The Nature Conservancy

Oregon's Blue Carbon: Stakeholder Perspectives & Ideas

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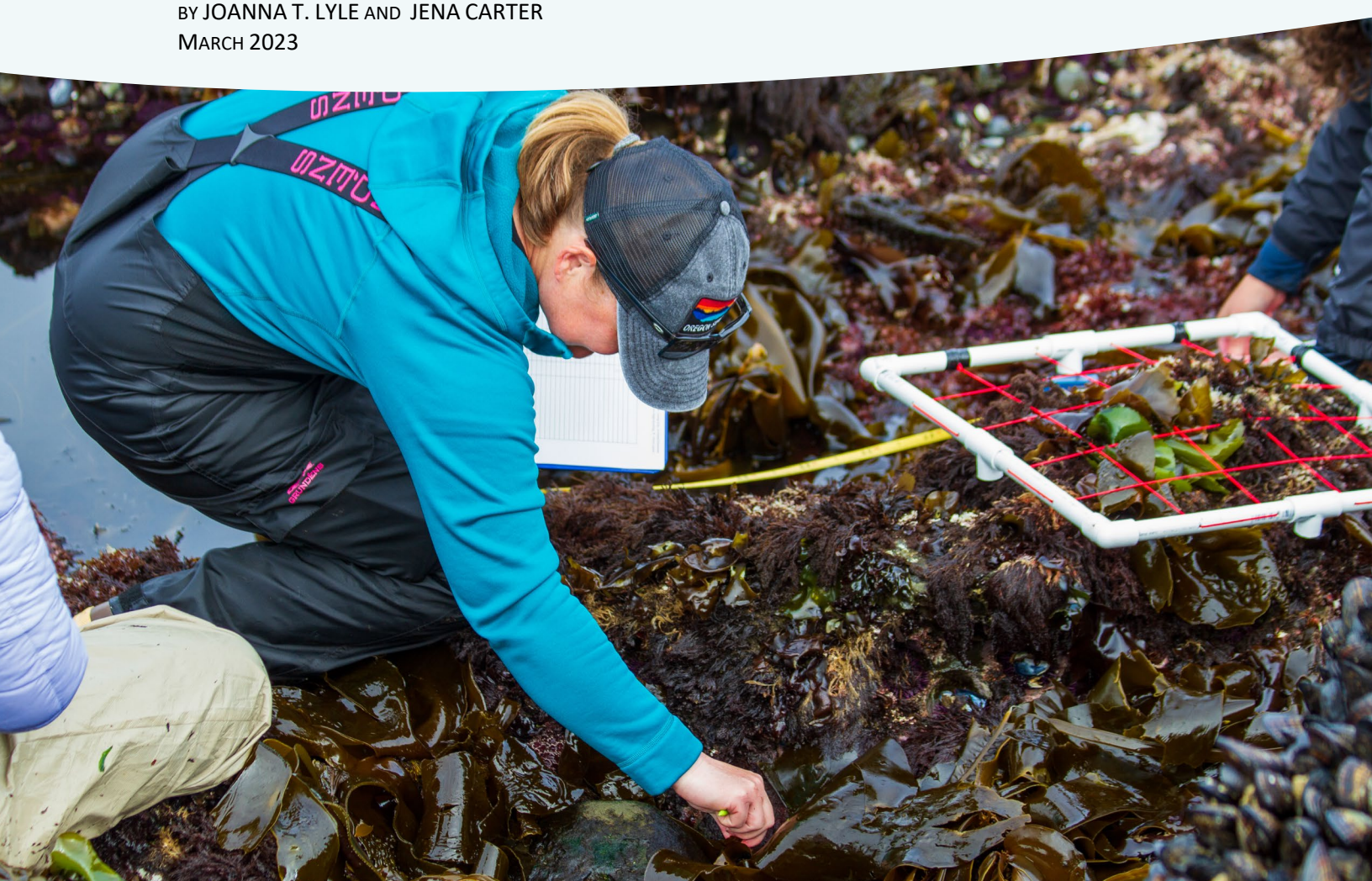

