Draft Blueprint for Building a West Coast Science Collaborative for Offshore Wind

December 2025

Introduction

California is committed to carbon neutrality by 2045 as part of its broader efforts to address climate change. Meeting this ambitious clean energy goal requires a portfolio approach that includes offshore wind offshore wind energy, with planning goals of 5 gigawatts (GW) by 2030 and 25 GW by 2045. California's offshore waters have been identified for floating offshore wind projects, and efforts to advance this renewable source of energy have accelerated in recent years. In June of 2023, the Bureau of Ocean Energy Management executed five offshore wind leases in federal waters 20 miles offshore from the California coast, two off the coast of Humboldt Bay in northern California and three off the coast of Morro Bay, in central California (Figure 1).

Although floating offshore wind technology has demonstrated its viability through several international installations, commercial developments at the scale proposed offshore California do not yet exist. Successfully building this industry will require a balanced strategy that addresses existing knowledge gaps and creates solutions to avoid, minimize, and mitigate impacts on ocean ecosystems, tribal cultural resources, and fisheries.

Figure 1. Location of five lease areas offshore California.

The comprehensive **Assembly Bill 525 Offshore Wind Energy Strategic Plan**[1], developed by the California Energy Commission in coordination with other state agencies, provides detailed recommendations to inform sustainable offshore wind development in California. Recommendations include actions to address potential impacts on coastal and marine resources such as: promoting coordination and collaboration among lessees on surveys, comprehensive monitoring plans, and project implementation to minimize environmental impacts;

1 https://www.energy.ca.gov/data-reports/reports/ab-525-reports-offshore-renewable-energy

and promoting comprehensive environmental research and monitoring using best available science and traditional knowledge. Currently, there is no mechanism to coordinate or standardize environmental monitoring and research needed to identify potential impacts from offshore wind development across individual projects or at a regional scale.

Creation of a West Coast Science Collaborative for Offshore Wind (WCSC) will address this gap and provide needed independent and objective scientific expertise that can inform coordinated environmental research, monitoring and analysis, as well as support regulatory decision making and adaptive management at both individual project and cumulative scales. A coordinated and transparent body, informed by subject-matter experts, will help gather, generate, review, and share the best available science-based data and information to guide environmentally responsible offshore wind planning and development along the California Coast. Critically, the WCSC will provide a forum for cross-sector collaboration and a venue for transparent information sharing with the public, building trust and accountability as this new industry develops.

Given that California is currently the only state on the West Coast with offshore wind leases, the WCSC will prioritize its efforts on California, expanding to Oregon and Washington if/when lease areas are awarded there, and capacity and funding allows. California's leases require immediate baseline data collection and monitoring protocols before construction begins. Focusing on California will support near-term needs for existing leases while establishing frameworks that can be adapted for future lease areas across the West Coast. Recognizing the immediate and near-term information needs for the State of California, yet the importance of regional coordination and information sharing, representatives from the States of Washington and Oregon are currently included as ex-officio members of the WCSC.

This *Blueprint for Building a West Coast Science Collaborative for Offshore Wind* outlines the purpose, goals, organizational structure, and initial activities of the WCSC. It was led by the California Ocean Protection Council (OPC) with extensive collaboration with federal and California state agencies, and California Native American tribes during the summer and fall of 2025. It is expected that the content and processes laid out below will be refined and formalized during future long-term viability planning for the WCSC.

Purpose and Goals

Responsible offshore wind development on the West Coast will require comprehensive, innovative, and coordinated environmental monitoring and research to understand and minimize potential impacts to wildlife and marine ecosystems. The WCSC will address those needs through the following goals:

WCSC Goals

1. Provide scientific expertise, including tribal science and Traditional Knowledges, to understand potential environmental, tribal cultural resources, and fisheries impacts from offshore wind development; identify effective mitigation measures to offset unavoidable impacts and develop adaptive management strategies.
2. Identify opportunities to prioritize coordinated monitoring to increase cost efficiencies, leverage resources and support assessment of project level and cumulative impacts. Promote regional coordination of monitoring and research agendas, including use of existing and emerging technology.
3. Establish standards for data collection and management to ensure data quality and interoperability and maximize efficiencies in data collection and analysis across monitoring efforts.
4. Synthesize monitoring data and analysis and research findings to develop a public-facing report following construction (at appropriate milestones: e.g., annually, every five years) that summarizes results from baseline and ongoing monitoring and research efforts at project and regional scale and includes an assessment of cumulative impacts.

