitats are critical to maintaining our coastal community's economy and resilience to increasing threats associated with climate change. Recommendations were written to be SMART: specific, measurable, attainable, relevant, and time bound. The 49 recommendations address the concerns raised in the five priority issue papers (Appendix A) developed to inform the amendment process. The CHPP staff and the CSC recognize that it will take a concerted effort of collaboration on the part of all involved – state agencies, scientists, conservation organizations, local governments, and engaged stakeholders to support and implement these recommendations that help realize protection and preservation of our coastal habitats, while also increasing coastal ecosystem and community resilience. It should be noted that the issues identified in the *2016 CHPP Source Document* continue to remain a priority as well. These newly identified issues do not replace those which have been previously documented. The full 2021 CHPP Amendment and 2016 CHPP Source Document are located here: https://deq.nc.gov/about/divisions/marine-fisheries/habitat-information/coastal-habitat-protection-plan

Appendix A. Recommendations in the *2021 CHPP Amendment*.

Chapter 4. Submerged Aquatic Vegetation Protection and Restoration Through Water Quality Improvements

Funding

4.1 By 2023, the NC Department of Environmental Quality (DEQ) will pursue recurring funding as well as from state, federal, and private sources that includes the adequate amount of staff to successfully evaluate and meet the submerged aquatic vegetation (SAV) acreage goals and implement all of the SAV recommendations that contribute to meeting the goals.

Planning

4.2 By 2022, DEQ will commit to protecting and restoring SAV to reach an interim goal of 191,000 acres coastwide with specific targets by SAV waterbody regions (Table 4.5; Figures 4.1-4.9).

4.3 By 2022, DEQ will form an interagency workgroup with non-government organizations (NGOs), and local governments to inform and guide development of watershed restoration plans to protect, restore or replicate natural habitats (i.e., SAV, water quality, coastal habitats) and hydrology through natural and nature-based solutions.

4.4 By 2022, DEQ will form a workgroup with the NC Division of Water Resources (DWR), NC Division of Energy, Mineral, and Land Resource (DEMLR), Division of Soil and Water Conservation, local governments, and other partners to increase best management practices (BMPs) related to water quality within the SAV waterbody regions to the extent possible, consistent with current funding level, and request increased state cost-share funding.

Mapping and Monitoring

4.5 By 2023, DEQ will develop and implement a full-scale assessment program to conduct coastwide SAV mapping and monitoring at regular intervals (≤ 5 years).

4.6 By 2023, DWR will evaluate and prioritize the incorporation of shallow water sites (< 1m mean lower low water (MLLW)) that currently or historically contain(ed) SAV into the statewide Ambient Monitoring System.

Potential Rulemaking

4.7 By 2022, the Environmental Management Commission (EMC) will receive guidance from the Nutrient Criteria Development Plan (NCDP) Scientific Advisory Council (SAC) on establishing a water quality standard for light penetration, with a target value of 22 percent to the deep edge (1.7 m) of SAV for all high salinity SAV waterbody regions, and a light penetration target of 13 percent to the deep edge (1.5 m) for all low SAV waterbody regions (Table 4.5; Figures 4.1-4.9).

4.8 By 2022, at the request of the EMC, the NCDP SAC will evaluate the chlorophyll *a* water quality standard and as needed, recommend it be revised by the EMC to ensure protection of SAV in high and low salinity waterbody regions, beginning with the Albemarle Sound and Chowan River, and continuing with other waterbodies that support SAV (Table 4.5; Figures 4.1-4.9).

4.9 By 2024, the EMC will enact the rule making process to adopt scientifically defensible nitrogen and/or phosphorus criteria if recommended through the NCDP process, to help protect and restore ~12,900 acres of low salinity SAV habitat in the Albemarle Sound SAV waterbody region and continuing with other waterbodies that support SAV.

Research

4.10 By 2025, DWR will determine with assistance from research academia, the loading and sources of nutrients and sediments, their quantitative linkages to chlorophyll *a* concentrations, and their effect on water quality and SAV.

4.11 By 2022, NC and DEQ, through the Secretary of Emergency Management, will request more accurate estuarine bathymetry data from the National Oceanic and Atmospheric Administration (NOAA).