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Cover: *Top*: Fish swimming through an underwater kelp forest. Photo by J. Anderson, NOAA Office of National Marine Sanctuaries. CC BY 2.0. *Bottom*: A researcher surveys sea stars in the intertidal zone at Cascade Head. Photo by Oregon Marine Reserves, Oregon Department of Fish and Wildlife (ODFW). © ODFW. TNC thanks ODFW for permission to use the photo in this report.

p. 2: Sunlight shining on bull kelp (*Nereocystis* sp.) as it floats on the water. Photo by J. Cox. CC BY-NC 2.0.

p. 3: New River Area of Critical Environmental Concern (ACEC) on the Oregon Coast. Photo by F. Price, U.S. Bureau of Land Management. CC BY 2.0.

p. 5: Morning sun shining on marshland. Warrenton, Oregon. Photo by D. Browning. iStock license owned by TNC.

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Introduction

Oregon's coast and ocean is an iconic, dynamic place with crashing waves, diverse estuaries and bays, and rich habitats, including tidal wetlands, eelgrass beds, and kelps. These highly productive coastal ecosystems are often appreciated for their beauty. Now, these same habitats are being recognized for their ability to store carbon in plants and sediments.

Blue carbon encompasses the contributions and value of marine ecosystems in sequestering carbon, and it has gained significant attention over the past decade. Many practitioners and stakeholders are working to better understand blue carbon, to ensure it is incorporated into state and federal policy, and to protect marine habitats to ensure that the carbon already stored in them is retained. Additionally, practitioners are interested in ways to enhance and restore blue carbon habitats to increase their function as net carbon sinks. These practices, also known as *natural climate solutions*, can take many forms, including restoring tidal wetlands, planting riparian buffers, expanding the footprint of eelgrass beds or increasing its plant density, and more.

As our knowledge of blue carbon has grown, so has the number of stakeholders interested in the topic. This report aims to provide an overview of those interested in blue carbon in Oregon and insight into what they view as opportunities, barriers, needs, and emerging ideas.

Oregon's blue carbon habitats

- **within estuaries** include salt marshes, scrub-shrub and forested tidal wetlands, eelgrass meadows, and mudflats.
- **in the nearshore ocean** include kelp forests of canopy-forming and understory kelps and seaweeds.

The plants and algae in these habitats remove carbon dioxide (CO_2) from the air via photosynthesis. The ***net rate of blue carbon sequestration*** is the amount of carbon absorbed from the air and stored in soils or woody biomass minus the amount released back into the air through respiration, consumption, decomposition, and methane production. ***Permanent storage*** refers to carbon that will remain in sinks for at least a century. ***Temporary storage*** occurs when absorbed carbon cycles back to the environment in a shorter duration.

Methodology

To gain an understanding of the blue carbon work in Oregon, The Nature Conservancy (TNC) used a technique known as snowball sampling to host informal, conversational interviews with various interested parties. The list of interviewees started with well-known blue carbon practitioners. They offered recommendations about others known to be working on blue carbon. All recommendations were pursued for subsequent interviews. We asked each participant a common set of questions, although due to the informal nature of the interviews, the conversations were often organic and iterative.

TNC conducted 30 interviews from February 2022 to February 2023 (see Appendix A for a list of those interviewed). The intention was to gain insight into the stakeholders interested in or working on blue carbon in Oregon and gather information on needs, barriers, opportunities, and emerging ideas identified by interviewees.

Although this report represents one moment in time, and the individuals, organizations, and their perspectives will evolve, TNC hopes it can be useful for building partnerships, gleaning ideas, and learning more about blue carbon.

Oregon's Blue Carbon Stakeholders

The interviews revealed the following types of stakeholders working on blue carbon in Oregon: scientists, communicators, educators, conveners, advocates, and coastal practitioners. General observations about each stakeholder group follow:

