

Maine Offshore Wind Research Consortium 2024 Annual Report

Submitted to the Maine Legislature's Joint Standing Committee on Energy,
Utilities and Technology

Pursuant to Public Law 2021, Chapter 407

December 31, 2024

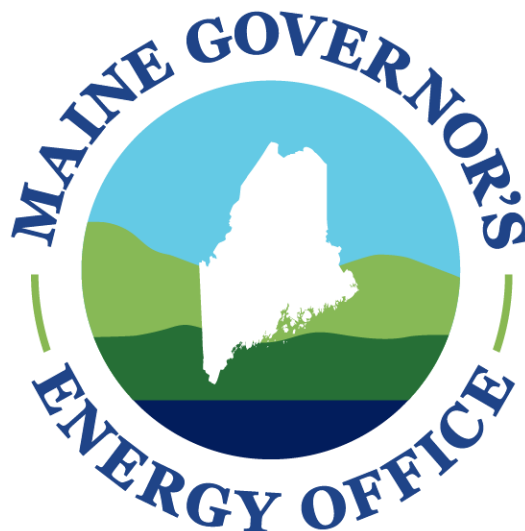


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Acronyms

BOEM	Bureau of Ocean Energy Management
Consortium	Maine Offshore Wind Research Consortium
DMR	Maine Department of Marine Resources
FOW	Floating Offshore Wind
FY	Fiscal Year
GEO	Governor's Energy Office
GW	Gigawatt
LMA1	Lobster Management Area 1
MCMI	Maine Coastal Mapping Initiative
MDIFW	Maine Department of Inland Fish and Wildlife
MOU	Memorandum of Understanding
NERACOOS	Northeastern Regional Association of Coastal Ocean Observing Systems
NM	Nautical miles
NOAA	National Oceanic and Atmospheric Administration
NOWRDC	National Offshore Wind Research and Development Consortium
OCS	Outer Continental Shelf
OSW	Offshore Wind
PL	Public Law
PPA	Power Purchase Agreement
PTOW	Pine Tree Offshore Wind
PUC	Public Utilities Commission
R&D	Research and Development
RFA	Request for Applications
RFP	Request for Proposals
RODA	Responsible Offshore Development Alliance
ROSA	Responsible Offshore Science Alliance
RWSC	Regional Wildlife Science Collaborative
UMaine	University of Maine
USFWS	United States Fish and Wildlife Service
WEA	Wind Energy Area

Purpose

Pursuant to Public Law (PL) 2021, Chapter 407 Sections 2.3.3 and 3.4 (LD 1619), this report summarizes the activities of the Maine Offshore Wind Research Consortium (Consortium) and the Research Consortium fund over the course of 2024. The law established the Consortium to coordinate, support, and arrange for the conduct of research on floating offshore wind (FOW) power projects and inform responsible development in the Gulf of Maine. This report includes updates to state and federal activities related to offshore wind (OSW), ongoing research and lease progress in the Gulf of Maine, the Research Consortium's first and second round research projects, and the status of the Research Consortium Fund.

Executive Summary

In 2024, the Maine Offshore Wind Research Consortium has achieved significant milestones in fulfillment of PL 2021, Chapter 407 Sections 2.3.3 and 3.4. The Maine Offshore Wind Research Consortium continues to inform responsible development of FOW in the Gulf of Maine by engaging with key stakeholders, ocean users, and professional consultants and identifying and funding critical research areas. The Consortium continues to expand FOW research in the Gulf of Maine, building on research conducted on regional, national, and global scales. The Consortium's research will inform the state's efforts to provide clean, reliable, and affordable energy to Maine people and businesses.

Over the course of 2024, the Maine Offshore Wind Consortium awarded its first three high priority projects, underwent a comprehensive prioritization process to identify the second round of projects for funding, and issued a Request for Applications (RFA) for three more projects that will advance understanding of FOW's impacts on the Gulf of Maine and the state.

The first round of funding was awarded in Q1 2024 through a combination of a competitive request for proposals (RFP) and a memorandum of understanding (MOU) with the Department of Marine Resources (DMR). The two projects awarded through the RFP were:

1. Inventorying baseline data on socioeconomics of Maine fishing communities to help assess potential positive and negative impacts of FOW in the Gulf of Maine
2. Exploring approaches to fisheries coexistence with FOW

The Research Consortium Steering Committee determined that the most cost-effective approach to the third high-priority project, collecting baseline data on benthic habitats in key areas of the Gulf of Maine, would be to leverage the existing resources of the Maine Coastal Mapping Initiative (MCMI) within DMR. This includes collaborative research

opportunities with Maine fishermen. To date, 337 square nautical miles (nm) have been mapped, adding essential inputs to modeling and habitat classification efforts that support marine policy decisions. The surveying effort will restart in spring 2025 and map the remaining ~500 square nm in and around the research array site. The data collected to date are available on DMR's Open Data Portal and will be added to the Northeast Ocean Data Portal and the Regional Wildlife Science Collaborative's research database.

The three projects kicked off in Q1 2024, and the baseline socioeconomic data inventory project has been completed. The fisheries coexistence project is scheduled to conclude in early 2025 and the seafloor mapping project is expected to finish in summer 2025. More information, including the results and data, about these three projects can be found on the Research Consortium's [website](#).

