Pew

April 14, 2023

The Honorable Shawn M. LaTourette
Commissioner
New Jersey Department of Environmental Protection
401 E. State Street
7th Floor, East Wing
P.O. Box 402
Trenton, NJ 08625-0402

Submitted via email

RE: The Pew Charitable Trusts' comments on New Jersey's Draft Natural and Working Lands Strategy Targets

Dear Commissioner LaTourette,

On behalf of The Pew Charitable Trusts (Pew), we thank you for the opportunity to provide input into the New Jersey Department of Environmental Protection (NJDEP) and Department of Agriculture's (NJDA) 2023 Draft Natural and Working Lands Strategy (NWLS) Targets. We applaud the state's commitment to harnessing natural and working lands, including submerged aquatic vegetation and wetlands, to advance New Jersey's climate goals.

Pew's interest relative to the NWLS, and the focus of our comments, is to support protection and restoration of New Jersey's iconic and vital coastal ecosystems as a key component of the state's climate response policies. These habitats are declining nationally, directly impacting existing carbon stocks and important co-benefits, like natural defense from flooding and erosion. The management of these landscapes requires coordination across local, state, and federal agencies, and New Jersey's NWLS represents an important opportunity to spur action across agencies to stem the loss of carbon rich habitats and actively expand their recovery.

We commend NJDEP and NJDA for elevating the importance of coastal and nearshore systems throughout the NWLS targets by explicitly including them as distinct landscape types that can help advance New Jersey's climate goals.

As NJDEP and NJDA continue to develop the NWL Strategy, we highlight the following overarching considerations:

Developing a Blue Carbon Inventory

- Understanding the current contribution coastal wetlands provide as a carbon sink to the state is an important first step that can serve as a foundation for establishing management targets and strategies and evaluating progress in meeting these targets over time. As a first step, New Jersey can access data on coastal wetland emissions and removals from the U.S. Inventory of Greenhouse Gas (GHG) Emissions and Sinks, compiled by the Environmental Protection Agency (EPA).
- Since a carbon inventory will be part of the state's Blue Carbon Action Plan, we want to highlight that the U.S. GHG inventory data for coastal wetlands is now disaggregated for states, including New Jersey, and that states should use disaggregated data rather than the EPA provided State Inventory Tool, as it is more accurate. Disaggregated data compiled by Silvestrum Climate Associates for New Jersey is attached to this comment letter. New Jersey should strive to model their GHG inventory on the National Greenhouse Gas Inventory (NGGI) approach used by the U.S. EPA. This approach will ensure consistency with national GHG reporting and ideally enable inclusion of improved, New Jersey-specific data in future NGGI updates.
- Examples of state-level refinement of national GHG data includes Oregon's blue carbon white paper and the Coastal Wetland Greenhouse Gas Inventory for the San Francisco Bay Estuary. New Jersey can also look to North Carolina and Maryland, which have become the first states in the nation to incorporate seagrass into their blue carbon inventories.

Partnership Opportunities with Federal Land Managers

- With nearly 75,000 acres of Department of Defense (DoD) and State-Owned National Guard land in the state, and additional significant acreage of forests, wetlands, and agricultural lands in areas adjacent to military installations and ranges in New Jersey, we strongly recommend engaging DoD as a partner to enhance and support the state's climate mitigation goals.[1] We also recommend the state pursue one or multiple Sentinel Landscape designations to help meet

[1] https://www.repi.mil/Portals/44/Documents/State_Packages/NewJersey_ALLFacts.pdf

military, working lands and waters, conservation, and economic development priorities in the state of New Jersey.

Our detailed comments relative to high carbon wetlands within the draft NWLS targets are provided below, organized by habitat type.

Aquatic Habitat Targets

Conduct an SAV aerial survey with field validation

Submerged Aquatic Vegetation (SAV) is declining both in New Jersey and globally, and Pew commends the state for committing to develop a regular schedule of comprehensive surveys. The state lacks sufficient information on the current extent and condition of SAV habitats,[2] and dedicated monitoring programs are necessary to assess the health of SAV and track changes in acreage over time. Tracking acreage over time will also allow the state to incorporate SAV into future iterations of its Natural and Working Lands (NWL) GHG inventory. Further, mapping will help elevate opportunities to maintain and expand existing SAV habitat to further multiple benefits including climate mitigation, adaptation, and resilience.