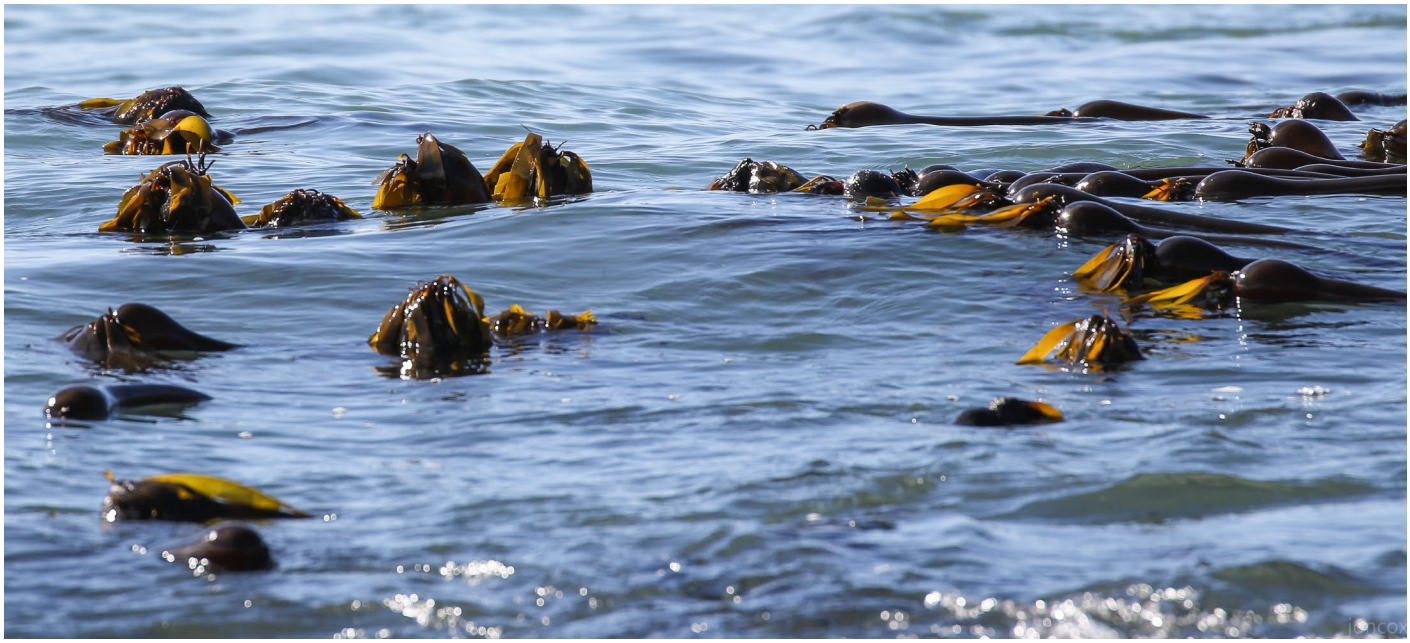
- Many **scientists** are researching issues that affect blue carbon habitats, such as kelp forests, but blue carbon is not their primary interest, and only a few collect data on the contributions of specific interventions to nearshore blue carbon. Of those specifically focused on blue carbon, their efforts center on mapping, collecting and archiving data, and publishing on estuarine blue carbon.

- **Communicators and educators** are working to increase awareness and understanding of the contributions blue carbon habitats make to coastal communities and ecosystems. Their efforts especially focus on the overlap of blue carbon and other coastal priorities (e.g., water quality, wildlife habitat, shoreline protection, cultural resources, recreation, etc.).
- Some groups act as **conveners** to bring together interested parties to discuss and make progress on blue carbon. Formal networks like the Pacific Northwest (PNW) Blue Carbon Working Group are leaders in this area. In addition, interviewees noted several informal networks where people convene to work on a common task, such as collecting data, mapping, sharing technical information, and coordinating advocacy strategies.
- **Policy advocates** are working to ensure blue carbon is included as a key component and eligible activity in the state's climate mitigation or natural climate solution legislation, as well as in activities of the governor, state agencies, and the Oregon Global Warming Commission.
- **Restoration practitioners** on the Oregon Coast are working diligently to restore tidal wetlands and other estuarine habitats. It is generally assumed that these actions assist in carbon sequestration, but the groups are not currently planning to measure or monitor carbon sequestration outcomes. In the last decade, only a small number of past tidal wetland restoration projects included carbon monitoring.
- Three organizations were identified as serving in a **funder** role. Private or public dollars are raised, and these organizations then redistribute the funds to support specific research, advocacy, or communication projects.

In summary, out of the 30 interviews conducted, fewer than 10 individuals and organizations were identified as working with a concerted effort to further recognize and leverage blue carbon benefits. Individuals focused on blue carbon often play multiple roles (e.g., serving as funder and convener). Many nongovernmental organizations (NGOs) that TNC interviewed advocate, communicate, or educate on the potential benefits of blue carbon to audiences that include both the public and policymakers; however, it is a very small component of their overall advocacy efforts. Among those interviewed, no one identified planned projects where carbon measurements are a component of implementation, although practitioners seem interested in pursuing intentional blue carbon projects in the future.