The Advisory Board met four times in 2024 and prioritized a second round of projects to be funded. These projects are included in a RFA that was issued in November 2024 with applications due January 2025. The three projects are:

1. Baseline assessment of social, economic, and cultural impacts of FOW development on Maine's fishing industry
2. Baseline secondary entanglement risk assessment and technology feasibility study
3. Baseline offshore bat monitoring assessment

The Research Consortium has received \$1 million each fiscal year (FY) beginning in FY 2021-2022. To date, \$3,572,000 has been allocated or obligated to advance the objectives of the Research Consortium. The Consortium has \$428,000 in remaining funds for FY 2024-2025, which are anticipated to be used for public education, engagement, and communications and additional or expanded research projects. The resources are funding research to fill critical information gaps identified by Maine stakeholders and ocean users. Consortium-funded research is also informing OSW research conducted by other states, regional entities, federal agencies, and international research institutions.

1. Background and Introduction

Recognizing the critical threat of climate change, Governor Janet Mills has committed Maine to an ambitious set of policies to reduce Maine's greenhouse gas emissions, transition to renewable energy, and grow the state's clean energy economy. The state has established statutory greenhouse gas reduction requirements of 45% below 1990 levels by 2030 and 80% by 2050, as well as a requirement for carbon neutrality by 2045. Maine also established a Renewable Portfolio Standard requiring 80% of electricity used in the state be generated by renewable sources by 2030 and 100% by 2050.

In 2023, recognizing the progress made to date and the key role of clean energy in controlling costs for consumers and reducing fossil fuel dependence, Governor Mills

announced a new accelerated goal of 100% clean energy by 2040. In response, GEO is leading a planning effort to study how the 100% clean energy by 2040 goal can be met while aligning with the state’s climate action plan, “[Maine Won’t Wait](#),” which was updated in November 2024.

The draft technical analysis informing the Maine Energy Plan highlights the key role OSW will play in Maine meeting its clean energy goals. For more information about the Energy Plan, visit this [website](#).

Maine and the New England region’s climate and clean energy statutory requirements will necessitate substantial new renewable energy resources in the coming decades. OSW in the Gulf of Maine presents a generational economic and energy opportunity for the state. As an abundant source of clean and renewable energy to reliably meet rising energy needs, OSW has the potential to reduce Maine’s over-reliance on fossil fuels to lower energy costs and volatility, and to curb emissions to protect our state’s environment for future generations. The economic benefits of OSW can also benefit adjacent industries through downstream impacts in infrastructure and supply chain investments, jobs, and upskilling the existing workforce training.

The Wind Energy Needs Assessment, a technical study conducted as part of the Maine Offshore Wind Roadmap, and subsequent technical analyses informing the Maine Energy Plan, identified the need for 3 gigawatts (GW) of OSW to meet the state’s growing energy needs while fulfilling the state’s statutory climate and clean energy requirements. The Roadmap assessment informed PL 2023 Chapter 481 (LD 1895), “An Act Regarding the Procurement of Energy from Offshore Wind Resources,” which Governor Mills signed in July 2023. The law authorizes the procurement of up to 3 GW of OSW energy from the Gulf of Maine, ensures industry opportunity for all Maine workers and employers, allows for critical port development, and protects critical lobstering areas from development.

1.1. Federal Context and Activity

The U.S. Bureau of Ocean Energy Management (BOEM), an agency within the U.S. Department of the Interior, has authority to lease areas of the Outer Continental Shelf (OCS), in federal waters beyond three nm from shore, for offshore energy development. In 2019, BOEM created the Gulf of Maine Regional Renewable Energy Task Force, to advise BOEM on commercial leasing and development of OSW in the Gulf of Maine. The Governor’s Energy Office (GEO), along with other State agencies and officials, represented the State on the Task Force and submitted comments informed by the priorities laid out in the Maine Offshore Wind Roadmap.

In 2021, the Biden Administration announced a federal target of installing 30 GW of OSW energy by 2030 with the goal to drive new jobs and economic opportunity. The Oceanic Network, an organization that supports the OSW supply chain, reported in their [2024-Q3](#)

[Offshore Wind Quarterly Market Report](#) that \$24.5 billion has been invested in the U.S. OSW supply chain to date. In a September 2024 [Fact Sheet](#), the federal government estimated that successfully deploying 30 GW of OSW will spur \$12 billion per year in private investment across the OSW supply, and since 2021, ten OSW projects have been approved by the federal government— enough to power more than five million homes.

Later in 2021, the Biden Administration announced a plan to hold an OSW auction in the federal waters of the Gulf of Maine in late 2024. In October 2023, BOEM published the Draft Wind Energy Area (WEA) for the Gulf of Maine and commenced a 30-day public comment period. [Governor Mills joined](#) the Congressional delegation in urging BOEM to site leases outside federal Lobster Management Area 1 (LMA1) and other important fishing grounds and habitats. The Draft WEA excluded all of LMA1.

In March 2024, BOEM announced the Final Wind Energy Area (Final WEA) in the Gulf of Maine. Based on extensive stakeholder engagement and public comment periods about environmental and cultural resources and current ocean uses, the Final WEA represented a 43% reduction from the Draft WEA.

In April 2024, the Department of the Interior announced its proposed sale notice (PSN) for eight lease areas within the Final WEA, signaling the first OSW energy auction in the Gulf of Maine. After a 60-day public comment period, BOEM set the final sale notice (FSN) for October 29, 2024. The area included in the FSN was approximately 120,000 acres less than what BOEM included in the PSN, reflecting a decision to further prioritize the avoidance of offshore fishing grounds, sensitive habitats, and existing and future vessel transit routes, while maintaining the appropriate acreage to support the region's OSW energy goals.

