

Overview, Timeline, & Perspectives

The Gulf of Maine is recognized as one of the most productive ecosystems in the world, yet it is [warming faster than the vast majority of the world's ocean](#) and faces impacts from climate change such as sea level rise and ecosystem changes. Given the centrality of this ecosystem to Maine's economy, culture, and heritage, it is important to minimize any negative impacts on this valuable resource. To address the threat of climate change, the New England states that border the Gulf of Maine are pursuing ambitious goals and strategies to both address the drivers of climate change and protect the region's resources for generations to come. A primary objective of these initiatives is the reduction of greenhouse gas emissions to nearly zero by 2050 driven in part by aggressive decarbonization of the region's energy supply. In order to reach our ambitious state and national climate goals, we must introduce new sources of renewable energy. Offshore wind represents the largest source of new renewable energy in our region. Failure to effectively harness the Gulf of Maine's vast wind resource will make it exceedingly more difficult — and costly — for New England to achieve its aggressive energy targets. Capitalizing on this potential will allow New England states to tap into a sustainable and clean energy source, create new jobs, and attract new investment into coastal communities. Moreover, climate impacts are not the only threat to the Gulf of Maine and its surrounding coastal economy. As the region looks to offshore wind as a climate solution, the potential ecological and economic impacts of implementing this new technology must be considered to ensure the shared success of all marine resource users.

The Bureau of Ocean Energy and Management (BOEM), the federal agency tasked with overseeing the development of offshore wind in federal waters, is working to [reach the Biden Administration's goal of 30 gigawatts of offshore wind by 2030](#) — enough to power 10 million homes. BOEM has already administered offshore wind leases to [other coastal regions of the country](#), starting in Rhode Island and including other areas in southern New England. In 2019, New Hampshire Governor Chris Sununu requested the establishment of an intergovernmental offshore wind renewable energy Task Force. BOEM later established the regional [Gulf of Maine Task Force](#), composed of federal officials and Tribal, state, and local officials from Maine, New Hampshire, and Massachusetts. BOEM began its offshore wind leasing process in the Gulf of Maine in 2019 with the [goal of holding a lease sale in 2024 and having operational commercial wind farms by 2030](#).

Brief History

Conversations related to offshore wind in the Gulf of Maine began over a decade ago, but development efforts have fluctuated with shifting political landscapes at the state level. The Gulf of Maine Research Institute (GMRI) initiated its engagement in offshore wind in the mid-2000s by facilitating conversations among scientists, fishermen and other ocean users, state leaders, engineers, and offshore wind experts from across the world to explore the opportunity of offshore wind in the Gulf of Maine. With momentum growing in the region, [former Maine Governor John Baldacci established the Ocean Energy Task Force](#). GMRI Chief Executive Officer, Don Perkins, was appointed to co-chair and support development of the state's initial strategies involving offshore wind.

Offshore Wind Development Process: What comes next?

BOEM holds the authority for offshore wind development in federal waters (extending up to 200 nm offshore through the U.S. Exclusive Economic Zone). Maine, New Hampshire, and Massachusetts play an integral role in the planning process to ensure that stakeholder concerns are shared and considered during BOEM's decision-making process. While each state engages stakeholders differently, the [Maine Offshore Wind Initiative](#) focuses on understanding the concerns of the fishing community, environmental community, and ocean wind supply chain to consider the opportunities and challenges of offshore wind projects off the coast of Maine. The Maine Offshore Wind Initiative led to the [Maine Offshore Wind Roadmap](#) and [Research Array](#). The Roadmap was led by the [Governor's Energy Office](#) and developed by an expert advisory committee with subsidiary stakeholder working groups. This Roadmap informs Maine's many stakeholder groups how to best navigate the federal process to protect resources while capitalizing upon the economic opportunity and clean energy benefits offshore wind can offer.

In other regions, shallower waters allow for the installation of fixed bottom turbines. The Gulf of Maine will be the first in the nation to use floating offshore wind turbines, which can operate in deeper offshore areas with the highest wind potential. The University of Maine Advanced Structures and Composite Center is developing this new technology for the Gulf of Maine by engineering [VolturnUS](#), an innovative floating hull technology that can support wind turbines in water depths of 45 meters or more. Through the Research Array, the state hopes to deploy up to 12 of these floating turbines within the next five years to inform future floating offshore wind projects. This research will address important technological, operational, and ecosystem science questions that are important for the thoughtful advancement of floating offshore wind in the U.S. However, the federal leasing and permitting process will play out before any substantial information is collected from the Research Array, as BOEM is striving for an ambitious goal to deploy operational commercial wind farms in the Gulf of Maine by 2030.

