



October 19, 2021

Dear Jimmy Johnson,

Please accept these comments on the 2021 Amendment to the North Carolina Coastal Habitat Protection Plan (CHPP) on behalf of The Pew Charitable Trusts. The CHPP contains recommendations that align with Pew's environmental conservation and flood resilience priorities. We appreciate the collaborative and comprehensive approach taken in updating the CHPP and look forward to helping implement measures that promote sustainability for North Carolina's coastal resources and communities.

We are pleased that the Department of Environmental Quality (DEQ), Marine Fisheries Commission (MFC), Environmental Management Commission (EMC), and Coastal Resources Commission (CRC) prioritized the protection and restoration of Submerged Aquatic Vegetation (SAV) and coastal wetlands in the 2021 CHPP Amendment. We appreciated the opportunity to assist in convening technical workshops on these issues in 2020 and, in partnership with the NC Coastal Federation, to convene a CHPP Stakeholder Workgroup May-July 2021 that developed complementary recommendations for voluntary actions to improve water quality; these appear in Appendix A.

Pew's priorities in North Carolina include protecting coastal habitat, restoring river ecosystems, and flood preparedness at the community and state level. We have worked with a variety of stakeholders to advance these priorities, including development of the 2021 NC Oyster Blueprint, the 2021 Action Plan for Nature-based Stormwater Strategies, the 2020 Coastal Management Program and National Estuarine Research Reserve Federal Program Evaluation, and the 2020-2022 Triennial Review for Surface Water Standards undertaken by the EMC.

The process to draft the 2021 CHPP Amendment was rigorous and thoughtful. Recognizing that it is already a strong document, we ask that you consider some modest but important modifications and move it toward final approval and effective implementation. We offer the following recommendations for clarity, ease of implementation, and to increase public engagement:

1. Facilitate the formation of a new public/private partnership to increase stakeholder involvement in CHPP development, implementation, funding, and decision-maker support.
2. Modify RA 4.1 to expand SAV protection and restoration funding opportunities and minimize delays in implementing RAs to protect and restore SAV through water quality improvements.
3. Modify RA 4.7 to strengthen and streamline the process for establishing a water quality standard for light penetration that is critical for meeting photosynthetic needs of SAV.
4. Modify RA 4.8 to strengthen and streamline the process for establishing a water quality standard for chlorophyll a that is critical for meeting photosynthetic needs of SAV.
5. Prioritize RA 5.6 and RA 5.7 to participate in the development of a new Southeast Regional Salt Marsh Conservation Plan and protect marsh migration corridors.

Recommendation 1. Facilitate the formation of a new public/private partnership to increase stakeholder involvement in CHPP development, implementation, funding, and decision-maker support.

We urge DEQ to spearhead a meeting or series of meetings to determine how best to form a new public/private partnership that can assist with implementing the 2021 CHPP Amendment and with developing the next one. This critical enterprise will help elicit and incorporate meaningful public input, optimize stretched state resources, and build on decades of agency work to achieve CHPP goals.

Stakeholder engagement is a priority for a variety of natural resource managers in North Carolina. For example, the 2020 Natural and Working Lands Action Plan, 2012-2022 Comprehensive Conservation and Management Plan for the Albemarle-Pamlico National Estuary Partnership, and 2021 update to the North Carolina Oyster Blueprint all made the solicitation of stakeholder feedback a key component of their development process. The importance of engaging the public and a variety of different agencies is a theme that runs throughout the 2021 CHPP Amendment and appears in 13 RAs in the form of new workgroup formation, collaborative research, outreach, and training (RA 4.3, 4.4, 4.13, 5.3, 5.6, 5.7, 5.10, 5.11, 6.3, 6.4, 6.5, 7.3, and 8.1).