Gulf of Maine Planning & Leasing Process

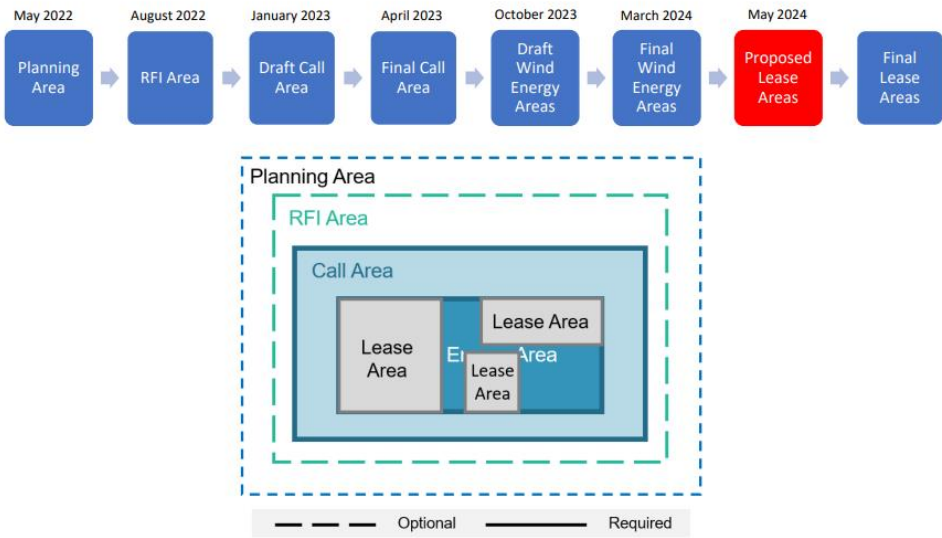


Figure 1: BOEM's process for winnowing down the Gulf of Maine Planning Area to the Final Lease Areas.

On October 29, 2024, the Department of the Interior announced the results of the OSW lease sale in the Gulf of Maine, which included two provisional winners on four lease areas and over \$21.9 million in winning bids. Invenergy NE Offshore Wind, LLC won one northern lease area (Lease OCS-0562) at \$4,892,700. Lease OCS-0562 includes 97,854 developable acres and is approximately 46.2 nm from Maine. Invenergy also won one southern lease area (Lease OCS-0567) at \$5,889,000. Lease OCS-0567 consists of 117,780 developable acres and is approximately 21.6 nm from Massachusetts. Avangrid Renewables, LLC won two southern lease areas - Lease OCS-0564 and Lease OCS-0568 - at \$4,928,250 and \$6,244,850, respectively. Both lease areas sit approximately 29.5 nm from Massachusetts, and include 98,565 and 124,897 developable acres, respectively.

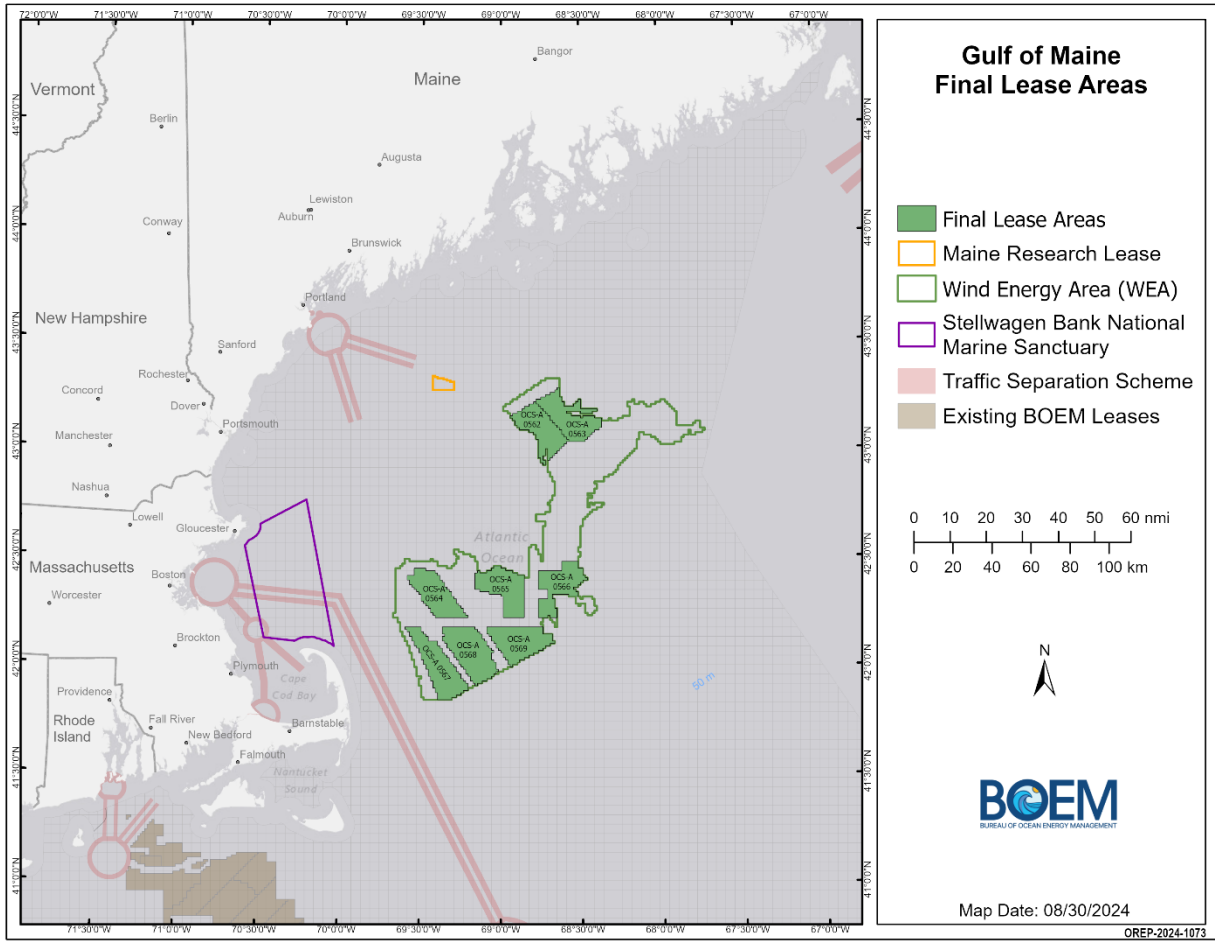


Figure 2: Map of the final Gulf of Maine lease areas. Lease areas OCS-A 0562, OCS-A 0564, OCS-A 0567, and OCS-A 0568 were provisionally awarded to two developers.