Protect existing SAV from further loss

Loss of SAV can result in erosion that releases sequestered carbon, turning a former carbon sink into a source[3]. Because of this, we encourage the state to increase its ambition (relative to the proposed draft target) by adopting a target of "no net loss of ecosystem function" by 2030. Given the release of carbon when SAV is destroyed, uncertainties around restoration outcomes, and the high costs of restoration, New Jersey should prioritize avoided loss. In addition, including ecosystem function into these targets will ensure that restoration projects account for the full suite of ecosystem services that SAV provide. We also recommend that the state link the SAV work in the NWLS to existing priorities around ocean acidification. Ocean acidification in New Jersey has the potential to disrupt the marine ecosystem and communities that depend on it for their livelihoods.[4]

Create an SAV Alliance (advisory group consisting of SAV practitioners, academia, non-profits and staff) to better coordinate SAV conservation and restoration efforts across NJ

[2] https://dep.nj.gov/njfw/conservation/submerged-aquatic-vegetation-conservation/
[3] https://dspace.njstatelib.org/bitstream/handle/10929/74097/sab-sav-mapping.pdf?sequence=1&isAllowed=y
[4] https://njclimateresourcecenter.rutgers.edu/climate_change_101/ocean-acidification/

We recommend the state look to examples of communities of practice in other states and regions. Catherine Lockwood and Lawrence Handley recently released a document titled "Guiding Principles for Establishing a Community of Practice" based off the Gulf of Mexico's Seagrass Monitoring Community of Practice that could provide useful as New Jersey beings to coordinate conservation and restoration efforts. The document is attached to this comment letter. Additionally, SAV is a priority habitat for the Atlantic Coastal Fish Habitat Partnership, which can provide technical assistance and direct funding for projects that stem SAV loss and recover this critical ecosystem[5].

Create and fund an SAV restoration program with targets of X acres enhanced per year (not tied to mitigation; X will be quantified after baseline is updated via monitoring)

Restoring the health and extent of SAV would increase blue carbon sequestration and storage services, as well as help address climate-related ocean acidification. As New Jersey develops a SAV restoration program, it can look to other successful restoration efforts like Virginia, which has the largest seagrass restoration project in the world. Restoration efforts in Virginia found that eelgrass seeds were more efficient and effective than transplanting adult plants for large-scale restoration in the mid-Atlantic.[6] Because water quality is often tied directly to health of SAV habitat, please also reference comments made later in this letter under "Develop SAV restoration guidance with suggestions for best practices, adaptive management strategies, and success criteria" regarding research done by the Pacific Marine and Estuarine Fish Habitat Partnership.

Promote SAV protection at local, state, and federal levels by developing new programs, policies, and regulations

Pew supports the state's recommendation to further protect SAV through new measures, but also recommends bolstering existing natural resource management policies and plans by incorporating a climate lens, including consideration of carbon losses and gains resulting from management decisions. The NWLS provides an opportunity to establish coordinated agency actions, policy mechanisms, and resources needed to achieve objectives around SAV, and research on mainstreaming coastal blue carbon in select federal regulations[7] demonstrates the feasibility of accounting for this ecosystem service within existing policy frameworks. Taking a climate-smart approach could help inform

5 https://www.atlanticfishhabitat.org/priority_habitat/submerged-aquatic-vegetation/

[6] https://www.vims.edu/research/units/programs/sav1/restoration/index.php

[7] Sutton-Grier, A.E. et al. Amber K. Moore, Peter C. Wiley, Peter E.T. Edwards, (2014) Incorporating ecosystem services into the implementation of existing U.S. natural resource management regulations: Operationalizing carbon sequestration and storage., Marine Policy, Volume 43, 2014, Pages 246-253, ISSN 0308-597X,https://doi.org/10.1016/j.marpol.2013.06.003

management decisions in known SAV hotspots like Barnegat Bay, where 75% of the state's seagrass beds occur.[8]

Although New Jersey's Coastal Zone Management (CZM) rules do describe limitations to waterfront development to conserve SAV, the state should seek more comprehensive protection for this habitat by revising its CZM Program to consider strategies to increase carbon sequestration and prevent emissions through loss of SAV.[9] Once included in a state's plan, federal consistency decisions could consider impacts to SAV with respect to carbon sequestration and storage.

Adopt and implement water quality and clarity standards that protect SAV habitat

Degraded water quality is one of the leading drivers of SAV loss. Accordingly, New Jersey could assess and incorporate strategies that other states are undertaking, such as North Carolina, to address water quality impacts to SAV. In North Carolina's Coastal Habitat Protection Plan, the state recommends several actions that serve to protect existing SAV and prevent further loss through establishment of water quality standards for light penetration[10], chlorophyll *a*[11], and nitrogen/phosphorus[12] criteria.