For BOEM to designate areas of the ocean for offshore wind development they use a winnowing process, starting with a broad area of interest. Now through 2024, BOEM will continue to winnow down the area of interest from the Call Area to more constrained Wind Energy Areas by using existing data (e.g., national security, natural and cultural resources, industry and operations, fisheries, and wind logistics) and public comment to inform a spatial model that will guide their lease area decision. This spatial model will identify areas that show the least amount of conflict among a variety of considerations including existing uses, important cultural and natural resource areas, potential wind resource and national security to show where offshore wind development is most suitable. Wind Energy Areas will then be divided into lease areas, a portion of which will be auctioned off to wind developers in late 2024. As BOEM moves through the lease area identification process, there will be periods of engagement between state and federal agencies, wind developers, existing ocean users, environmental nonprofits, labor groups, and other affected constituencies to share knowledge, concerns, and feedback. Each of these entities has differing authorities, regulations, motivations, and roles which introduce a range of potential conflicts and challenges for the region to navigate.

Once the lease areas are established, developers will produce a site assessment and survey plans which also involve periods for stakeholder engagement. After survey and assessment work has been completed, developers will submit a Construction and Operations plan to specify how they plan to build and operate within the area. During this phase, there will be continued stakeholder engagement and dialogue around community impact and fisheries mitigation efforts. A more detailed timeline for offshore wind development is appended.

Varying Perspectives

Given New England's economic, ecological, and cultural interconnectedness with ocean resources, coastal communities — particularly fisheries-dependent communities — are interested in avoiding any risk that floating offshore wind development may bring. Commercial and recreational fishing, aquaculture, recreational boating, shipping, and tourism industries all offer their own vested interests, perspectives, motivations, and knowledge to this process. These communities are concerned about coexistence with new industries, area access, navigation challenges, and uncertainties around the ecological impact of floating wind technology, among other considerations. To realize the opportunity offshore wind development could offer this region, the decision-making process must acknowledge and consider these concerns.

The seafood industry in Maine has an estimated total economic impact of [\\$3 billion annually and supports over 33,300 jobs statewide](#). Perhaps of greater importance than the fishing industry's economic value is the significant cultural importance, as many fishermen are part of families or communities who have been living off the sea for generations. Fishing industry concerns include potential lost access to harvesting grounds, adverse impacts on the marine environment, safety concerns from altered and lengthened navigation routes, the placement of transmission cables within their traditional fishing grounds, and the loss of tangential maritime jobs. As climate change continues to cause ecosystem shifts and changes in species distribution, fishermen are also concerned about the conflict between static lease areas and fluctuating future fishing grounds. Where fishing takes place today may not be where fishing took place last year, or where it may take place next year. Changing regulatory mechanisms also cause shifts in fishing effort within the Gulf of Maine.

Many fishing communities are frustrated by the byzantine nature of the BOEM process and confused about how to engage in something that feels both fast-moving and complex. As the offshore wind development process has played

out in other parts of the country, affected stakeholders have felt their perspectives were inadequately considered, leaving many with the impression that the federal process will not account for the concerns and needs of Gulf of Maine coastal communities. Furthermore, negative experiences associated with federal engagement and regulatory processes around the protection of North Atlantic right whales and other management issues are affecting the fishing community's willingness to engage with and trust in the offshore wind development process.

Many environmental non-governmental organizations (eNGOs) are sharing their perspectives on the development process, including suggestions to avoid development that may impact endangered species, critical habitats, marine mammals, and migratory birds. They are pushing for increased baseline science to be collected prior to development. Many environmental groups are concerned with the lack of existing data regarding the impacts of floating wind, especially with respect to ecosystem dynamics. On the other hand, some pro-wind environmental groups are focused on ensuring enough wind energy areas are put forth to meet each state's renewable energy targets and grow a strong workforce and supply chain around the new industry.

Our Perspective

The Gulf of Maine Research Institute's mission is to develop and deliver collaborative solutions to global ocean challenges. Without a doubt, climate change is the foremost ocean challenge of our time. We believe offshore wind can be a solution to the climate challenge — but process matters, and climate solutions that don't consider the needs of communities aren't solutions at all. Offshore wind may offer immense economic opportunity, including new jobs, investment, and tax revenues. But to realize these opportunities, the development of offshore wind must recognize and respond to the Gulf of Maine's cultural, ecological, and economic significance of coastal communities.

For offshore wind to be a true solution for the region, the complicated development process must include both science-informed decision-making and effective community engagement. This approach necessitates collaboration among local, state, Tribal and federal governments, coastal community members, scientists and engineers, utility companies, and wind energy developers. Constructive stakeholder engagement can minimize and mitigate conflicts that could either harm coastal communities or delay or halt the phased development of offshore wind.