Organizational Structure

The WCSC will be composed of a Steering Committee, Coordination Committee, and topical Subcommittees working together to ensure effective implementation of WCSC goals (Figure 2).

Figure 2. WCSC Organizational Structure. Fishing Community members include California Native American tribal fisheries, commercial and recreational fishermen, or seafood processors that work in California waters.

The **Steering Committee** is the decision-making body of the WCSC and will provide direction on near-term objectives and guidance on cross-cutting issues, activities and products (such as monitoring protocols and best practices), of the WCSC. The Steering Committee will review and approve products and recommendations from the Subcommittees and decide on highest priority needs for addressing scientific gaps. The voting members of the Steering Committee will include representation from federal agencies, California state agencies, California Native American tribes, and offshore wind leaseholders. Serving in an advisory capacity, the ex-officio members of the Steering Committee will include state agency representation from Oregon and Washington, environmental non-profit organizations, and fishing community members including tribal fisheries, commercial and recreational fishermen, seafood processors. The Steering Committee is expected to meet quarterly, or as needed.

The **Coordination Committee** will provide support for implementation of all WCSC activities. The Coordination Committee is comprised of staff-level representatives designated by voting Steering Committee members (no limit on number), and representatives from ex-officio members as requested by the Steering Committee based on topical expertise. The Coordination Committee is empowered to make administrative decisions to move processes forward, aligned with the decisions and guidance of the Steering Committee. The Coordination Committee strives for consensus in all matters, however OPC can move administrative decisions forward if consensus cannot be reached. Examples of administrative decisions include developing agendas, setting meeting dates, and developing slides/materials for various needs. The Coordination Committee is expected to meet monthly with more frequent meetings, as needed, for ad-hoc focused workstreams.

Subcommittees will provide topic-area scientific and technical expertise. Subcommittees may be responsible for developing products, providing targeted advice, or recommendations to the Steering Committee, or other activities as identified by the Steering Committee. Subcommittee meetings will be open to the public to maximize transparency and provide a venue for all interested partners to provide input. Subcommittees will meet as needed and may be created, rearranged, combined, and/or reconstituted as directed by the Steering Committee.

Subcommittees will be established around several focal areas: habitats and ecosystems; birds and bats, marine mammals and sea turtles, fish and invertebrates; data and technology, tribal cultural resources, and fisheries. The Tribal Cultural Resources Subcommittee will be tribally led; meetings will not be open to the public to maintain confidentiality of sensitive tribal information. Each Subcommittee will have two co-chairs. Co-chairs will be selected through a public nomination process and approved by the Steering Committee. The co-chairs of the Subcommittees will be included in all applicable meetings of the Steering Committee.

Subcommittee members, and, where feasible, co-chairs, will include tribal scientists and Traditional Knowledge holders. OPC recognizes that tribal knowledges, perspectives, and science are often place-based, holistic, and reflect the interconnectedness of all life, which may be challenging to fit

into the topical structure of the Subcommittees. OPC is committed to ensuring that tribal science and Traditional Knowledges are meaningfully included in the work of the Subcommittees.

WCSC members must be willing to engage in collaborative, cross-sector deliberations and have the time and commitment to participate meaningfully to achieve the goals of the WCSC. Although government agencies will participate in the WCSC, the work and products of the WCSC will not be included in government regulations. The WCSC will not be established or utilized by a federal agency for the purpose of obtaining advice or recommendations on issues or policies for any agency. OPC will serve as the facilitator for this initial phase of the WCSC. This includes convening the WCSC committees and making administrative decisions to advance initial activities and outcomes.

