

Fishing Industry Perspectives on the Development of Offshore Wind

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Abstract

The Maine Legislature recently passed LD 1895 to advance the development of offshore wind to meet the state's clean energy targets. This article explores general concerns among commercial fishermen about the potential impacts of offshore wind and identifies some of the mechanisms in place to support Maine's fisheries during this time of critical technological change. First, we trace the history and provide a brief overview of policy and action around offshore wind in Maine. Then we present fishing industry perspectives heard at public hearings and events that were organized to proactively reduce conflicts in marine spatial planning through stakeholder engagement. Fishing industry members raised thoughtful concerns about equity, expediency of planning, the industrialization of the ocean, and ecological impacts of leasing in a dynamic socio-environmental system.

interests associated with blue growth, including dispossession and displacement of traditional ocean users through *ocean grabbing* by large corporate and industrial interests; the undermining small-scale fishers' access to marine resources needed for food security, livelihoods, and well-being; inequitable distribution of economic benefits; and exclusion from the decision-making process, among other concerns (Bennett et al. 2021). Coastal and ocean grabbing is described as a political process grounded in policy choices that permit outside interests to displace local communities of their resource rights and access to marine spaces (Barbesgaard 2018; Bavinck et al. 2017). Such processes often leave

ocean users with feelings of powerlessness, distrust in the planning process, and a general feeling that forces outside their control have already determined their fate.

Other analysts have raised concerns that the rapid growth of the blue economy through industrialization and commercialization of our oceans may outpace any marine conservation efforts or sustainable development goals. For example, Virdin et al. (2021) demonstrated a weak link between ocean governance regulatory frameworks and the fast-paced growth of ocean industries that have been dominated by oil and gas, marine equipment and construction, seafood, container shipping, and cruise tourism sectors. The concentration of political and economic power within a handful of transnational corporations may result in monopolization, privatization of ocean resources, inequitable distribution of benefits from ocean use, and the marginalization of traditional ocean users. The rapid expansion of the blue economy combined with asymmetrical power in the decision-making process is likely to result in the uneven distribution of benefits, risks, and costs, which further underscores the need for responsible planning and development in the new frontier of offshore wind.

INTRODUCTION

In the past 20 years, policy initiatives at state, federal, and global levels have looked to the ocean as a new frontier for developing offshore wind to build a diversified green energy portfolio. For over a decade, the state of Maine has pursued floating offshore wind for its potential to create a more diversified and resilient marine economy through the creation of new jobs in engineering, manufacturing, construction, maintenance, and navigation in Maine and to address global overreliance on fossil fuels (MCC 2020). The legislature passed LD 1895 in July 2023 to authorize offshore wind procurement in Maine and continue the pursuit of responsible offshore wind described in the Maine Offshore Wind Roadmap, which was released in February 2023.¹

Despite the promises of offshore wind to address the nation's energy challenges, some analysts have raised more general concerns about the ways fisheries are sidelined in many kinds of marine spatial planning, even when *blue growth* policies are framed around pro-poor development and climate change (Cohen et al. 2019). A recent paper highlighted 10 social justice issues around competing

Given these global challenges and concerns around competing uses of our ocean commons, it is critical to identify pathways toward a socially just, equitable coexistence among ocean users. On a national level, several researchers have generally observed the slow pace of offshore wind development in the United States compared to other countries due to high capital costs, uncertain federal support, weak supply chains, stakeholder resistance, lack of regional cooperation, and a convoluted permitting and regulatory process divided across different pieces of legislation and leading agencies (Ryan et al. 2019; Firestone et al. 2015). In the state of Maine, the fishing industry has long raised concerns that offshore wind development would result in the loss of fishing grounds, territorial conflicts, increased regulations on fishing gear, and erasure of a way of life e.g., “fishing in these waters for centuries” (Acheson 2012: 51). Yet in the past 10 years, Maine has made many efforts to proactively address these challenges through interagency cooperation and the development of responsible offshore wind, which emphasizes the importance of stakeholder engagement, communication, equity, transparency, data-driven decision making and regional coordination (Maine GEO 2023).

This article reports on preliminary results from our research in collaboration with the Maine Department of Marine Resources (DMR) and the Maine Coast Fishermen’s Association (MCFA).² This project aims to work with fishermen to document current and past uses of the area proposed for the Offshore Wind Research Array and explore how fishermen’s use of the ocean has been changing. Additional goals of the research are to understand concerns held by fishing industry members and to identify the mechanisms in place to support Maine’s fisheries as the planning process for offshore wind development unfolds. It is important to note that Maine is still in the early stages of planning for offshore wind. Therefore, our research may identify opportunities for codeveloping methodologies with fishermen to study the potential social and environmental impacts of offshore wind. In the following sections, we provide an overview of the history of offshore wind development in Maine. Then we thematically present some of the major concerns among fishing industry members we heard over the past year at community outreach and engagement meetings. We conclude with a discussion of challenges and opportunities for finding common ground.