4.12 By 2022, DWR will request the NC Policy Collaboratory to investigate the impacts of agricultural practices and land use change on water quality within SAV waterbody regions, to determine types and location of BMPs needed to effectively improve water quality.

Outreach

4.13 By 2022, DEQ Office of Education and Public Affairs will work with local governments and NGOs to start the development of public education and stewardship programs with social media campaigns and citizen science monitoring to increase public awareness of SAV's importance for fish habitat and other co-benefits, as well as instill public commitment to SAV conservation.

Chapter 5. Wetlands Shoreline Protection and Enhancement with Focus on Nature-Based Solutions

Mapping and Monitoring

5.1 By 2023, DEQ will obtain state matching funds for the NOAA Coastal Change Analysis Program (C-CAP) program to map NC's Coastal Plain at 1m resolution and additional funding to expand wetland monitoring conducted by DWR and other state agencies.

5.2 By 2024, DEQ will pursue the use of emerging technologies such as data fusion or deep learning neural networks, that rely on a combination of satellite imagery, drone imagery, and field verification for Coastal Plain wetland mapping and change analyses.

5.3 By 2022, DEQ will form an interagency workgroup to develop a Coastal Plain wetland mapping and monitoring plan, including a minimum set of standardized metrics and a potential centralized location to store relevant reports and information.

5.4 By 2026, DEQ will determine the status and trends of Coastal Plain wetland acreage, condition, and function, based on the additional mapping and monitoring data obtained.

Conservation

5.5 By 2022, DEQ will provide information to NC legislators regarding the need for increased appropriated funds for the three state conservation trust funds to increase conservation of critical wetland properties and critical corridors that will allow for future marsh migration.

5.6 By 2022, DEQ will actively participate in and support the development of a Southeast Regional Marsh Conservation Plan, which is a partnership with the Department of Defense along with federal, state, and private groups that have been initiated by the Southeast Partnership for Planning and Sustainability (SERPPAS).

5.7 By 2026, DEQ will work with researchers, federal and local governments and NGOs to facilitate marsh migration through the conservation of migration corridors, including participation in the Pew Charitable Trusts-SERPPAS Salt Marsh Initiative.

Restoration and Living Shoreline

5.8 By 2022, the NC Division of Marine Fisheries (DMF) will determine potential mechanisms to prevent harvesting from living shorelines constructed with oysters.

5.9 By 2025, DEQ will determine if living shoreline projects can be built in a manner that qualifies for salt marsh or nutrient mitigation credits.

5.10 By 2025, DEMLR and other divisions should increase education, outreach, and training to consultants, local government, and landowners for nature-based stormwater and watershed management strategies.

Research

5.11 By 2024, DEQ should partner with other organizations to facilitate coastwide completion or enhancement of coastal vulnerability assessment tools, such as living shoreline siting, and marsh migration and wetland restoration prioritization.

5.12 Determine optimal parameters for thin layer sediment deposition to ensure wetland success.

5.13 Assess trends in salt marsh elevation, inundation, and distribution to prioritize areas for wetland restoration.

5.14 Determine the impact of degrading plastics and marine debris on wetlands, sediment, and the benthos.

5.15 Research the nutrient (nitrogen, phosphorus) reduction benefits provided by living shorelines and use that information to provide incentives for living shoreline projects.

5.16 Study the effects of silvicultural timber harvesting in bottomland swamp forests on hydrology, water quality, and wetland condition; include assessment on the efficacy of forestry BMPs to minimize ecological impacts.

5.17 By 2022, DEQ should support efforts to incorporate Coastal Plain wetlands and other coastal habitats into NC's Greenhouse Gas (GHG) Inventory.

Chapter 6. Environmental Rule Compliance and Enforcement to Protect Coastal Habitats

Funding

6.1 By 2023, through legislative appropriations or budget reallocations, DEQ will increase staffing in DWR and DEMLR by a minimum of two staff (one per office, per agency) in the Washington and Wilmington regional offices.

6.2 By 2023, DEQ will seek funding through grants or other sources to supplement state-appropriated compliance efforts.

Outreach

6.3 By 2022, DWR and DEMLR should work with the NC Division of Environmental Assistance and Customer Service (DEACS) to establish a public portal on DEQ's website that provides information on compliance issues, allows the public to submit complaints, and potentially highlights a list of repeat violators.