Steering Committee Membership

Federal Agencies

Federal agency leadership with regulatory authority or policy oversight related to coast and ocean ecosystems and offshore wind development can provide a single representative from each of the following seven agencies:

- Bureau of Ocean Energy and Management
- Bureau of Safety and Environmental Enforcement
- U.S. Fish and Wildlife Service
- National Oceanic and Atmospheric Administration
- United States Navy
- United States Army Corps of Engineers
- United States Coast Guard

California State Agencies

California state agency leadership with regulatory authority or policy oversight related to coast and ocean ecosystems and offshore wind development can provide a single representative from each of the following five agencies:

- California Coastal Commission
- California State Lands Commission
- California Department of Fish and Wildlife
- California Energy Commission
- California Ocean Protection Council

California Native American Tribes

Federally recognized and non-federally recognized California Native American tribes may each provide a single representative. There is no limit to the number of tribes that can participate.

Offshore Wind Leaseholders

A single representative from each of the five current West Coast offshore wind leaseholders.

- California North Floating, LLC (Vineyard)
- RWE Offshore Wind Holdings, LLC
- Equinor Wind US, LLC
- Golden State Wind, LLC
- Invenergy California Offshore, LLC

Ex-Officio

Oregon and Washington State Governments

A single representative from each of the following state agencies to promote coordination and information sharing:

- Oregon Department of Land Conservation and Development
- Washington State Department of Ecology

Fishing Community

Two representatives from California Native American tribal fisheries, commercial and recreational fishermen, or seafood processors that work in California waters and are interested in addressing potential impacts and informing adaptative management of offshore wind development. The members will be selected through a public nomination process and approved by the Steering Committee.

Environmental Non-Profit Organizations

Two representatives that have subject matter expertise in relevant topics and are interested in addressing potential impacts and informing adaptative management of offshore wind development. The members will be selected through a public nomination process and approved by the Steering Committee.

Decision-Making Process

When advancing decisions, the Steering Committee will always strive for full consensus. When that is not possible, it will aim for general consensus, where all members either support the decision or accept that it was arrived at through an open and fair process, even if they do not prefer the decision. When disagreeing with a proposal, members shall explain their concerns and actively work with others to find a solution. If, after repeated efforts, members still cannot agree, the Steering Committee can move forward with a decision through voting.

Steering Committee "member groups" (federal, state, tribes, offshore wind leaseholders) will each have three votes, for a total of 12 votes. Decisions will be made with a majority vote (i.e. 7 out of 12 votes). Voting will occur with those present at the meeting or can be submitted via email ahead of the meeting. If unanimous agreement within a member group is reached, there is full consensus and all three votes are the same. If unanimous agreement within a member group is not reached, the votes will be split proportionally, as shown below in Figure 3.