A Challenge with Terminology

TNC noted that the terminology used to describe blue carbon work was a source of confusion and disagreement among the interviewees. Although terms like "natural climate solutions" and "nature-based solutions" are distinct in the scientific literature, interviewees often used the terms interchangeably and even confused their meanings. Moreover, the term "blue



carbon" itself was a source of confusion. For some scientists, blue carbon had a narrow definition that only applied to estuarine ecosystems that produce and store carbon in local soils. Other scientists used a broader definition of blue carbon that entailed carbon sequestration in both estuarine and oceanic ecosystems and sediments, including the highly productive nearshore ocean ecosystems like Oregon's kelp forests that generate and export carbon.

While the scientific definition of blue carbon continues to evolve, Oregon's coastal practitioners and advocates generally use blue carbon as an inclusive term that covers both ocean habitats and estuaries. Some go as far as putting many issues under the blue carbon umbrella that do not contribute to carbon sequestration.

Readers of this report should be aware of the challenge posed by the interchangeable use of terms among interviewees. In the future, Oregon's stakeholders should work to develop a shared vocabulary to ensure they use words similarly and share a common baseline understanding.

Partnership Opportunities

Respondents expressed general support and enthusiasm for blue carbon and welcomed partnerships and collaboration to help advance blue carbon science and benefits. Respondents suggested that workshops could be useful in promoting shared learning and networking among current and potential partners. Additionally, organizations that work outside Oregon can help introduce local partners to a diverse set of partners, funders, and project opportunities. Entities that may be well suited for this role include NGOs, agencies such as the National Oceanic and Atmospheric Administration, and regional entities such as the Pacific Marine and Estuarine Fish Habitat Partnership or the West Coast Governors Alliance on Ocean Health.

Leaders in blue carbon may want to seek out organizations, agencies, and coastal communities that have expressed a strong interest in estuary and ocean health but may not fully appreciate how their work complements blue carbon. For example, efforts to recover sunflower sea stars are closely linked with protecting and restoring kelp forests but may not be recognized as also supporting blue carbon outcomes. Similarly, projects focused on tidal wetland restoration to recover coho salmon positively contribute to blue carbon, though the contributions may go unnoticed. These intersections can be the fodder for future partnerships and an increased understanding of the many co-benefits of existing coastal work.

Lastly, one interviewee pointed out the opportunity for Oregon to serve as a thought partner for colleagues in other states. Because Oregon has several important baseline science and policy frameworks in place, as well as assessments and spatial assets, it can be a good model for other states just beginning to consider blue carbon. Additionally, Oregon can partner with other

West Coast states to promote consistent methodologies and project metrics. Doing so will enable stakeholders to understand the scope and scale of blue carbon project impacts across geographies and over time and will foster storytelling at a regional scale.

Communications Needs

When communicating about blue carbon, the terminology-related challenges discussed earlier in this paper quickly emerge. Some advocates interviewed saw blue carbon as a unifier across the coastal and nearshore ecosystems where people live and work. Blue carbon emphasizes the connection between the estuarine, nearshore, and offshore environments, including whales, kelps, estuaries, tidal wetlands, climate change, and more. When these habitats and species are functional and healthy, other societal priorities are also achieved (e.g., biodiversity, community health, and well-being). Communicating holistically about these topics was viewed as a powerful approach and a tool to draw people into caring about conservation.

Others noted that blue carbon is a defined discipline that requires a clear and demonstrable change in carbon sequestration. As such, thoughtful communication about blue carbon is warranted, given its nuance (i.e., not a single-solution issue). Some interviewees worried about the potential for blue carbon to be oversimplified when communicating to the public and policymakers. Another noted the need to avoid overpromising on the ability of blue carbon to mitigate climate change but, instead, to explain it as one tool in a toolbox.

Moving forward, parties interested in blue carbon in Oregon may wish to discuss and potentially reach an agreement on how blue carbon will be used in advocacy and in communicating to their memberships and stakeholders. Consistency can avoid confusion, clarify opportunities for collaborative partnerships, and define expectations about blue carbon outcomes.