6.4 By 2023, DWR, DEMLR, and NC Division of Coastal Management (DCM) should develop and hold outreach workshops for NGOs, homeowner associations (HOAs), and other interested public, on rules related to land disturbing activities that affect wetlands and water quality, and how to identify violations to improve the effectiveness of public complaints.

6.5 By 2022, DEMLR will initiate and continue outreach to stormwater permit holders on rules and required maintenance of stormwater control measures and structures.

Chapter 7. Wastewater Infrastructure Solutions for Water Quality Improvement

Policy

7.1 By 2024, DEQ will request that funding programs under the purview of the State Water Infrastructure Authority (SWIA) give additional priority for projects with a direct benefit to sensitive estuarine waters, including SA waters, fish nursery areas, and impaired waters, particularly those adversely impacting estuarine fish and their habitat.

7.2 By 2025, DWR will develop additional incentives to encourage improved maintenance of the collection system (e.g., incentivize owners and operators of wastewater lines for both existing

systems and potential new systems to adopt construction designs that minimize the potential for sewer spills over the long-term).

7.3 By 2025, DCM and DWR will work with NC Office of Recovery and Resiliency (NCORR) and local governments in the coastal counties to develop strategies regarding flood-proofing wastewater infrastructure; siting new and relocating existing infrastructure away from sensitive estuarine waters and floodplains; upgrading sewer infrastructure; and develop strategic priorities for public and natural infrastructure improvements.

Potential Rulemaking

7.4 By 2023, DWR will evaluate modifications of EMC rules to require deemed permitted collection systems under select criteria (e.g., 100,000 or more GPD) to have a certified operator as an Operator in Responsible Charge (ORC). DWR shall provide an update on this evaluation effort to the Water Quality Committee in approximately one year.

7.5 By 2023, DWR will investigate modification of EMC rules to require deemed permitted collection systems to be cleaned annually on a systematic basis (e.g., 3 to 5 years). The DWR shall provide an update on this evaluation effort to the Water Quality Committee in approximately one year.

Research

7.6 Prioritize research on alternative wastewater collection system designs that may be better suited for coastal conditions (i.e., alternative sewer systems, composting toilets).

7.7 Evaluate the feasibility of re-designing and re-engineering existing systems that are inadequately protecting ground and surface water quality.

Chapter 8. Coastal Habitat Mapping and Monitoring to Assess Status and Trends

Planning

8.1 By 2022, convene interagency workgroups of DEQ agency staff, academics, and subject matter experts by coastal habitat type (i.e., water column, shell bottom, SAV, wetlands, hard bottom, and soft bottom) to define indicator metrics and identify data gaps and monitoring needs for the ability to determine long-term status and trends of coastal habitats and the estuarine ecosystem.

Outreach

8.2 By 2026, develop a document determined by the workgroups to communicate the ecosystem conditions of NC to the public.

Water Column

8.3 By 2023, DWR will evaluate and prioritize estuarine ambient monitoring system sites to address gaps in spatial, habitat, or parameter coverage.

8.4 By 2022, DWR will update standardized procedures for algal bloom investigations and evaluate the potential to cross-train other DEQ divisions to perform estuarine and marine investigations.

SAV

See the Submerged Aquatic Vegetation (SAV) Protection and Restoration Through Water Quality Improvements Issue Paper Mapping and Monitoring recommendations 4.5 and 4.6 in section 9.1.1.

Wetlands

See the Wetlands Shoreline Protection and Enhancement with Focus on Nature-Based Solutions Issue Paper Mapping and Monitoring recommend actions 5.1-5.4 in section 9.1.2.

Hard Bottom

8.5 By 2023, DMF will develop a monitoring strategy to determine how best to map natural hard bottom reefs in NC state waters and monitor the condition of both natural and artificial reefs.

Soft Bottom

8.6 By 2023, DWR will examine the feasibility of expanding the benthic macroinvertebrate sampling to address spatial gaps in assessing the estuarine soft bottom benthic community condition.