Adopt regulations requiring compulsory compensatory mitigation for all functional and temporal impacts to SAV habitats

Mitigation decisions should be made using a holistic landscape approach that also seeks to incorporate carbon accounting in the compensatory mitigation sequence (i.e., avoid, minimize, mitigate). Please see our comments above under "Protect SAV from existing loss" and "Promote SAV protection at local, state, and federal levels by developing new programs, policies, and regulations" for further detail.

[8] https://dep.nj.gov/njfw/conservation/submerged-aquatic-vegetation-conservation/

[9] https://estuaries.org/wp-content/uploads/2022/02/Blue-Carbon-National-Action-Plan-Final.pdf

[10] By 2022, the NC 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).

[11] 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.

[12] By 2024, EMC will 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.

Develop SAV restoration guidance with suggestions for best practices, adaptive management strategies, and success criteria

As noted earlier, SAV is a priority habitat for the Atlantic Coastal Fish Habitat Partnership, so we encourage coordination as the state seeks to develop restoration guidance. Although focused on the West Coast, research conducted by the Pacific Marine and Estuarine Fish Habitat Partnership may also be useful to New Jersey as it considers best practices, adaptive management strategies and success criteria for SAV. The study indicates that habitat suitability is the most important driver for successful eelgrass restoration.

Tidal Wetlands Targets

Install X linear feet of living shorelines per year (7,800 by 2030, and 10,000 by 2050)

As New Jersey seeks to reach living shorelines targets, Pew encourages research and monitoring to identify projects that can best serve multiple benefits such as community resilience, carbon sequestration and restored habitat, and measure performance and benefits over time. For instance, reaching these targets with projects that focus on connectivity among other existing or new living shoreline projects can greatly amplify the impact of 7,800 feet of new living shoreline installations.

Increase cover of X acres of salt marsh vegetation per year (70 by 2030, 200 by 2050)

Pew recommends that the state prioritize restoration of salt marsh in areas that maximize carbon storage and other co-benefits. States like Massachusetts have developed a blue carbon calculator designed to assess the GHG impacts of aquatic ecological restoration projects. Oregon is also in the process of developing a blue carbon calculator that enables users to calculate estimates of net GHG emissions and removals resulting from specific land management actions, including tidal wetland restoration. Although the state has developed a calculator to aid in the prioritization process, we recommend connecting with the aforementioned states to learn more about their tools and other ways they are planning for salt marsh restoration.

Complete X number of tidal reconnection projects per year (1 by 2030, 2 by 2050)

Diking and draining of coastal wetlands cause large emissions through oxidation of organic matter held within the soil and can occur for many decades, if not longer, before stabilizing. Pew supports the state's goal to complete tidal

reconnection projects, given that restoration of lands to tidal wetlands gradually brings back the soil, biomass, and dissolved organic matter carbon stocks and rebuilds these carbon sinks in the long term.

We recommend that the state utilize a recently released dataset that displays location of tidal wetland parcels with the potential for net greenhouse gas removal if restored from current mapped condition to unimpeded tidal wetlands. However, we would like to note that these numbers represent what is *physicall*y possible in the state and may not accurately represent challenges faced during the restoration process. Research from Duke University has also shown that there are 11,700 acres in New Jersey where hydrological connections could create or restore salt marsh.

Protect and manage salt marsh migration zones

NWL lands strategies for climate mitigation also need to incorporate resilience interventions so that these landscapes can continue to sequester and store carbon in the face of climate impacts. Research indicates that sea levels are projected to rise by at least 2 feet over 2010 levels by the end of the century,[13] and a study by Duke University shows that New Jersey's coastal marshes are vulnerable to sea level rise. Under mapped sea level rise scenarios, 32-42% of present-day marshes are projected to drown or erode, making their continued protection important. Please refer to comments in our previous letter that discusses other research on sea-level rise driven marsh migration. Pew encourages the state to think holistically about how habitats within the coastal zone are managed, as sea-level rise will fundamentally alter carbon dynamics in coastal wetlands and forests. Loss of coastal forests will lead to carbon emissions, which may be offset to some extent by migrating marsh habitat. We recommended that the state manage this loss through protection of migration zones, as well as restoration of coastal forests and salt marsh habitats in strategic locations more resilient to sea level rise. Given their coastal protection benefits, any management strategies to preserve and enhance carbon sequestration in these landscapes should also be linked to state climate resilience goals as well.

[13] Kopp et al. 2019, lower bound of likely sea level rise range

Educate and assist private landowners and developers in the management of their lands to minimize impacts to wetlands and reduce risk from climate change

Pew encourages New Jersey to consider examples from other states when developing guidance on managing private lands to minimize impacts to wetlands. Maryland Department of Natural Resources is now incorporating climate change considerations into Coastal Resilience Conservation Easements, including buffers to support high priority areas, impervious surface limits to reduce runoff, and development setbacks in areas subject to sea-level rise.