While the leases awarded do not authorize the construction or operation of any OSW facilities, they support the development of floating OSW in deep water sites by providing lessees the right to submit a project plan for BOEM’s review and environmental impact assessment. The lease sale also resulted in over \$5.4 million total bidding credits and represent binding commitments by companies to invest over \$2.7 million in workforce training and domestic supply chain development, and an additional \$2.7 million for fisheries compensatory mitigation. Furthermore, lease stipulations require that the lessees make “every reasonable effort” to enter into a project labor agreement covering the construction stage of any project for the lease areas; develop communication plans for engagement with Tribes, agencies, and fisheries; and provide semi-annual reports on engagement activities with Tribes and communities.

1.2. State Context and Activity

In 2019, Governor Mills launched the Maine Offshore Wind Initiative, which focuses on how to best responsibly advance OSW to bring clean, reliable, and affordable energy to the state in a manner that minimizes impacts to the Gulf of Maine and existing users while strategically taking advantage of the significant economic opportunity that OSW presents. A key part of advancing OSW is recognizing the importance of Maine’s fishing industry in terms of economic output and community and cultural benefits, all of which must be thoughtfully considered with input from the fishing industry and the public. Under the Initiative, the State has pursued a multi-pronged approach to support planning, stakeholder engagement, and research to improve understanding of the impacts and opportunities that the growing industry can provide. Through the BOEM Task Force and other stakeholder engagement opportunities, the State identified a number of research and data gaps, and pursuant to PL 2021, Chapter 407 Sections 2.3.3 and 3.4 (LD 1619), GEO collaborated with DMR and the Maine Department of Inland Fish and Wildlife (MDIFW) to establish the Research Consortium and its Advisory Board. The Advisory Board is directed to develop and fund a Research Strategy of key interest to Maine ocean users and stakeholders.

The State’s 10-year Economic Development Strategy identified OSW for its significant potential to grow and diversify the State’s economy and create good paying jobs. Maine is well positioned to benefit from the billions of dollars of investment that have been made in the OSW supply chain, with nearly 80 Maine firms already engaged or positioned to engage in the OSW industry to provide permitting, products, surveying, engineering, maritime operations, and other services. Maine’s updated climate action plan, *Maine Won’t Wait*, also identifies OSW as one of the clean energy sources needed to transition to a cleaner grid while managing costs and reliability.

1.2.1. Maine Offshore Wind Roadmap

To realize the energy reliability, affordability, and climate benefits from OSW while protecting the environment and existing ocean users, an 18-month stakeholder engagement process kicked off in 2021 that resulted in the Maine Offshore Wind Roadmap, an effort that was supported by a \$2.166 million grant from the U.S. Economic Development Administration. The robust public process was led by a 24-person advisory committee with members from State agencies and energy, economic, fisheries, wildlife, science, and environmental leaders in Maine. The advisory committee was supported by four expert working groups on energy, economy, fisheries, and wildlife. Together, nearly 80 public sessions were held to develop the Roadmap, which was published in February 2023.

Objectives of the Roadmap are organized around five key topics – supporting economic growth and resiliency, harnessing renewable energy, advancing Maine-based innovation, supporting Maine’s seafood industry, and protecting the Gulf of Maine’s ecosystem. Much

of the Research Consortium’s work in 2024 advanced numerous objectives and strategies laid out the Roadmap, notably Objective C- Advance Maine-Based Innovation to Compete in the Emerging National and Global Offshore Wind Industry, Objective D- Support Maine’s Vital and Thriving Seafood Industries and Coastal Communities, and Objective E- Protect the Environment, Wildlife, & Fisheries Ecosystem in the Gulf of Maine.

In March 2024, shortly after the 1-year anniversary of the Roadmap, GEO published a [progress update](#) on the Roadmap’s objectives that included the Consortium funded projects and the regional collaboration that the Consortium helps facilitate. The Consortium’s activities are helping to reduce the costs, risks, and potential negative impacts associated with FOW development by collating and collecting baseline data, both environmental and socioeconomic, and informing best practices and permitting guidance for the industry.

1.2.2. Maine Offshore Wind Research Array

On August 19, 2024, a research lease was executed between the State and BOEM. The State submitted the application for the lease to BOEM in 2021 after undergoing an extensive stakeholder engagement process to guide the siting and research strategy.

The research array will be sited within an area up to 9,700 acres in size. The lease area is located 28 nm offshore Maine on the U.S. OCS and could support the deployment of up to 12 FOW turbines innovated by the University of Maine (UMaine) and capable of generating up to 144 megawatts of renewable energy. The array will inform how FOW operates and can co-exist with ocean users and ecosystems in the Gulf of Maine. The research array will also provide important information about how to minimize impacts and increase benefits to the State. It will be the nation’s first FOW research array.

Since the research lease was executed in Fall 2024, the State’s developer partner for the array, Pine Tree Offshore Wind (PTOW), has been negotiating with the Public Utilities Commission (PUC) on the power purchase agreement (PPA). Once the PPA is finalized, PTOW will continue working with the State and begin the surveying and permitting process. The array is expected to be operational in the early- to mid-2030s, so it is critical to conduct research and collect baseline data now so that the findings can inform the development process. DMR is leading the fishing related research efforts at the array on behalf of the State. For more information about the ongoing research efforts at and around the lease site, see the next section.