Water Quality Stakeholder Workgroup

During the January 2021 CSC meeting, a request from the NCCF and Pew to form a stakeholder workgroup to develop supplemental water quality recommendations that could be accomplished quickly and have stakeholder support was discussed. The NCCF and Pew formed a small workgroup of stakeholders whose focus was to identify actionable strategies to address cross-cutting concerns about water quality as related to nutrient enrichment and sedimentation. A report with recommendations was completed by the workgroup and presented to the CSC meeting on August 3, 2021 and included during the public comment period. Based on this report and public comment, the following recommendation was added by the CSC:

9.1 By 2022, DEQ will support the formation of a public/private partnership that will engage a diverse group of stakeholders to assist in developing, implementing, and securing decision-maker support and funding for measures in this *2021 CHPP Amendment* that protect and restore water quality.

Recommendations from Other Plans Supported by the CHPP

Since the 2016 CHPP, several coastal resilience planning documents and reports were developed citing the CHPP with recommendations that are consistent with and are supported by the issue papers in the *2021 CHPP Amendment* including the NC Climate Change Risk and Resilience Plan 2020, the Natural Working Lands Action Plan 2020, the NC Oyster Blueprint 2021-2025, the Action Plan for Nature-Based Stormwater Strategies, and the State Water Infrastructure Authority Report. The CHPP remains compatible with the APNEP Comprehensive Conservation and Management Plan. Table 9.1 includes a partial list of existing recommendations adapted from these other plans that are strongly supported by the CHPP and the CSC. Several DEQ divisions that implement the CHPP recommendations participated in the development of these planning documents and included specific recommendations in the plans to implement through the CHPP. These staff will continue to support and assist with the implementation of these plans through the CHPP and other avenues.

Table 9.1. Recommendations adapted from planning documents that will benefit protection and restoration of coastal habitats and are consistent with the goals and recommendations of the CHPP.

Source(s)	Recommendations	Issue Paper
NC Risk and Resiliency Plan	Enhance outreach, particularly to landowners and decision makers, on the need to have accurate and updated wetland maps due to their high value for fisheries, ecosystem services, and coastal resilience.	Wetlands
	Incorporate climate risk and expected hydrologic and shoreline changes into wetland related policies, such as buffers and wetland impact permitting.	Wetlands
	Actively pursue partnerships with state and federal agencies and NGOs to increase wetland restoration and conservation along coastal rivers and streams to increase ecosystem services and coastal resiliency, taking climate change and SLR into consideration.	Wetlands
Natural Working Lands Action Plan	Facilitate increased conservation and restoration of forested wetlands within floodplains through economic incentives, acquisition, easements, and strategic floodplain buyouts to conserve forested wetlands, enhance ecosystem services, and improve coastal community resilience.	Wetlands
	Facilitate the development of specific policies through local, state, and federal pathways that encourage and incentivize the protection of coastal habitats (including SAV).	SAV
NC Risk and Resiliency Plan & Action plan for nature-based stormwater strategies	Advance state and local policies that promote and incentivize the use of nature-based strategies for public and private landowners when rebuilding damaged infrastructure and managing stormwater runoff to increase coastal resilience. Nature-based stormwater strategies should be designed to achieve "runoff volume matching" as specified in the state's stormwater design manual.	Wetlands
Action plan for nature-based stormwater strategies	Educate the North Carolina congressional delegation on opportunities to substantially increase the amount of financial resources for working lands and conservation coming from the federal Farm Bill and other federal programs.	Wetlands
The Oyster Blueprint 2021-2025	The NC Living Shoreline Steering Committee will devise and implement communication and education strategies and publicize the benefits of living shorelines, targeting property owners and contractors.	Wetlands
	Expand current science-based tools for siting and design of living shorelines in all coastal counties.	Wetlands
	Seek monetary incentives (cost share, funding, tax credits, mitigation credits, etc.) to increase the development of living shorelines in place of bulkheads where appropriate.	Wetlands
State Water Infrastructure Authority Report	Request adequate and recurring state appropriated funds needed for the viable utility reserve.	Wastewater
	Request the NC General Assembly modify legislation to allow SWIA flexibility in establishing grant conditions for programs under their authority, to ensure grant funds are used to help systems achieve long-term viability.	Wastewater
	Increase regional planning, incentives for regionalization, consolidation of failing systems, and customer assistance programs.	Wastewater