Re-evaluate Green Acres and Blue Acres programs to consider prioritizing acquisition of land and conservation easements that will protect areas with high current carbon storage and future sequestration potential

Pew recommends that the state evaluate the geographic overlap in properties that might be eligible or targeted for the Blue Acres program and could serve as "marsh migration corridors" that accommodate the dynamic nature of the coast (e.g., salt marsh migrating inland, ghost forests as a result of sea level rise, etc.) A marsh migration and Blue Acres buyouts pilot project may help illuminate benefits and best practices to accomplish the dual goals of removing properties from the risk of sea-level and flood risk, while benefiting long-term coastal resilience and carbon sequestration.

Develop a Blue Carbon Action Plan

Because a blue carbon inventory will be part of the Blue Carbon Action Plan, we recommend that the state incorporate Atlantic white cedar swamps into its GHG inventory for coastal wetlands, rather than the GHG inventory for forests, which utilizes U.S. Forest Service's Forest Inventory and Analysis (FIA) data. In general, both emissions and removals are underestimated when using FIA data versus using the Intergovernmental Panel on Climate Change's (IPCC) 2013 Wetlands Supplement methodology. Further, FIA data does not account for methane, does not define soil carbon accumulation rates, and assumes no carbon change within mineral soils. The U.S. Forest Service also only collects soil cores down to 30 cm, whereas the IPCC supplement collects down to 1 meter – this means that when Atlantic white cedar swamps are converted to another land type, there is not a full accounting of the resulting loss of carbon.

Given the information above, it is also worth noting that the IPCC Wetlands Supplement only refers to mangroves as forested wetlands within their carbon accounting methodology, so development of a GHG inventory for white cedar

wetlands would need to be developed using IPCC Tier 2 or Tier 3 data for biomass and soil carbon if it was to be incorporated into a wetlands inventory.

As noted in our previous comments, we recommend that the state explores the extent to which spatial land cover datasets for forests overlap with coastal wetlands during development of the greenhouse gas inventory. This issue was brought to our attention in a related effort we are engaged in with researchers in North Carolina to develop the state's first coastal wetland-specific greenhouse gas inventory. Through this effort, the workgroup has identified appreciable spatial overlap in lands classified as forest within the national forest inventory (NFI), which is the land representation used to delineate Forest Land, and lands classified as forested, scrub/shrub, and emergent palustrine wetlands within C-CAP spatial layers, the land representation used to delineate wetlands. The U.S. EPA is aware of this issue and is currently working on a harmonized land representation at the national scale, which should be ready for rollout to states by 2025.

Develop a project pipeline: continuously identify blue carbon projects and assist in the design and permitting so that there is a list of shovel-ready projects when funding becomes available

As New Jersey pursues planning to identify blue carbon projects, we recommend that the state help provide support for communities and project proponents to determine "shovel-worthy" projects. Further, identifying ways to streamline and reduce the burden of permitting will be key to this effort. Examples of efforts to streamline permitting included California's Cutting the Green Tape Initiative, which aims to improve interagency coordination, partnerships, and agency processes to allow ecological restoration and stewardship to occur more quickly and cost-effectively.

Review state and local Natural Hazard Mitigation Plans and Climate Adaptation Plans to ensure that wetlands are incorporated as essential green infrastructure

As described in the Scoping Document, implementation activity for the state's Climate Change Resilience Strategy should be coordinated with the NWLS. In particular, the ResilientNJ program to support local climate adaptation planning should encourage the use of nature-based climate adaptation solutions, including wetland conservation and restoration. As the NJ Office of Emergency Management works with communities to develop local hazard mitigation plans, the Federal Emergency Management Agency's guide on Building Community

Resilience with Nature-based Solutions can support this alignment of hazard mitigation, resilience, and NWL strategies.

Evaluate adoption of a blue carbon market or other incentive program to help fund wetland conservation and restoration in NJ

To help fund wetland conservation and restoration, we encourage New Jersey to learn from other states like Maryland, which is assessing the potential of both resiliency and carbon credits in pilot sites as part of implementation of the state's Conservation Finance Act.

Identify and reduce drivers of degradation and destruction of high-carbon coastal systems by implementing or improving wetland protection regulations in tidal areas

We recommend strengthening regulatory policies for blue carbon habitats like seagrass and coastal wetlands to improve compliance with mitigation requirements. This will ensure that development activities prioritize avoidance and minimization of adverse impacts, and where impacts cannot be avoided, that ecosystem services and functions are fully replaced, cumulative impacts are evaluated and addressed, and suitable and future habitats are protected.