Science Needs and Opportunities

The needs surrounding Oregon's blue carbon cover a broad spectrum. Because oceans and estuaries are dynamic systems and can be difficult and costly to study, less is known about these environments than terrestrial habitats. As such, basic research is often needed to understand how blue carbon can be effectively deployed and measured. Additionally, blue carbon is an area that overlaps with several fields of study in estuaries and the nearshore ocean. As a result, researchers, practitioners, and advocates already have experience with these habitats, and activities that positively impact carbon sequestration have been occurring for decades (e.g., habitat protection, tidal wetland restoration). Adding measurements and modifications to these existing projects and research could open new possibilities for fundraising and expand knowledge of how sequestration works in situ in Oregon.

The following is a list of data, information, and research needs stated by interviewees:

- Pursue refined habitat mapping and prioritization at the local scale.
- Create a more accessible blue carbon data repository.
- Assess the contribution of kelp forest carbon to permanent sinks.
- Understand and distinguish the oceanic processes leading to carbon sequestration versus temporary carbon cycling (e.g., Can we think of long-lived fish and large marine mammals as "mobile carbon resources"?).
- Create networks and expand capacity to document kelp forest communities during ecological events (e.g., marine heatwaves, disease).
- Secure funding to hire a postdoctoral-level researcher fully committed to blue carbon projects.
- Partner and share equipment for field sampling. Blue carbon sampling requires expensive labor and equipment, and identifying ways to share equipment could reduce this barrier.
- Align scientists from different disciplines to answer multifaceted questions about Oregon's nearshore ocean habitats—including blue carbon.

Interviews with scientists highlighted numerous studies and ongoing blue carbon research (see Appendix B). Due to previous studies and data efforts, such as mapping the maximum extent of tidal wetlands, Oregon has some of the best estuarine spatial data in the United States. It serves as a strong launching point and foundation for inventorying current estuarine blue carbon habitats and pinpointing future blue carbon projects.

The interviews also identified three blue carbon projects currently underway. The PNW Blue Carbon

Working Group has a collaborative study to understand the effects of land use on greenhouse gas emissions and carbon sequestration. This project is expected to conclude in 2023, but initial findings point to the surprising sequestration potential in scrub-shrub wetlands and mudflats. Working group partners are also running a pilot study to refine the mapping of blue carbon habitats in the Coos Bay and Yaquina estuaries. Once these pilot projects are completed, the methodology will be expanded to the state's major estuaries. Additionally, the Oregon Department of Land Conservation and Development contracted the Institute for Applied Ecology to develop a blue carbon calculator to help determine the potential blue carbon benefits from restoration at a site-level scale.

In terms of research in nearshore blue carbon, the Oregon Kelp Alliance is developing a kelp forest status report, including historical data and the kelp lost. While this study is not centered on carbon dynamics, it will increase understanding of current and historic blue carbon stocks in the nearshore. This report is expected in 2024.

Policy Barriers and Opportunities

The novelty of blue carbon in Oregon presents both barriers and opportunities for stakeholders. Interviewees collectively agreed that the most fundamental need is to better understand how blue carbon fits into existing and future policy frameworks. Respondents found it challenging to track the policy actions of the Oregon Global Warming Commission, state agencies, and the legislature. This difficulty is partly due to blue carbon rarely being mentioned within the climate mitigation and adaptation policy dialogues and actions. Additionally, the jargon, knowledge, and groups of stakeholders active in the climate dialogues are often unfamiliar to stakeholders who work on estuary and ocean issues. Thus, to engage effectively, estuary and ocean experts face a significant learning curve and relationship building. Finding ways to bridge these gaps is welcomed.

Respondents offered some specific thoughts and policy ideas worth consideration (listed in no particular order):

- Currently, there is no coordinated submerged aquatic vegetation policy in Oregon that helps protect existing blue carbon resources (e.g., seaweed and eelgrass), and the current rules do not prohibit mechanical dredging within eelgrass beds.
- The state does not have a methodology to list marine waters (e.g., temperature, pollutants, sediment, etc.) in the Clean Water Act (CWA 303d), limiting protections for some blue carbon habitats.