METHODOLOGY

To better understand the trajectory of offshore development in Maine, we conducted a review of published research articles, news articles, and key policy documents. To gain further insight about the data-driven, stakeholder-informed process outlined in the *Roadmap*, one or both authors attended and took detailed ethnographic notes at multiple public meetings in 2023, including a full-day session at the Maine Fishermen’s Forum on offshore wind presented by the Bureau of Ocean and Energy Management (BOEM) and NOAA Fisheries (March); the Intergovernmental Renewable Energy Task Force (May 10–11); the public hearings on LD 1895 in the legislature (June); two of the BOEM community spatial-modeling meetings that were held in multiple locations (July),³ the AFLOAT conference that brought together scientists, engineers, and industry leaders (September 26–27); three of the BOEM Draft Wind Energy Areas meetings (November 1–3), and three Offshore Wind Research Consortium meetings.⁴ These efforts resulted in more than 100 combined hours of ethnographic observations between both authors. While we listened and took notes on a range of diverse stakeholder perspectives, the scope of this article is focused on the concerns voiced by fishing industry members. As noted by Acheson and Acheson (2016), fishermen have been the most vocal groups to voice their concerns about the potential unintended consequences of offshore wind.

Given the exploratory nature of our research approach, the themes we identified in our preliminary analysis are not meant to be a comprehensive overview of all the issues nor representative of the entire fishing industry. We acknowledge that the views highlighted in the following sections reflect those select stakeholders who have the passion and the resources to show up to these meetings and events to share their perspectives on offshore wind and concerns about its potential impacts. Further, the scope of our research is confined to the areas that will be affected by the offshore wind research array, a 12-turbine test site expected to be connected to the grid and commercially operational by 2028 (Hoey 2023). Our approach has allowed us to become familiar with data gaps and general stakeholder concerns, which will inform subsequent phases of our research in the coming months. Our research project will ultimately provide a record of use of areas within and around the research array, and lay some of the groundwork for developing methodologies to study the

distribution of risks and benefits associated with offshore wind in the Gulf of Maine.

EVOLUTION OF POLICY AND ACTIONS

Foundations of Offshore Wind Development in Maine

The state of Maine has been working to advance clean energy initiatives since 2003 when the legislature passed the Maine Wind Energy Act, which aimed to streamline the permitting process to encourage the development of various wind projects. Composed of state representatives, scientists, researchers, and legal experts, the Maine Ocean Energy Task Force was launched in 2008 to identify potential obstacles and offer solutions to these challenges. In their final report to then-Governor John Baldacci, the task force noted that Maine was well positioned to become a national leader in offshore wind. One of their most urgent recommendations was a “rationalization, acceleration and coordination of the ocean energy permitting process on the federal level... for a more coordinated, timely, and predictable process” (MOETF 2009: v). Floating technology was targeted since fixed-foundation wind infrastructure is difficult to deploy in water depths greater than 60 meters, which the Gulf of Maine surpasses in offshore areas (James and Costa Ross 2013). Shortly after, researchers at the University of Maine’s Advanced Structures and Composites Center began developing floating offshore wind technology suited for Maine’s unique marine environment.

By 2009, the Maine State Planning Office began holding pre-scoping public meetings led by facilitators from nongovernmental agencies, government agencies, and research institutions such as the University of Maine, Gulf of Maine Research Institute, Maine Sea Grant, and Herring Gut Learning Program. These pre-scoping meetings engaged fishermen, land trusts, and island communities in the process of identifying potential test sites for the floating technology (Hall and Lazarus 2015). Several of the organizations leading this process were members of the DeepCwind Consortium, which was made up of more than 20 public and private collaborators including a range of research institutions, nonprofits, offshore wind industry leaders, Maine’s major building companies (Cianbro and Bath Iron Works), and firms with expertise in wind project siting, environmental analysis, environmental law, and energy investment (Acheson and Acheson 2016). The private company, Maine Aquaventus GP LLC was formed to develop a proposed

11-12 MW pilot demonstration farm off Monhegan Island. A Norwegian company named Statoil was involved for a short time before it announced its departure to develop a floating offshore wind farm in Scotland due to “uncertainty around the commercial framework and schedule implications of project delays” (Acheson and Acheson 2016: 164). Meanwhile, at the national level, BOEM established wind energy task forces composed of local, state, and federal partners to identify wind energy areas and attempted to reduce the complexity of the application process in 2010 (Ryan et al. 2019).