The 2021 CHPP Amendment explicitly acknowledges the value of multi-stakeholder working groups that bring together partners from multiple state and federal agencies, nonprofits, and academia. Most notably, the Amendment acknowledges the value of the NC Oyster Steering Committee in developing the NC Oyster Blueprint, a plan whose generation and implementation for a key coastal habitat has proven so successful as to obviate the need for an oyster-focused chapter in the 2021 amendment. As noted by DEQ staff during CHPP presentations given during August and September 2021 MFC, EMC, and CRC meetings, so great is the value of the Blueprint and its collaborative development and implementation - which, like the CHPP, happen on a 5-year cycle - that CHPP developers did not include oysters as an explicit priority in the 2021 amendment to avoid duplication of efforts and focus resources on other priority habitats.

The process of convening the CHPP Stakeholder Workgroup in collaboration with NC Coastal Federation demonstrated the value of engaging communities that will be impacted by CHPP RAs in the process of shaping water quality improvement strategies. Two lessons stand out from that experience. The first is the efficiency of having a small group of representatives from different coastal habitat constituencies learn about a CHPP priority issue (water quality) through a thoughtfully designed process of information sharing and analysis and disseminate those results among their constituencies. The second lesson is how resource-intensive designing such a process can be in terms of staff time, even when it is relatively focused in its scope of work, timeline, and target stakeholder groups.

While the Stakeholder Workgroup was intended as a discrete initiative to inform the 2021 CHPP Amendment in its final stages of development, it turned out to be a useful pilot project for how DEQ could, working with partners, develop a broader initiative to increase stakeholder involvement in future CHPP updates from start to finish. It has been useful to compare the Workgroup to the Oyster Steering Committee as a model for operationalizing stakeholder engagement to highlight the potential for a longer-term effort to solicit and incorporate meaningful input to the CHPP from diverse communities who are or could be impacted by the management actions it contains.

Recommendation 2. Modify RA 4.1 to expand SAV protection and restoration funding opportunities and minimize delays in implementing RAs to protect and restore SAV through water quality improvements.

Recommended Action 4.1 states:

By 2023, the North Carolina Department of Environmental Quality (DEQ) will obtain recurring funding 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 recommended actions that contribute to meeting the goals.

We suggest replacing “obtain” with “pursue”, striking “recurring”, and adding “from state, federal, and private sources” after “funding” so that the new RA would read:

By 2023, the North Carolina Department of Environmental Quality (DEQ) will pursue funding 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 recommended actions that contribute to meeting the goals.

Securing recurring funding should not be an obstacle to moving forward on RA implementation. There are numerous opportunities to secure funds to pay for coastal habitat restoration and conservation from federal, state and local government agencies, as well as private funders. Key to accessing recurring funding is strong public and private partnerships that demonstrate engagement by stakeholders who are essential to implementing CHPP RAs. The NC General Assembly is more likely to appropriate funding at levels sufficient to implement the RAs if there is significant and vocal public support. In addition, even non-recurring funding is easier to obtain when it is leveraged with other non-state funding.

The federal government can be a strategic partner in financially supporting the CHPP if thoughtfully engaged. In particular, the National Oceanic and Atmospheric Administration (NOAA), US Fish and Wildlife Service (USFWS), Environmental Protection Agency (EPA), US Department of Agriculture (USDA), and US Army Corps of Engineers (US ACE) all have grant programs that can and have been effectively leveraged to support SAV restoration efforts throughout the US. In the Chesapeake Bay, for example, the federal government had between \$460 million and \$570 million per year in budget authority for restoration activities in the Bay between FY2014 and FY2017.¹ The National Fish and Wildlife Foundation, the Department of Defense, N.C. Land and Water Fund also are all potential sources of government dollars, and research dollars can be secured from funders such as the National Science Foundation by working with university scientists and engineers.

According to NOAA, one of the largest federal funders of coastal habitat restoration projects, North Carolina ranks 16th among coastal states for the number of projects the agency funds, ranking behind numerous states with appreciably less coastline and acreage of estuarine waters.² Given increasing federal attention on coastal resiliency, the state may be able to access significantly greater federal investment in our coastal ecosystems and communities than it has in the past. To increase the

¹ Lipiec, Eva, “Chesapeake Bay Restoration: Background and Issues for Congress”, *Congressional Research Service*, 2018.