1.2.2.1. *Related Gulf of Maine Research Efforts*

The Research Consortium complements the research array and contributes to a broader effort to conduct OSW related research in the Gulf of Maine, much of it inspired by the state’s leadership with the research lease. The research array (see Section 1.2.2) offers a unique in-water opportunity to improve understanding of how FOW interacts with existing uses and the Gulf of Maine ecosystem.

At least 11 research groups from seven research institutions and agencies are collecting baseline data around the array to improve understanding of potential ecosystem impacts during phases of FOW development. Researchers are collecting baseline data on fish, shellfish, zooplankton, marine mammals, birds and bats, food webs, seafloor habitats, and meteorological and oceanographic processes. Scientists will conduct baseline surveys for a minimum of five years prior to construction of the research array to develop a robust data record. The comprehensive data sets will improve understanding of OSW impacts, as well as understanding of climate change impacts.

DMR and UMaine researchers are utilizing the research array to learn about OSW development impacts on fishing and other ocean users. This work includes interviews with members of the fishing industries to gather firsthand information about why individuals fish in a given area at a particular time and target specific types of catch. Data includes how economic trends, environmental features and conditions, and ocean development influence these decisions. Other Gulf-wide efforts, led by researchers at UMaine, Colby College, and the Gulf of Maine Research Institute, are targeted at understanding stakeholder perception and economic impact to ocean users. See Appendix A for a list of surveys connected to the research array.

2. Maine Offshore Wind Research Consortium

As part of Maine's commitment to responsible OSW, Governor Mills, with bipartisan support of the Legislature, [established the Maine Offshore Wind Research Consortium](#) in 2021 to better understand the impacts and opportunities of FOW projects in the Gulf of Maine. Through the Consortium, Maine has solidified itself as a national and international leader in responsible FOW development as the Consortium brings a diverse group of ocean users and stakeholders together to build a collective understanding to then collaboratively pursue high-priority research.

The Consortium's founding legislation, and 2023 amendment ([LD 1895](#)) to that legislation, directs GEO to serve as the coordinating agency and outlines an advisory board with representation from fisheries interests, state agencies, federally recognized tribes, and other stakeholders.

In February 2022, GEO published a RFP to help plan and engage stakeholders with the design of the Consortium and its governance structure. The awarded bidders (Carbon Trust Advisory and Maine-based SAMBAS Consulting LLC), were contracted to provide these services, serve as advisors and meeting facilitators, and act as interim program manager through 2023. In December 2023, GEO executed a Cooperative Agreement with the UMaine's Sea Grant Program to serve as the Consortium's program manager and provide research expertise. The Cooperative Agreement with Maine Sea Grant has been extended

through June 30, 2025. Carbon Trust Advisory and SAMBAS Consulting will continue to provide expert support and advisory capacity.

2.1. Research Consortium Advisory Board

The Consortium's Advisory Board is responsible for establishing a research strategy that at a minimum includes the following themes:

- Opportunities and challenges caused by the deployment of FOW projects to the existing uses of the Gulf of Maine;
- Methods to avoid and minimize the impact of FOW projects on ecosystems and existing uses of the Gulf of Maine; and
- Ways to realize cost efficiencies in the commercialization of FOW projects.

After holding open nominations, GEO identified the initial board members in 2022 for the Research Consortium pursuant to PL 2021, Chapter 407, Section 2 (LD 1619). The Advisory Board has since been updated to comply with all the statutorily directed parties, including representation from at least one federally recognized Indian Tribe.

The Advisory Board includes representation from the commercial and recreational fishing industries, research scientists with relevant expertise, coastal community leaders, Maine-based environmental groups, marine wildlife researchers, commercial OSW industry experts, and state agencies. The Advisory Board solicits input from state and federal agencies, stakeholders, and other ocean experts to inform research priorities and to align with related regional and national efforts. A Steering Committee comprised of GEO, DMR, MDIFW, and two Advisory Board Co-Chairs elected by their peers (one for fisheries, one for non-fisheries) provide oversight to the Consortium. Terry Alexander, F/V Jocka, and Alison Bates, Colby College currently serve as the Co-Chairs.

The following are current Advisory Board members:

Commercial and recreational harvesting interests

- Patrice McCarron, Maine Lobstermen's Association
- Jack Cunningham, Maine Lobstering Union Local 207
- Ben Martens, Maine Coast Fishermen's Association
- Terry Alexander*, F/V Jocka 22
- Mary Beth Tooley, O'Hara Corporation
- Bob Humphrey, Sport-Ventures

*Advisory Board Co-Chair

Scientists from private and public research institutions, including multiple scientists with marine wildlife and habitat expertise

- Alison Bates*, Colby College
- Damian Brady, University of Maine
- Wing Goodale, Biodiversity Research Institute
- Graham Sherwood, Gulf of Maine Research Institute
- Kanae Tokunaga, Gulf of Maine Research Institute
- Anthony Viselli, University of Maine
- Ann Zoidis, Tetra Tech
- Gayle Zydlewski, Maine Sea Grant

*Advisory Board Co-Chair

Offshore wind industry experience

- Dave Cowan, Diamond Offshore Wind
- Julian Fraize, National Offshore Wind Research and Development Consortium
- Laura Morse, JASCO Applied Sciences
- Walt Musial, National Renewable Energy Laboratory

Coastal community representatives

- Bill Needelman, Portland Waterfront Coordinator

Maine-based environmental groups

- Jocelyn Runnebaum, The Nature Conservancy Maine
- Sarah Haggerty, Maine Audubon

State agencies

- Carl Wilson, Maine Department of Marine Resources
- John Perry, Maine Department of Inland Fish and Wildlife
- Stephanie Watson, Governor's Energy Office

At-large

- Daniel Salerno, Fisheries Scientist, Limington, Maine

Tribes

- Fred Moore, Pleasant Point Passamaquoddy Reservation
- Trevor White, Indian Township Passamaquoddy Reservation

GEO has sent formal invitations to all five tribal communities in Maine to join the Advisory Board, and there is an open invitation for any Tribe to join.