We recognize the complexities and rapid pace of offshore wind development and want to make certain that important community perspectives are not overlooked. A process that includes stakeholders representing their interests early and often, grounded in the best available science, can help the region address the greatest long-term threat to our marine economy: climate change. While at the same time reduce the potential to create unintended consequences for the people and marine resources dependent on the Gulf of Maine.

Our Role & Active Work

GMRI is an independent, non-partisan nonprofit research institute with decades of experience supporting fishing communities to engage effectively in fisheries management and scientific research. Given our interdisciplinary expertise, skills, and relationships with these communities, GMRI is well-positioned to bridge gaps between government agencies, fishing communities, eNGOs and others invested in the responsible development of offshore wind energy in the Gulf of Maine. As outlined in our current [Strategic Plan](#), we will provide all interested constituencies with the best available information about the risks, opportunities, and uncertainties associated with offshore wind development in the Gulf of Maine. Through this approach, we will provide a wide range of stakeholders with unbiased, up-to-date information and resources — equipping them to weigh in on offshore wind-related matters affecting their livelihoods and well-being in a constructive and effective manner. Our activity in this space is summarized below.

Advisory Support

Since 2009, Former GMRI CEO Don Perkins served in various advisory roles for offshore wind development in Maine. Most recently, he served on the Advisory Committee for the Maine Offshore Wind Roadmap, providing guidance to the Governor's Energy Office on their efforts for the advancement of offshore wind development.

GMRI scientists are also informing the relationship between offshore wind development and fisheries in other capacities. Dr. Graham Sherwood, a fisheries ecologist, served on the Environment and Wildlife Working Group of the Roadmap Advisory Committee to identify best practices, data gaps, and research needs to avoid, minimize, or

mitigate impacts of offshore wind on birds, bats, marine mammals, and other protected species and address broader environmental impacts to habitat. Dr. Sherwood also serves on the Advisory Board for the Offshore Wind Research Consortium, which is providing guidance and expertise to shape Maine's floating offshore wind research strategy. Chief Scientific Officer, Dr. Janet Duffy-Anderson serves on the National Academies of Sciences, Engineering, and Medicine Standing Committee on Offshore Wind and Fisheries which provides guidance and advice to BOEM. These appointments have enabled GMRI to offer strategic advice to local, state, and national decision makers based on our expertise as well as serve as a conduit between fisheries and offshore wind development.

Ecosystem and Socioeconomic Research

Our Research Team is partnering with the Maine Department of Marine Resources to conduct baseline marine fisheries and ecosystem surveys at the proposed floating offshore wind Research Array. The goals of this research are to evaluate the impacts of and opportunities afforded by the development of offshore wind on the marine environment. Findings from this work will be used to make recommendations for environmentally responsible development to support coastal communities and advance floating wind technologies.

Additionally, GMRI resource economist, Dr. Kanae Tokunaga, will convene researchers across the region to assess the socio-economic impacts of offshore wind development. This research will quantify the socio-economic impacts of offshore wind development on coastal communities. This information will prepare these communities for constructive conversations about wind-related matters affecting their livelihoods and to influence the decision-making process for responsible offshore wind development.

We will continue to partner with Maine Department of Marine Resources, NOAA, BOEM, academic institutions, the fishing industry, and other marine businesses to design monitoring and modeling activities to be carried out throughout the development process. Additionally, we are continuously exploring avenues to conduct research that characterizes the potential threats and opportunities brought about by offshore wind development in the coastal and marine environments of the Gulf of Maine.

Convening & Knowledge Sharing

Our Community Team will continue to support coastal communities in engaging with the offshore wind development process by providing independent, objective information through workshops, port visits, data and information synthesis, and additional details on engagement opportunities. This work strives to ensure that all interested constituencies have access to the best available information about the risks, opportunities, and uncertainties associated with offshore wind development in the Gulf of Maine. We will leverage and enhance the ongoing engagement opportunities put forth by federal and state governments throughout the phases of development by supporting fishing community members to participate throughout the process.

This work includes science translation, connecting fishing communities with federal decision-makers, and translating fisheries knowledge into data that can be used to inform the site selection process. We will continue to build relationships with these communities throughout all phases of offshore wind development. For example,

- In May and June of 2023, we worked with the Maine Coast Fishermen's Association to facilitate a series of port visits that supported Maine fishermen engaging in the public comment period for the Call Area.
- In July of 2023, we supported BOEM's Summer Transparency Meetings by facilitating additional port visits with fishing communities to build relationships and deepen conversations about modeling and Wind Energy Area designation.

The most equitable form of offshore energy development requires an approach that emphasizes the continued, sustainable use of marine resources and promotes shared success among all users, including the fishing industry. Our work in this space will apply this approach in pursuit of a long-term climate solution that considers and includes the needs of the hardworking communities that depend on the Gulf of Maine for their livelihoods and well-being.