² <https://www.fisheries.noaa.gov/resource/map/restoration-atlas>.

agency's ability to develop and submit competitive proposals that are submitted it needs to proactively engage new partners and stakeholders and give them a sense of ownership in the CHPP itself. It also needs to strategically leverage state resources to serve as matching funds, evidence of which many proposals require. Increased funding for staff and projects requires strong forward momentum in building excitement and engagement by lots of stakeholders to implement CHPP RAs. It is essential to create this momentum to obtain the funding levels ultimately sought through RA 4.1.

Recommendation 3. Modify RA 4.7 to strengthen and streamline the process for establishing a water quality standard for light penetration that is critical for meeting photosynthetic needs of SAV.

Recommended Action 4.7 states:

By 2022, the Nutrient Criteria Development Plan (NCDP) Scientific Advisory Council (SAC) will evaluate recommending the Environmental Management Commission (EMC) establish 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).

We suggest making the EMC the subject of the sentence so that the new RA 4.7 would read:

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).

Given the importance of protecting and restoring SAV to support important ecosystem services like carbon sequestration, and the increased economic losses that will result from any delay, it is appropriate for the EMC, with its broad authority for activities affecting water quality, to assume responsibility for RA 4.7 and to task the Division of Water Resources (DWR), the SAC and others, as appropriate. The SAC is a critical body with extensive expertise that should be called upon and leveraged by the EMC in its oversight role of enacting rules related to water quality.

Establishing a water quality standard for light penetration is on the critical path for meeting the interim goal of protecting and restoring 191,155 acres of SAV coastwide as described in RA 4.2. It is the first step in the successful approach to SAV restoration used for the Chesapeake Bay, as described in the draft CHPP 2021 Amendment³, p. 62:

³ <https://files.nc.gov/ncdeq/Marine-Fisheries/coastal-habitat-protection-plan/CHPP-2021-Amendment-Draft-20210806-Commissions.pdf>.

In order to achieve these SAV restoration goals, water clarity criteria were developed by the Chesapeake Bay Program partners⁴ and published by the EPA on behalf of the partnership based on:

- 1. Light requirements for underwater grasses*
- 2. Factors that contribute to light attenuation*
- 3. Epiphyte contribution to light attenuation on leaf surface*
- 4. Minimal requirements for light penetration through the water column and leaf surface*

The causal chain from SAV acreage goals to light penetration to chlorophyll *a* to nutrient load/concentration targets is further elaborated in the CHPP 2021 Amendment Draft⁵, Figure 4.10, p. 72.

According to a recent study on the economic impacts of SAV loss in the Albemarle-Pamlico conducted by researchers from NC State and Duke Universities, the aggregate losses attributable resulting from impacts to fisheries productivity, residential property value, and carbon sequestration ecosystem services are conservatively estimated to be \$1,290 per acre over the next decade.⁶ Seagrasses are globally recognized for their ability to capture carbon dioxide and store the resulting “blue carbon” in their vegetation and soils. However, their degradation, through development or poor water quality, releases this stored carbon.⁷

The EMC can also advocate more effectively than the SAC for any additional funding and trained personnel needed to keep RA 4.7 on schedule. Putting the EMC in charge is in keeping with its mandate as noted in the draft CHPP 2021 Amendment⁸, p.3:

The EMC has authority over activities affecting water quality, such as point and nonpoint discharges, wastewater, alteration of wetlands, and stormwater. The EMC’s rules are implemented by different DEQ agencies, including the NC Division of Water Resources (DWR), the NC Division of Air Quality (DAQ), and the NC Division of Energy, Mineral, and Land Resources (DEMLR).

Recommendation 4. Modify RA 4.8 to strengthen and streamline the process for establishing a water quality standard for chlorophyll *a* that is critical for meeting photosynthetic needs of SAV.