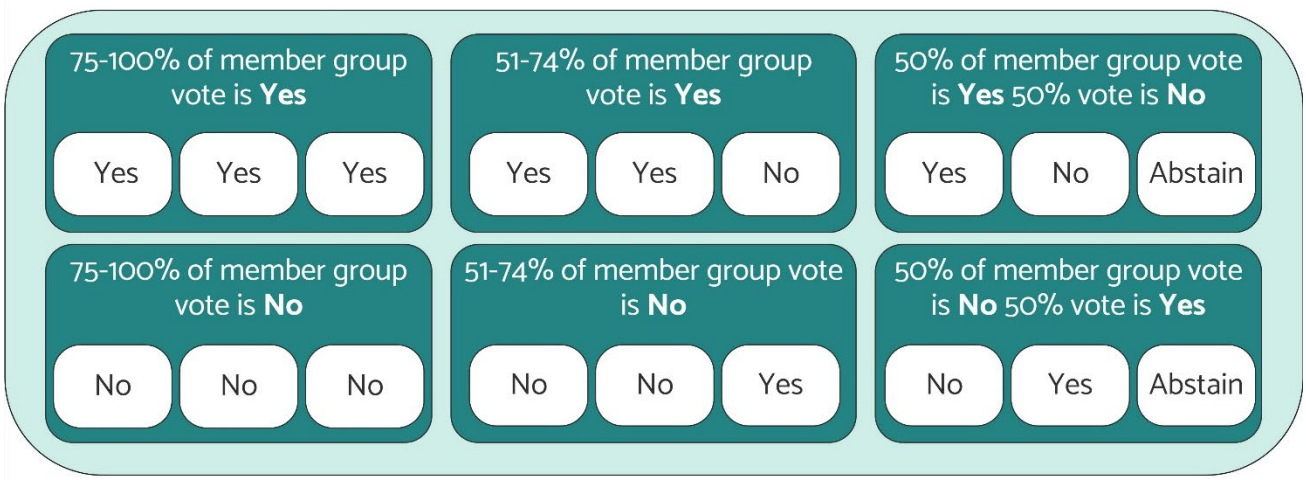

Figure 3. WCSC Proportional Voting

Initial Activities

Development of Monitoring Protocols and Best Practice Documents

Effective monitoring is essential to detect and understand both anticipated and unanticipated effects on ocean and coastal ecosystems and wildlife from offshore wind development. Environmental monitoring will be required as part of the permitting process; however, there is no existing mechanism to ensure that environmental monitoring and research efforts are standardized and coordinated to maximize cost efficiencies, facilitate data analysis and synthesis, and result in public-facing products that communicate findings at an individual project and cumulative scale. By establishing monitoring protocols before construction begins, agencies, California Native American

tribes, offshore wind leaseholders, and others can leverage shared resources and promote collaboration to better track baseline conditions and measure change over time.

California's marine environment presents unique characteristics that distinguish it from other offshore wind development areas. The California Current Large Marine Ecosystem drives seasonal upwelling that supports exceptionally productive and diverse ecosystems, creating critical habitat for numerous species including endangered blue whales, seabirds, and commercially important fish stocks. In California the continental shelf drops off steeply into deep waters close to shore, making traditional fixed foundations impractical and far more expensive beyond depths of about 60 meters (196 feet) - while the state's strongest and most consistent wind resources are located in this deep water. In the California lease areas, water depths are more than 500 meters (1,640 feet) and will require floating substructures. Floating offshore wind technology at the commercial scale proposed for California will introduce novel structures, mooring systems, and operational considerations that have not been previously studied in domestic waters. This combination of distinctive oceanographic conditions and pioneering technology means that monitoring approaches developed for fixed-bottom offshore wind in the Atlantic or for smaller-scale floating installations elsewhere may not be directly transferable to the California context.

Therefore, California must develop monitoring protocols and best practices that reflect best available science and developing technologies. Determining the specifics of these protocols will need to be collaboratively developed by agencies, California Native American tribes, offshore wind leaseholders, and scientists, and will be most effective if developed prior to the submission of Bureau of Ocean and Energy Management's required Construction and Operations Plans. This will enable offshore wind leaseholders to design monitoring programs aligned with these monitoring protocols and best practices from the outset. The WCSC will ensure that monitoring standards are scientifically rigorous, operationally feasible, and responsive to both regulatory requirements and the information needs of the broader scientific community and other partners. While this work is expected to be initiated early in the creation of the WCSC, it will likely take several years to fully develop and will be an ongoing process of refinement.

Development of Fisheries Subcommittee Scope and Work Plan

The California Coastal Commission has been leading the **California Offshore Wind Energy Fisheries Working Group**[2] with representatives from California Native American tribes, commercial and recreational fishermen, seafood processors, and offshore wind leaseholders on the development of a *Statewide Strategy for the Coexistence of California Fisheries Communities and Offshore Wind Energy* (Strategy) to provide guidance to minimize potential effects on the commercial and recreational fishing industries and tribal fisheries. The Strategy will include recommendations for

2 https://www.coastal.ca.gov/upcoming-projects/offshore-wind/

monitoring for socioeconomic impacts. The WCSC is expected to use these recommendations as a starting place to develop a scope and work plan for the Fisheries Subcommittee.

The Fisheries Subcommittee is expected to focus on the socioeconomic impacts to California fishermen and the fishing industry due to changes in their ability to access fishing grounds and other disruptions. They will coordinate closely with the Fish and Invertebrates Subcommittee, which will be focused on potential impacts to fish species and ecosystems.