2.2. Research Consortium Collaborators

The Maine Offshore Wind Research Consortium collaborates with other states and regional and national science and research partners to maximize its impact and to stay informed of other efforts to advance FOW research. Current collaborators include:

State and Federal Entities

- MA Executive Office of Energy and Environmental Affairs and Mass Clean Energy Center
- NH Department of Environmental Services
- NH Fish and Game Department
- NY State Energy Research and Development Authority
- California Energy Commission
- US Fish & Wildlife Service (USFWS)
- National Oceanic and Atmospheric Administration (NOAA)
- New England Fisheries Management Council

Regional Organizations

- Regional Wildlife Science Collaborative (RWSC)
- National Offshore Wind Research and Development Consortium (NOWRDC)
- Responsible Offshore Science Alliance (ROSA)
- Responsible Offshore Development Alliance (RODA)
- Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS)

2.3. Process to Identify Research Questions

The Research Consortium developed research priorities over a series of meetings from January to September 2023 through an iterative process. The process was designed to build upon recent work to identify priorities through the Maine research array conversations, Roadmap working group recommendations and other regional organizations as applicable to the Gulf of Maine and FOW projects. The image below captures the process of using the Consortium's overarching goal to identify four cross cutting research areas, brainstorming 13 research topics, prioritizing the 13 topics, creating 2-page project summaries for the top five projects, and ultimately funding the top three projects in the first round of funding.

Research prioritization last year (2023)

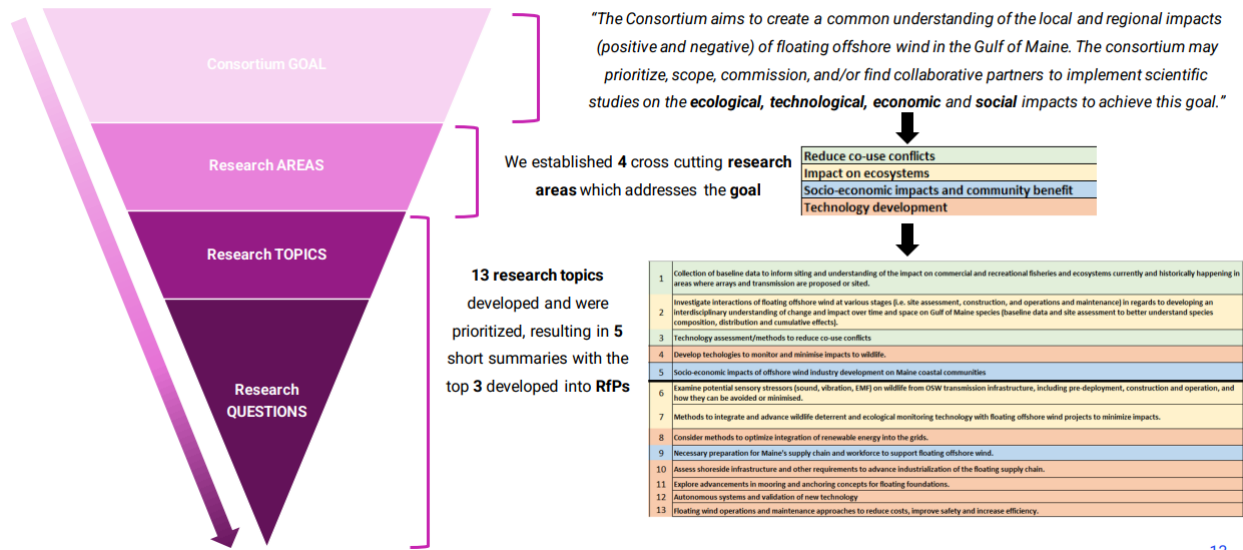


Figure 3: Summary of research prioritization round 1

In 2024, the Advisory Board went through a modified prioritization process that reflected the Consortium’s Research Strategy (current draft is available [here](#)). The 2024 process was:

1. Meet in small informal group working sessions that align with the four research areas to develop project ideas aligning with the priority research topics
2. Have follow-up discussions with Advisory Board members and Collaborators to refine research questions
3. Create project summaries based on all discussions
4. Advisory Board discuss project summaries and votes on priorities

To accomplish the reprioritization process, the Advisory Board met in February, May, and June. The May meeting included a tour of the Advanced Structures and Composites Center at UMaine in Orono. In addition to these meetings, the Consortium hosted a webinar spotlighting FOW technology in April and held a virtual meeting in July to share the results of the first Consortium-funded research project. The Advisory Board met in November to begin planning for 2025 activities. All Advisory Board meetings are open to the public and provide a virtual attendance option. Meeting materials and summaries are publicly available on [GEO’s public meetings archive](#).

- The agenda for the February meeting included: receiving updates on Consortium activities and upcoming research, share the draft Research Strategy, discussing the 2024 Consortium goals and timeline, and providing an overview of the reprioritization process for the second round of Consortium-funded projects.

- In May, the Advisory Board met in Orono to receive updates on Consortium activities and discuss the top eight project summaries that arose from the small group discussions held in March.
- In the June meeting, three new Advisory Board members were introduced and then the Advisory Board discussed and voted on the projects that had continued to evolve based on feedback from the May meeting. Advisory Board members then ranked the projects via a vote.
- The November meeting agenda included updates on currently funded projects (seafloor mapping and fisheries coexistence projects), updates from UMaine on their ¼ scale FOW demonstration project, and then conversations about match funding and how to prioritize the third round of projects.