Recommended Action 4.8 states:

*By 2022, the NCDP SAC will evaluate the chlorophyll *a* water quality standard and as needed, recommend it be revised by the EMC to ensure*

⁴ The Chesapeake Bay Program Partners “Bring together expertise, authority and resources from a broad range of organizations” including six states, the District of Columbia, 19 federal agencies, and others.

⁵ CHPP 2021 Amendment Draft.

⁶ <https://deq.nc.gov/news/press-releases/2021/05/25/new-research-measures-economic-losses-further-declines-submerged>

⁷ There are currently efforts underway to evaluate greenhouse gas fluxes in North Carolina’s seagrasses and emergent coastal wetlands. This work will ideally enable DEQ to incorporate coastal wetlands into the State’s Greenhouse Gas Inventory, and help managers understand and evaluate the carbon impacts of protecting and restoring these ecosystems.

⁸ <https://files.nc.gov/ncdeq/Marine-Fisheries/coastal-habitat-protection-plan/CHPP-2021-Amendment-Draft-20210806-Commissions.pdf>.

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).

We suggest putting the EMC in charge of this action so that the new RA 4.8 would read:

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).

It is appropriate for the EMC to assume responsibility for RA 4.8 and to task the DWR, the SAC and others as appropriate. The EMC can also advocate more effectively than the SAC for any additional funding and trained personnel needed to keep RA 4.8 on schedule, especially in light of the NCDP (2019)⁹ statement on p.5:

. . . our greatest challenge is to maintain sufficient funding and trained personnel to complete the tasks outlined in this plan. Nothing in this plan obligates the DWR [under which the SAC is established¹⁰] to a course of action in the absence of program resources.

The EMC should use its authority to ensure that schedules are met or accelerated for tasks established in the CHPP and in the NCDP pertaining to SAV and to related chlorophyll a water quality standards and nutrient criteria for the Albemarle Sound, Chowan River, and estuaries statewide, building on the progress made in developing a site-specific chlorophyll a surface water quality standard for the High Rock Lake Reservoir¹¹.

In addition to the 2021CHPP Amendment, relevant schedules appear in the 2019 NCDP (2019), such as:

- By October 2021, concurrently with activities in the Albemarle Sound, the DWR will “Prioritize specific estuaries for nutrient criteria and confirm approaches proposed in the Albemarle Sound nutrient criteria development process with SAC involvement.” (p.19, Task No. 7)
- By April 2022, nutrient criteria recommendations for the Chowan River and Albemarle Sound are scheduled to be “developed and documented in a phase II report” (p. 14, Task No. 12)

⁹ <https://files.nc.gov/ncdeq/Water%20Quality/Environmental%20Sciences/ECO/NutrientCriteria/North-Carolina-NCDP-v2-05162019-final.pdf>.

¹⁰ <https://files.nc.gov/ncdeq/Water%20Quality/Environmental%20Sciences/ECO/NutrientCriteria/Nutrient-SAC-Approved-Charter-10302019.pdf>.

¹¹ <https://files.nc.gov/ncdeq/Environmental%20Management%20Commission/EMC%20Meetings/2021/july2021/pwrpoints/A/G21-19-CVENTALORO-HRL-Rulemaking-ForReview-1.pdf>.

The EMC should also ensure the provision of timely public notice and opportunities for stakeholder involvement in the implementation of CHPP RAs and related NCDP initiatives.¹²

Recommendation 5. Prioritize RA 5.6 and RA 5.7 to participate in the development of a new Southeast Regional Salt Marsh Conservation Plan and protect marsh migration corridors

Officially launched in May 2021 by the Southeast Regional Partnership for Planning and Sustainability (SERPPAS), the South Atlantic Salt Marsh Initiative (SASMI) aims to conserve over 1 million acres of salt marsh habitat from North Carolina to Northeast Florida. These coastal wetlands provide habitat for approximately 75% of North Carolina’s commercial and recreational fish species, stabilize shorelines, protect against storm surge, and absorb floodwaters. These coastal resilience benefits are valued at approximately \$1.8 million per kilometer² each year.