- Oregon's nearshore kelp forests are under threat from overgrazing by purple sea urchins, and several ideas are being tested to reduce their numbers. However, purple sea urchins are listed in the Oregon Department of Fish and Wildlife's nearshore conservation strategy, complicating regulation and the issuance of permits in an adaptive management strategy.
- Evaluating fisheries stocks based on their contributions to sequestration could expand the concept of "highest and best use" and how fish are utilized under the Magnuson–Stevens Fishery Conservation and Management Act.
- Policies could be amended to require the ports or shipping industry to purchase carbon credits to offset emissions from marine fuels. These funds could be reinvested into blue carbon protection, restoration, or research actions.
- Stakeholders may want to consider increasing the wetland mitigation bank requirements. Wetland mitigation banks call for the restoration, creation, or enhancement of wetlands for the purpose of compensating for unavoidable impacts on wetlands. The current ratio is 1:1. The suggestion was to raise it to a 1:2 ratio to encourage blue carbon actions or help offset the carbon footprints of projects.
- Oregon's enforceable policies could be evaluated to determine whether and how the state can influence blue carbon actions by applying its federal consistency authority under the Coastal Zone Management Act (16 U.S.C. 1451 et seq.) to permits and federal actions.
- To some, state-owned lands are viewed as low-hanging fruit in terms of locations to conduct blue carbon projects, yet it is unknown whether blue carbon projects are allowed on Oregon's state-owned lands. In some states, legislation has been needed to make this clear and encourage action on state lands.

Several respondents noted the contract from the Oregon Global Warming Commission to the Oregon State University Institute for Natural Resources. It aims to develop a methodology to create a greenhouse gas inventory on natural and working lands, including coastal blue carbon ecosystems. This inventory will create a process for the State of Oregon to track the contribution of blue carbon to emissions reductions in the state over time. Future opportunities for blue carbon stakeholders include tracking metrics, helping to fund the inventory, and filling key data gaps over time, such as updating eelgrass maps.

Interviewees noted that modernizing the Estuary Management Plans (EMPs) is important. The EMPs have not been updated in decades. Doing so presents opportunities to revisit estuary management units, zoning, and overlays; consider intersections between Statewide Land Use Planning Goal 16 and other statewide goals; and incorporate climate change aspects, such as landward migration zones and opportunities for blue carbon habitats and activities. Pilot projects are currently underway in Coos Bay and the Yaquina estuaries. These projects serve as a valuable learning opportunity and can set the stage for other estuaries to significantly improve their plans.

Lastly, Oregon's ports may be able to play a role given their landholdings within estuaries and power to set priorities and policies—for example, the Humboldt Bay Harbor lists conservation as part of its mission. The scale of the opportunity could be determined by evaluating how ports' priorities align with blue carbon work and assessing port land ownership and jurisdiction, as well as the amount of port-owned land that could be restored. One individual stated that ports could be open to the idea of blue carbon projects but are limited by economic incentives and their capacity to apply for funding.

Participation in Offset Markets and Other Funding

Projects that benefit carbon sequestration regularly occur in Oregon. They involve restoring habitats, enhancing habitat function, and protecting existing habitats, such as eelgrass beds and tidal wetlands. However, many interviewees perceived access to the offset market as the value proposition that makes a project a "blue carbon project." Interviewees are interested in selling blue carbon credits in the offset market as a potential revenue stream to fund additional coastal restoration and conservation work. Unfortunately, as interviewees noted, the cost of monitoring and administering the Verified Carbon Standard to achieve a credited blue carbon project is too high. A respondent stated that the current market price of a carbon credit is $20–$30 per credit, while the true cost of certifying a blue carbon project is up to $1,000+ per credit. Large projects can achieve an economy of scale, but coastal habitats, such as eelgrass and Sitka spruce

swamps, tend to have footprints too small to attain this benefit.

Interviewees listed some potential solutions to this challenge:

- Companies interested in blue carbon credits can embed the full costs into their price, including pre-project monitoring and project implementation.
- Entities interested in pursuing a restoration project can consider stacking biodiversity and resiliency credits onto the project to help with cost discrepancies.
- Practitioners can proactively build monitoring and baseline accounting practices into their project designs. Since the carbon verification process can be applied retroactively (up to five years post-restoration), practitioners can keep their options open about participating in the offset market if a restoration project turns out to have a sufficient effect on carbon storage to produce credits. This approach may allow practitioners flexibility without committing to the upfront cost of carbon accounting and verification.