Additional information on the Maine Offshore Wind Research Consortium is available on GEO's website [here](#).

2.4. Funding Round 1 Projects

Through the research question prioritization process, the Advisory Board identified three high-priority projects to fund in the first round of funding.

Two of the projects were awarded through a competitive solicitation process. GEO published the [first Request for Proposals](#)¹ on behalf of the Consortium in November 2023. The two high-priority topics were:

- Inventorying baseline data on socioeconomics of Maine fishing communities to help assess potential positive and negative impacts of FOW in the Gulf of Maine (max \$150,000 budget); and
- Exploring approaches to fisheries coexistence with FOW (max \$250,000 budget).

The first project's goal was to create a foundation to better understand potential positive and negative impacts of OSW development on Maine's fishing communities and produce recommendations on additional socioeconomic data needed to help assess potential impacts. The findings of this project are applicable to coastal projects beyond OSW, including the work of the [Infrastructure Rebuilding and Resilience Commission](#) founded in 2024 after a series of damaging storms. Karp Strategies, in partnership with Dr. Alison Bates' lab at Colby College, conducted this research. The project concluded in August 2024. Final deliverables include:

- Comprehensive inventory of existing socioeconomic data and metrics. To view the data inventory, please request so via email to geo@maine.gov with the subject line: "Data inventory request"

¹ Search for RFP #202310220, Research to Inform Responsible Floating Offshore Wind Development in the Gulf of Maine

- Project summary slides presented to the Consortium Advisory Board ([PDF link](#))
- Final report summarizing the project ([PDF link](#))

The second project is to investigate the extent to which fishing and FOW can coexist in the Gulf of Maine. The project team will engage with ocean users and other stakeholders to explore understandings, considerations, and definitions for marine coexistence, which includes co-use and interoperability. The project will include researching the compatibility of FOW technologies with fishing gear used in the Gulf of Maine and the regulatory and legal frameworks that may impact potential coexistence. ERM Consulting and Engineering, in partnership with the Gulf of Maine Research Institute, have been awarded the contract to conduct this research. The project is scheduled to conclude in early 2025 and the project team will present their findings to the Advisory Board. An overview of this project is available [here](#).

The third research priority identified by the Advisory Board – collecting baseline data on benthic habitats in key areas of the Gulf of Maine – is being conducted via a MOU with DMR. The Steering Committee decided the most cost-effective approach to collecting this high priority data is to leverage the existing resources of DMR and provide collaborative research opportunities with Maine fishermen through MCMI. The State published a competitive RFP for commercial fishing vessel support in March 2024 and begin benthic mapping work in spring 2024.

To date, 337 square nm have been mapped which created large blocks of contiguous surfaces that are essential inputs to most modeling and habitat classification efforts and which support marine policy decisions and a suite of marine science research studies. The offshore mapping survey represents an efficient and effective strategy for mapping high-priority areas in the Gulf of Maine. By partnering with a commercial fishing boat, the State achieved a rapid pace of mapping at a fraction of the cost of federal surveys or autonomous vehicle surveys, while also mapping at 2-4x the resolution of autonomous vessel efforts. The mapping effort was enhanced by the installation of a passive acoustic bat sensor, owned by Biodiversity Research Institute, on the vessel as well as collection of daylight wildlife observations (seabird and marine mammal) by the MCMI survey crew. The project is scheduled to finish mapping in spring/summer 2025. Preliminary data are published on [DMR's open data portal](#), noting that this site includes all MCMI data and not just the Consortium-funded maps. DMR is in the process of adding the data to other databases, including the [Northeast Ocean Data Portal](#) and [RWSC's research database](#).

2.5. Funding Round 2 Projects

The prioritization process in 2024 led to the Advisory Board selecting three projects to fund in the second round. The research projects are intended to build off the results of previous Consortium-funded projects, fill key data gaps, and advance best practices and technologies.

The three projects included in the RFA are:

1. Baseline assessment of social, economic, and cultural impacts of FOW development on Maine’s fishing industry (max \$400,000 budget);
2. Baseline secondary entanglement risk assessment and technology feasibility study (max \$350,000 budget); and
3. Baseline offshore bat monitoring assessment (max \$400,000 budget).

An RFA review panel will evaluate the applications according to the state procurement process in January-February 2025 and GEO intends to make awards in early 2025. Project updates will be posted on the Consortium’s [website](#).

2.6. Research Consortium Funding

GEO has received four funding allocations, each in the amount of \$1,000,000 in General Funds for FYs 2021-2022 through 2024-2025, respectively, a total of \$4,000,000. GEO is efficiently and cost-effectively deploying these funds to advance the objectives of the Consortium. To date, \$3,572,000 of these funds have been allocated or obligated to establish the Consortium with public input; to provide program management; for public education, engagement, and communications activities; and to fund six research projects as identified by the Research Strategy. The Consortium has \$428,000 in remaining funds for FY 2024-2025, which are anticipated to be used for public education, engagement, and communications and additional or expanded research projects. The current budget includes \$1,000,000 that will be available to the Research Consortium at the start of the next FY (July 1, 2025), and the Advisory Board is actively planning for how those funds will be spent.

As described above, GEO published a competitive RFA for \$1,150,000 on November 4, 2024 for three high priority research topics on behalf of the Consortium, which will be awarded in the first quarter of 2025. The RFA budget of \$1,150,000 is considered part of the allocated funds described above.

Table 1: Tables summarizing revenue, expenses and obligations, and remaining Research Consortium funds.

