



Feasibility Planning for Pacific Northwest Blue Carbon Finance Projects

Overview

Project Location

Pacific Northwest

Project Duration

September 2018 to December 2019

Project Lead

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Project Type

Catalyst – Targeted investment for advancing collaborative science

Project Partners

The project involved members of the Pacific Northwest Blue Carbon Working Group, including

- Institute for Applied Ecology
- Oregon State University
- Padilla Bay National Estuarine Research Reserve
- Portland State University
- Puget Sound Partnership
- Restore America's Estuaries
- Silvestrum Climate Associates, LLC
- South Slough National Estuarine Research Reserve
- Strategic Collaborations, LLC
- Terracarbon, LLC
- The Climate Trust
- VERRA
- Washington State Department of Natural Resources
- Western Washington University

Project Webpage

nerssciencecollaborative.org/project/Cornu18

Tidal wetlands play an important role in carbon sequestration by capturing a substantial amount of carbon—termed “blue carbon”—and storing it below ground. Since the Verified Carbon Standard first released a draft “Methodology for Tidal Wetland and Seagrass Restoration” in 2013, members of the [Pacific Northwest Coastal Blue Carbon Working Group](#) have been working to fill blue carbon data gaps to facilitate the development of blue carbon projects in the Pacific Northwest. This includes data collection and analyses, and database development, such as those associated with the [Pacific Northwest Blue Carbon Stocks and Blue Carbon Database Project](#).

This project took the next step to use the Verified Carbon Standard methodology and existing and newly-collected blue carbon data to demonstrate the feasibility of including carbon finance in funding strategies that support the restoration of tidal wetlands in the Pacific Northwest. It evaluated the viability of potential blue carbon projects in the Snohomish (Washington), Skagit (Washington), and Coos (Oregon) estuaries. The project advanced local stakeholders’ understanding of blue carbon-related ecosystem services and carbon finance opportunities, and identified previously unrecognized data gaps and next steps for blue carbon project development in the region.

Project Approach

The project team engaged a wide range of local partners interested in Pacific Northwest blue carbon restoration project development, including potential carbon offset buyers and prospective blue carbon project proponents. Together, these partners worked to assess blue carbon’s viability in the region by exploring the technical, financial, legal, and organizational aspects of landscape-scale blue carbon project development. The project team compiled and analyzed existing data, including land use maps, carbon stock data per land-use class, topographic data, and local sea level rise projections. This information was used to develop baseline and restoration scenarios to evaluate the potential climate mitigation benefits of tidal wetland restoration at sites in the Snohomish, Skagit, and Coos estuaries. The financial assessment evaluated the potential viability of augmenting restoration funding strategies with the sale on the voluntary carbon market of carbon offsets generated by the restoration of tidal wetlands in these estuaries. Regular collaboration with project partners and other stakeholders took place in a series of meetings and workshops that discussed blue carbon opportunities and constraints and shared project findings.

Results

This work offers a roadmap for the development of blue carbon projects for the voluntary carbon market.

The scoping assessment identified the greatest potential for carbon finance opportunities in more saline tidal restoration areas with lower methane emissions. Restoration of lower salinity wetlands, such as restoring especially frequently flooded agricultural lands to emergent tidal marshes in more brackish parts of Pacific Northwest estuaries, did not appear to be viable from a carbon finance perspective.

The assessment did identify promising potential tidal wetland carbon finance opportunities where the restoration of single or multiple forested tidal wetlands can be accomplished at cumulative scales of 500 hectares or larger (at current carbon market prices), given the proper location and wetland elevations. Sitka spruce swamps in the Pacific Northwest—95 percent of which have been lost to historical land use change—are also increasingly considered high-priority restoration targets for coastal land managers focused on salmon habitat. Additional carbon-related incentives can help support the restoration of those important ecosystems.

The project revealed several key data gaps needed to develop site-specific feasibility assessments as required under the Verified Carbon Standard. The most critical data gap is the ability to quantify greenhouse gas emissions from tidal wetlands across seasons, salinities, estuaries, and site conditions. Filling key additional data gaps will help scientists, restoration practitioners, land managers, carbon project investors, and policy makers to improve their understanding of the following:

- Carbon sequestration rates and methane emissions particularly in low salinity (less than 18 PSU) converted former tidal wetlands and least disturbed wetlands;
- The fate of carbon produced in tidal wetlands and exported to other sites within estuaries and to the nearshore ocean;
- The changing methane budget in coastal lands as sea levels rise;
- Long-term carbon storage benefits of wetland grassland, including reed and canary grass; and
- Most effective methods for restoring forested tidal wetlands.

Products

- [Scoping Assessment for Pacific Northwest Blue Carbon Finance Projects](#), an initial assessment of opportunities to connect carbon finance to tidal wetland restoration projects in the Pacific Northwest. It identifies key considerations and remaining blue carbon data gaps that need to be addressed before developing project-level carbon finance feasibility assessments in the region.
- Pacific Northwest Blue Carbon Working Group [conference presentations](#) discussing results from recent projects to assess carbon stocks, develop a Pacific Northwest blue carbon database, and evaluate carbon finance viability.

Benefits

- Local restoration practitioners and land and resource managers have a greater understanding of carbon finance opportunities and constraints, and have expanded awareness of how carbon financing can be incorporated into existing restoration plans, including at watershed-scale and multi-site projects.
- The Pacific Northwest science community now has a greater understanding of specific wetland and blue carbon data needs.
- Potential carbon market investors have a greater understanding of how to proceed with blue carbon feasibility assessments for Pacific Northwest tidal wetlands.

What's Next

- The Pacific Northwest Blue Carbon Working Group will continue to build on this project's results and expand the Pacific Northwest Blue Carbon Database. This will include new research to fill greenhouse gas emissions and carbon sequestration rate data gaps for major Pacific Northwest tidal wetland classes and land uses and to examine related blue carbon-ecosystem driver relationships.
- The Working Group is also pursuing support for a Pacific Northwest landscape analysis to systematically identify blue carbon project locations using the lessons learned from this project.

About the Science Collaborative

The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. The Science Collaborative is managed by the University of Michigan's Water Center through a cooperative agreement with the National Oceanic and Atmospheric Administration (NOAA). Funding for the research reserves and this program comes from NOAA. Learn more at nerrsciencecollaborative.org or coast.noaa.gov/nerrs.