Interviewees expressed interest in seeking public or private monies to establish proof of concept or pilot projects until the economics of offset markets are more favorable. One interviewee noted the interest from federal legislators in blue carbon, including bills introduced in the 117th Congress, like the Blue Carbon for Our Planet Act and the Blue Carbon Protection Act. The recent federal Infrastructure Investment and Jobs Act, also known as the Bipartisan Infrastructure Law, could support projects at the nexus of blue carbon and ecosystem restoration. For example, in 2022, a kelp forest survey project received $1 million in federal funds to perform aerial and in-water surveys of Oregon's kelp forests. Locally, in the 2021 legislative session, Oregon lawmakers provided $1 million to the state's Oregon Ocean Science Trust (OOST). These funds included an opportunity for blue carbon research in rocky nearshore habitats. Although no projects involving blue carbon research were funded under the OOST's 2022 grants, future opportunities via the OOST could be pursued.

Summary

This initial exploration into Oregon's blue carbon stakeholders identified three levels of blue carbon efforts occurring in the state:

- **Active leaders**: They are a small but active group of blue carbon stakeholders in Oregon working on research, communication, education, partnership, advocacy for policy, and funding.
- **Engaged collaborators**: These respondents are still developing ways to incorporate blue carbon in

their actions and organizational approaches. Or they consider blue carbon to be ancillary work or a co-benefit in the context of other existing work.

- **Supportive parties**: These individuals or entities are supportive of—but not actively involved in—direct blue carbon actions.

These stakeholders play various roles and may participate in the formal and informal networks that have emerged to share research findings, policy strategies, and other ongoing work. Many of these convenings are formed around a specific topic or project and are not necessarily well known to every respondent. Moving forward, all stakeholders expressed an interest in learning more and welcomed opportunities to start or deepen partnerships and identify areas for future collaboration, such as coordinating research, developing educational communications materials, advocating for blue carbon in state policies, and convening to share data and resources.

Scientists are confident about the sequestration benefits of restoring estuarine blue carbon habitats, but more research is needed to understand how carbon responds in situ in Oregon's estuaries. In the nearshore, there is much less understanding about blue carbon habitats, ongoing research is not carbon-focused, and the range of possible management or policy approaches is still emerging. Additionally, better information is needed on the ocean processes leading to carbon sequestration versus temporary carbon cycling.

Communicating about blue carbon has posed some challenges because of the complexity of carbon dynamics and management effects, discord over the scope of blue carbon (e.g., Does it include ocean habitats?), and differing uses of the term "blue carbon" among practitioners and the public (i.e., using it as a narrow, focused discipline versus an umbrella concept describing ocean health.)

Two research projects measuring blue carbon in estuaries were the only current, carbon-focused, on-the-ground work noted in interviews. And it is unclear whether any future carbon projects will result from stakeholder interest because of the associated cost barriers. Additional funding opportunities were noted as possible pathways to support on-the-ground action, restoration, and research as blue carbon gains interest. There did not seem to be a belief that carbon crediting on the voluntary carbon market was viable except in very particular circumstances.

In summary, there is room for the field of blue carbon to grow in Oregon. Many of the strategies necessary to support blue carbon are actions that Oregon's stakeholders are already undertaking or interested in pursuing. Additionally, colleagues have many ideas, have a desire for more research, and have identified opportunities to innovate and/or facilitate blue carbon work. Lastly, active leaders in the blue carbon space are open to welcoming new entrants and hope more partners and projects will come online soon.

APPENDIX A

The Nature Conservancy interviewed the following 30 individuals between February 2022 and February 2023. We are deeply grateful for the time, expertise, and ideas they provided to this project. We also acknowledge that multiple individuals within each organization may have perspectives and experience with blue carbon and that our interview effort does not account for all the possible resources and expertise within each organization.