Non-tidal Freshwater Wetlands Targets

Forested wetlands and other non-tidal wetlands are an emerging area of interest for natural climate solutions. We support New Jersey's efforts to restore and conduct research on these important habitats to support carbon sequestration and other co-benefits. Please reference comments in our first comment letter around data included in the 2nd State of the Carbon Cycle Report (SOCCR2) and other ongoing research in freshwater wetlands. Given methane considerations, not all freshwater wetland restoration efforts will result in a net greenhouse gas reduction but protecting these habitats and building resilience to climate change is important not only to ensure carbon sequestration services continue but also to avoid emissions through habitat degradation and loss.

Department of Defense

New Jersey military installations and ranges employ approximately 70,000 residents and generate over $6 billion in economic benefit for the state.[14] New Jersey is home to the nation's only tri-service military base (Joint Base McGuire-Dix-Lakehurst), features one of the most heavily utilized Air National Guard training ranges in the U.S. (Warren Grove Range), and is home to the U.S. Navy's

[14] https://www.repi.mil/Portals/44/Documents/State_Packages/NewJersey_ALLFacts.pdf

longest pier complex (Naval Weapons Station Earle). The NWLS can leverage these assets to help meet its recommended targets, while helping to meet the national security mission, enhance retention, expansion and conservation of working lands and waters, and improve overall economic and climate resiliency.

We commend the state of New Jersey for its already established relationship with the DoD's Readiness and Environmental Protection Integration (REPI) Program, which through FY 2022 has facilitated DoD and its partners spending nearly $44 million on projects in the state.[15] REPI was originally created in response to encroachment – pressures that restrict the military's use of its training and testing areas – in the form of incompatible development and loss of habitat. In 2019, REPI's authority was expanded to included climate change adaptation as a core focus to help maintain or improve military installation resilience in the form of enhancing or developing off-base natural infrastructure.[16] In practice, this could mean protecting areas so that salt marshes can migrate inland as sea levels rise or restoring wetlands to control erosion and protect water quality and clarity, which makes the REPI program an incredible asset to help NWLS meet its goals. We encourage NJDA and NJDEP to engage with the New Jersey Department of Military and Veterans Affairs and others to help identify new opportunities to work with REPI and DoD at its various installations in New Jersey. The Office of Local Defense Community Cooperation (OLDCC) also has several programs that might be applicable to NWLS, such as the Military Installation Sustainability Program (provides technical and financial assistance for projects) and the Defense Community Infrastructure Program (which authorizes grants for projects that enhance installation resilience or military value by addressing deficiencies in community infrastructure). On April 11, DoD's REPI Program released its first ever Resilience Project Funding Guide, which details more than two-dozen federal and non-federal programs that can support existing or new REPI projects to develop nature-based solutions.

We also recommend the state pursue one or multiple Sentinel Landscape designations. The Sentinel Landscapes Partnership (SLP) is a coalition of federal agencies, state and local governments, and non-governmental organizations that works to advance mutually beneficial land and water use goals in areas known as Sentinel Landscapes (SLs). A typical SL is anchored by at least one military installation, encompasses agricultural and forestry lands, and would significantly benefit from natural resource projects such as water quality and quantity

[15] https://www.repi.mil/Portals/44/Documents/State_Packages/NewJersey_ALLFacts.pdf
[16] https://repiprimers.org/resilience/

improvement, climate change risk reduction, or wildlife habitat protection and restoration. The SL designation becomes a framework to focus and advance conservation efforts and can spur new designations and management.
A SL designation provides two direct benefits. First, funding is provided for a dedicated coordinator who works with the partnership to achieve goals including connecting private landowners within a targeted geography with voluntary government assistance programs that offset the cost of sustainable management practices, conservation projects, or climate adaptation measures. Second, the area becomes a priority for the three partner agencies (USDA, DoD, DOI) which are the largest federal funders of land conservation in concert with federal and state management. We see New Jersey's pursuit of one or multiple Sentinel Landscapes as a crosscutting strategy that could provide multiple benefits across the NWLS strategy recommendations and targets.

Conclusion

We applaud New Jersey for its comprehensive efforts to address the climate crisis, including elevating the role of NWL in reducing and avoiding emissions and advancing community and ecological resiliency. We commend NJDEP and NJDA for recognizing the critical role that coastal and freshwater wetlands can play in this effort.

Pew welcomes the opportunity to help build knowledge and advance science-based policies in support of New Jersey's NWL Strategy, and we look forward to continuing to engage as the Strategy is finalized and subsequently implemented.

Sincerely,

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