Development of Tribal Cultural Resources Subcommittee Scope and Work Plan

Tribal cultural resources that may be impacted by offshore wind take many forms, from submerged village sites to entire coastal and marine ecosystems. A tribal cultural resources inventory for North and Central Coast California Native American tribes is currently being developed by the California Energy Commission to identify locations that could potentially be impacted by offshore wind development. This inventory is being developed with funding from OPC and is expected to be finalized by spring of 2026. The specific tribal cultural resources sites that may be impacted by offshore wind development will not be known until the Construction and Operations Plans are created and define specific locations for development; for example, the exact locations of cable routes.

While environmental Subcommittees will address some tribal cultural resources specific to their focal areas, additional monitoring will be needed. The monitoring approach for tribal cultural resources must be led by California Native American tribes to protect sensitive tribal information. To begin, a Tribal Cultural Resource Subcommittee will be formed to develop a plan for tribal cultural resource monitoring, ensuring readiness when specific locations are identified.

Development of a Plan for Long-Term Success

The initial phase of the WCSC is expected to last two to five years, during which the Steering Committee will need to develop a long-term plan that codifies a formal structure and funding framework to ensure long-term success. This will include developing work plans for future years, identifying the staffing, overhead, funding and infrastructure needs to support the effectiveness and durability of the WCSC into the future, including funding for identified research and monitoring priorities. The timing of plan development and completion will be determined by the Steering Committee.

Appendix

Complementary Collaborative Efforts

The coordination of regional scientific research, development of monitoring guidelines, and efforts to standardize data is underway through several organizations across the country. Several of these organizations conduct complementary activities to the WCSC, and collaborative partnerships will be explored where relevant.

On the East Coast, offshore wind projects are in all phases of development from planning to construction. The development of this industry has led to two regional science collaboratives that facilitate the coordination of scientific monitoring and research and can provide guidance and lessons learned from early offshore wind development in the United States:

The **Regional Wildlife Science Collaborative for Offshore Wind**[3] (RWSC) is a voluntary forum for federal agencies, states, industry, and environmental non-profit organizations to work together with with the research community to conduct coordinated marine life and habitat research in U.S. Atlantic waters. RWSC serves as a hub to increase collaboration, limit redundancy, suggest common data standards, and increase data sharing.

The **Responsible Offshore Science Alliance**[4] (ROSA) advances regional scientific research, monitoring and understanding of fisheries and the interactions with blue economy activities in state and federal waters of the U.S. through collaboration and cooperation. ROSA includes a community of fishermen, ocean leaseholders, academics, government representatives, and others united behind a common goal of objective, collaborative science that supports effective decision-making and policy.

On the West Coast there are several existing efforts to coordinate regional priorities and research including:

The **Pacific Offshore Wind Consortium** (POWC)[5] supports universities, host communities, and Tribal nations to share resources, co-develop best practices, and design relevant and timely research programs on topics related to offshore wind. Efforts are geared to reflect the dynamic nature of the coastal and marine environment as well as the diversity of community perspectives. POWC activities

3 https://rwsc.org

4 https://www.rosascience.org

5 http://powc.us

advance research and innovation, community and Tribal engagement and knowledge exchange, and university-level workforce education and professional development.

The **West Coast Ocean Alliance** (WCOA)[6] is an intergovernmental forum between West Coast states (California, Oregon, and Washington), tribes, and the federal government that supports open, transparent and equitable dialogue based on a common vision for the West Coast.

In the South there is currently one lease for offshore wind in the Gulf of America, although there are other potential areas that could be developed in the future. The **Gulf of America Alliance**[7] is creating a new group within the Alliance tentatively named the Gulf Science Collaborative. The goal is to develop a collaborative providing credible monitoring and research data on wildlife and marine ecosystems supporting environmentally responsible energy development in the Gulf.

To understand baseline and long-term impacts, the State of California has also funded the **California Marine Sanctuary Foundation**[8] to lead development of an independent, transparent, and science-based environmental monitoring guidance for California's emerging offshore wind industry, in collaboration with over 200 scientists. This guidance will serve as a scientific reference and provide a structured framework that explores environmental monitoring options and considerations informed by expert insights, supporting responsible offshore wind development in California.

6 https://www.westcoastoceanalliance.org

7 https://gulfofamericaalliance.org/about-us

8 https://www.californiamsf.org/offshorewind