Salt marshes are also effective carbon sinks, storing far greater amounts of carbon than they natural release. According to research by Duke University,¹³ North Carolina’s coastal marshes and seagrass together currently store about 80 million metric tons of CO₂e and sequester an additional 308,000 metric tons each year. When marshes drown or erode, this stored carbon is emitted back into the atmosphere – in scenarios with the highest sea level rise, for North Carolina alone the lost carbon sequestration potential is approximately equal to the greenhouse gas emissions from 4.4 million cars in one year.¹⁴ Further research by NOAA¹⁵ has also demonstrated that salt marsh are able to continually build carbon stores as sea levels rise - if there is space for marsh to move inland. This research further underlines the importance of continued conservation and protection of marsh migration corridors.

Modelled on the proven success of America's Longleaf Restoration Initiative, SASMI brings together federal, state, and local government officials, conservation groups, academics, and community leaders in pursuit of a common goal of conserving and restoring the regions valuable salt marshes. North Carolina is already taking a leadership role in SASMI planning begun in 2021 by virtue of DEQ leadership participation in the SASMI steering committee. Through development of a regional salt marsh conservation plan, this diverse group of partners will identify key strategies to protect marsh migration corridors, remove or modify barriers that may prevent future marsh migration, and restore marsh where it currently exists. In addition to the benefits this will provide to fish, birds, and other wildlife, this plan will ensure the resilience benefits the marsh provides to neighboring communities, military installations, transportation routes, and critical infrastructure persist into the future.

As watershed and marsh migration corridors transcend jurisdictional (state) boundaries, regional collaboration is key to achieving meaningful salt marsh conservation and restoration outcomes. Continued active participation in the SASMI represents an opportunity to benefit from and contribute to

¹² <https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/nutrient-criteria-development-plan>.

¹³ <https://nicholasinstitute.duke.edu/sites/default/files/documents/Coastal-protection-and-blue-carbon-North-Carolina--fact-sheet.pdf>.

¹⁴ <https://nicholasinstitute.duke.edu/sites/default/files/documents/Coastal-protection-and-blue-carbon-North-Carolina--fact-sheet.pdf>.

¹⁵ <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2019JG005207>.

the pooling of diverse expertise in the Southeast region. Further, doing so would represent meaningful action towards embracing a consensus recommendation to pursue partnerships at a regional level to ensure coordination as noted in the 2012 Climate Ready North Carolina: Building a Resilient Future report and, more recently, reemphasized in the 2020 Climate Risk Assessment and Resilience Plan.

This innovative multistate partnership has already begun to bring much needed attention to an ecosystem of national, regional, and local importance and, through the coalescing of expertise from throughout the region, will facilitate the identification and leveraging of synergies between jurisdictions. Furthermore, as other regional initiatives (e.g. America's Longleaf Restoration Initiative, The Gulf of Mexico Alliance, The Chesapeake Bay Program) have shown, these partnerships represent attractive funding opportunities for both public and private grants.

Once the 2021 CHPP Amendment is approved, and as other collaborative opportunities such as the NC Oyster Blueprint, Action Plan for Nature-Based Stormwater Strategies, Climate Risk Assessment and Resilience Plan, and the SASMI become implemented in the coming years, we look forward to working with North Carolina's leaders to implement CHPP RAs and CHPP Stakeholder Workgroup recommendations to conserve the mosaic of SAV, coastal wetlands, river ecosystems, and human communities so they are resilient and thrive and adapt even as the climate changes and sea levels rise.

Thank you for considering these comments. We look forward to working with you to protect and restore North Carolina's coastal habitats for the benefit of coastal ecosystems and communities today and future generations tomorrow.

Sincerely,



Leda A. Cunningham
Officer, The Pew Charitable Trusts