We extend our heartfelt thanks to the following individuals and their organizations:

- Bonneville Environmental Foundation: Kas Guillozet
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- North Coast Land Conservancy: Katie Voelke
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- Oregon Kelp Alliance: Tom Calvanese and Sara Hamilton
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- Portland Audubon: Joe Liebezeit
- Private Consultant: Deanna Caracciolo
- Private Consultant: Nadia Gardner
- Rogue Climate: Ashley Audycki
- South Slough National Estuarine Research Reserve: Mike Graybill and Shon Schooler
- Surfrider: Charlie Plybon
- The Wetlands Conservancy: Katie Ryan and Kelly Baez
- The Nature Conservancy: Emily Landis

APPENDIX B

Below is a list of reports and links that may be useful to interested stakeholders. These resources are not provided in any particular order.

- *A Decade of Tidal Wetland Development at the Ni-les'tun Restoration Project on the Southern Oregon Coast*, https://ir.library.oregonstate.edu/concern/technical_reports/1r66j8525
- *A National Blue Carbon Action Plan: Opportunities & Recommendations*, https://estuaries.org/wp-content/uploads/2022/02/Blue-Carbon-National-Action-Plan-Final.pdf
- *A People's Primer for Protecting Oregon's Eelgrass*, https://crag.org/wp-content/uploads/2021/06/eelgrass_citizens_guide_6-1-21.pdf
- *A Research Strategy for Ocean-Based Carbon Dioxide Removal and Sequestration*, https://nap.nationalacademies.org/catalog/26278/a-research-strategy-for-ocean-based-carbon-dioxide-removal-and-sequestration
- *A Science Plan for Carbon Cycle Research in North American Coastal Waters*, https://www.us-ocb.org/wp-content/uploads/sites/43/2017/05/CCARS_Sci_Plan_FINAL.pdf
- *Advancing the Use of Blue Carbon for Coastal Systems*, https://nerrssciencecollaborative.org/media/resources/NERRS-Management-Brief-Blue-Carbon-FINAL_0.pdf
- *Baseline Monitoring at Wallooskee-Youngs Restoration Site, 2015, Part 2: Blue Carbon, Ecosystem Drivers and Biotic Responses*, https://www.researchgate.net/publication/339776992_Baseline_monitoring_at_Wallooskee-Youngs_restoration_site_2015_Part_2_Blue_carbon_ecosystem_drivers_and_biotic_responses
- *Blue Carbon in Marine Protected Areas*, https://storymaps.arcgis.com/stories/c4604faf7036427e913e3d09eede76eb
- *Blue Carbon Manual*, https://www.thebluecarboninitiative.org/manual
- *Blue Carbon: The Potential of Coastal and Oceanic Climate Action*, https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/blue%20carbon%20the%20potential%20of%20coastal%20and%20oceanic%20climate%20action/blue-carbon-the-potential-of-coastal-and-oceanic-climate-action-vf.pdf
- *Early Post-Restoration Recovery of Tidal Wetland Structure and Function at the Southern Flow Corridor Project, Tillamook Bay, Oregon*, https://ir.library.oregonstate.edu/concern/technical_reports/tx31qr89q
- *Eelgrass Restoration on the U.S. West Coast: A Comprehensive Assessment of Restoration Techniques and Their Outcomes*, https://www.pacificfishhabitat.org/eelgrass-restoration-synthesis/
- *High-Quality Blue Carbon Principles and Guidance: A Triple-Benefit Investment for People, Nature, and Climate*, https://merid.org/wp-content/uploads/2022/11/HQBC-PG_FINAL_11.8.2022.pdf
- *Incorporating Coastal Blue Carbon Data and Approaches in Oregon's First Generation Natural and Working Lands Proposal*, https://www.oregon.gov/lcd/Commission/Documents/2021-11_Item-10_OGWC_Attachment-B_Blue-Carbon-White-Paper.pdf
- *Oregon's Blue Carbon Ecosystems: State of the Science*, https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/oregon/marine/Documents/TNC-BlueCarbonSynthesis-20221017.pdf
- *Scoping Assessment for Pacific Northwest Blue Carbon Finance Projects*, https://nerrssciencecollaborative.org/resource/scoping-assessment-pacific-northwest-blue-carbon-finance-projects
- *The Worth of Blue Carbon: A Knowledge and Values Assessment of Conservation Policy Stakeholders in the Pacific Northwest U.S.A.*, https://nerrssciencecollaborative.org/resource/worth-blue-carbon-knowledge-and-values-assessment-conservation-policy-stakeholders-pnw