Revenue	Fiscal Years 2021-2024	Fiscal Year 2024-2025	Total
General Fund	\$ 3,000,000	\$ 1,000,000	\$ 4,000,000

Expenses and Obligations to Date	Total
Research and Programmatic Support	\$ 3,572,000

Remaining Funds	Total
Anticipated expenditures include: public education, engagement, and communications; additional or expanded research projects	\$ 428,000

Under PL 2021 Chapter 407 (LD 1619), the Legislature established a non-lapsing Other Special Revenue account to support the Research Consortium. The purpose of this fund is to collect funds from external sources to advance the Research Strategy. To date, no revenue or expenses are associated with this Other Special Revenue account. The Consortium is actively creating a funding strategy that would utilize this fund with leveraged monies in the future.

Ongoing funds, likely from a variety of sources, will be needed hereafter to address operations and the remaining research priorities identified by the Advisory Board and Steering Committee, as well as future priorities to be determined to support the responsible advancement of OSW in the state. The state continues to identify opportunities to leverage funding from external sources (federal, private) toward shared research priorities.

In summary, to date GEO has received \$4,000,000 in General Funds, has allocated or obligated \$3,572,000, and has \$428,000 remaining. GEO and Consortium Advisory Board intend to spend the remaining FY 2024-2025 funds on advancing the Consortium’s research strategy, public education and engagement, and communications. A request has been made for additional funds to be provided in the biennial budget in July 2025. Additional funds from a variety of sources will be needed to further the research priorities of the Consortium and GEO will continue to seek federal funding and explore opportunities to leverage state funding.

3. Consortium Relationship to Broader Floating Offshore Wind R&D Efforts

The Research Consortium's work is actively contributing to national and international research efforts to better understand and reduce the risks and costs of FOW development. This section summarizes other research efforts that the Consortium factors into its research prioritization process to ensure its projects are additive and impactful.

The success of FOW test and demonstration farms, coupled with numerous countries setting commercial scale FOW targets, has led to an increased need for FOW research and development (R&D). The main drivers for these activities are to reduce cost and risk (including possible environmental impacts) associated with developing FOW farms and accelerating the development of technologies that will enable commercial scale build out in a sustainable manner.

There are two main categories of FOW R&D initiatives: (1) technology and commercialization initiatives, and (2) market specific accelerators. From a global perspective, initiatives such as the [Carbon Trust Floating Wind Joint Industry Programme](#), launched in 2016 is dedicated to *'overcoming technological challenges and advancing commercialisation of floating offshore wind from a technology perspective, rather than focusing on a specific market.*

In the U.S. there are a number of market specific initiatives focused on accelerating the U.S. FOW sector specifically, each with differing motivations. At a national level the Department for Energy [Wind Energy Technologies Office](#) (WETO) invests public sector funding in *'wind energy research, development, and deployment activities that enable and accelerate the innovations needed to advance offshore, land-based, and distributed wind systems'* through grant funding calls. Similarly, the [National Offshore Wind R&D Consortium](#) (NOWRDC) is a public-private sector collaborative initiative with an objective to *'prioritize, support, and promote research and development activities that reduce cost and risk of offshore wind development projects throughout the U.S.'* The Maine Offshore Wind Research Consortium is an example of a complementary state level initiative with the objective to *'better understand the local and regional impacts of floating offshore wind power projects in the Gulf of Maine'*.

Key to the success of these initiatives (and therefore acceleration of FOW build out) is collaboration across initiatives. Whereas technology and commercialization initiatives can focus on technology challenges seen as a barriers to the sector as a whole, market specific initiatives can drill down to specific barriers to a given market, support local (or national) supply chain development, and ensure the build out of FOW is beneficial to all key stakeholders within a given community. Identifying co-funding opportunities, sharing knowledge and being open about lessons learned are all ways in which collaboration

across initiatives can be successful. The Maine Offshore Wind Research Consortium facilitates collaboration by having official collaborators, which currently includes state and federal entities and regional organizations. Collaborators are involved through the Consortium's prioritization process to ensure the projects under consideration are additive and complementary to other initiatives. The full list of collaborators can be found in Section 2.2.

Appendix A: List of Surveys Connected to the Maine Offshore Wind Research Array

DMR-led Surveys

1. Seafloor mapping and benthic habitat characterization
2. Bottom trawl survey
3. Active acoustic survey – in partnership with the Gulf of Maine Research Institute
4. Lobster survey
5. Passive acoustic monitoring
6. Plankton and larval lobster survey – in partnership with the University of Maine, the University of Southern Maine, and Bigelow Laboratory for Ocean Sciences
7. Highly migratory species monitoring – in partnership with the University of Maine
8. Visual wildlife survey
9. Oceanographic and sea surface wind monitoring – in partnership with the University of Maine and Woods Hole Oceanographic Institute
10. Modeling of wind wake effects – in partnership with the University of Maine
11. Interviews of fishers on fishing locations and target species over time – in partnership with the University of Maine and the Maine Coast Fishermen’s Association

Non-DMR led Surveys

1. Sea surface wind monitoring – led by Northeastern Regional Association of Coastal Ocean Observing Systems
2. Bird and bat surveys – led by the Biodiversity Research Institute
3. Engaging participatory methods to support community resilience in ocean renewable energy siting – led by the University of Maine and Klima Consulting
4. Exploring co-existence of FOW technologies and fishing activities – led by the Gulf of Maine Research Institute
5. Building a framework to address the economic and social impacts of offshore wind development – led by the Gulf of Maine Research Institute
6. Socioeconomic baseline inventory – Karp Strategies
7. Virtual reality as a tool to gather community perceptions of offshore wind development – led by Colby College