In 2011, researchers from the University of Maine’s Advanced Structures and Composites Center engaged four coastal communities to discuss the proposed 1/8-scale research turbine and long-term study plans (Hall and Lazarus 2015). By 2013, the single-turbine floating structure, New England Aqua Ventus demonstration project was plugged into the electricity grid and field-tested in Castine. A plan was in place to tow the structure out to sea and then test it in the open waters off Monhegan Island (Tukel 2013). The New England Aqua Ventus, LLC, a joint venture between Diamond Offshore Wind (a subsidiary of Mitsubishi) and RWE Renewables, was set to advance the 12 MW demonstration project off Monhegan Island.⁵ However, these efforts may have been stymied by difficulty finding an appropriate port for deployment, the perception that the project has become “too large, complicated and expensive” and new proposals to advance the development of the 12-turbine Offshore Wind Research Array (Tukel 2023). Our informal conversations with various stakeholders at public meetings suggested there were low levels of transparency around the Monhegan project and a general sense among fishing industry members in particular that fishermen’s voices were not being heard, which has led to an erosion of trust among fishing industry members in the planning process and may feed into the general areas of concern we summarize later.

Scaling Up: The Offshore Wind Research Array

In 2019, the Maine Offshore Wind Initiative was launched by the Mills Administration.⁶ During the first Gulf of Maine Intergovernmental Task Force meeting organized by the BOEM in December of 2019, participants identified the need for a fisheries working group supported by fishermen, processors, dealers and community members.⁷ The Offshore Wind Roadmap called on state and federal agencies to actively engage Maine’s fishing industry in the early

stages to ensure their voices are included to promote “open, transparent, and comprehensive research and data gathering” while protecting the environment and preserving Maine’s economy, traditions, and culture (Maine GEO 2023: 8).

In response to calls for a close and continuous collaboration with the fishing industry, the DMR conducted extensive outreach efforts with fishing industry leaders throughout the winter of 2020 and 2021 to share information and solicit feedback on a proposed 10- to 12-turbine research array to be deployed in federal waters approximately 30 miles offshore. To identify a narrowed area with the least potential conflict that would serve as a test site, the DMR relied on data from public data portals, landings and economic data from NOAA, meetings with state and federal partners, zone councils, commercial fishermen, recreational fishermen, industry leaders, fishing organizations, and members of the public. The department also gathered new information from surveys ($n = 159$) and 30 interviews with fishermen (Maine DMR n.d.: 22). The report concluded that none of the areas within the Gulf of Maine would completely avoid conflict, but that conflicts might be reduced by working closely with area fishermen throughout the planning process and prior to submitting the application for the federal lease. It further noted the need to engage a wider audience since participation was limited due to general challenges of the pandemic and online communication.

In October 2021, the Governor’s Energy Office submitted a federal lease application to establish the research array of 10–12 turbines located about 30–40 miles offshore in the Gulf of Maine in an area identified as having comparatively lower conflict with ocean users and resources than other areas. The Maine research array will serve as a test site for the new floating offshore wind technology before scaling up of commercial operations, and the interactions between the turbines, the fishing industry, shipping, navigation routes, and the environment will be studied.⁸

The Maine Legislature established the Maine Offshore Wind Research Consortium in 2021 to guide the processes of researching interactions with floating offshore wind infrastructure in the Gulf of Maine (Maine GEO 2023). The advisory board of the research consortium, which was formed in 2023, is made up of Maine fishing industry members who represent commercial and recreational harvesting interests, scientists from private and public research institutions, the offshore wind industry

representatives, public officials from coastal communities, representatives from Maine-based environmental groups, and officials from state agencies. Since their first meeting in February 2023, the Offshore Wind Research Consortium Advisory Board has been identifying priorities to define a research agenda, methodologies, frameworks, and implementation strategies that would minimize impacts on the ecosystem and conflicts among ocean users.

Meanwhile, as the process of stakeholder engagement in the research array is underway, BOEM began their own process of stakeholder engagement for the siting of commercial leases. First, they offered a full day information session in collaboration with NOAA Fisheries at the Maine Fishermen’s Forum in March 2023. Then from May 10–11, BOEM held a Gulf of Maine Intergovernmental Meeting, a public forum to discuss potential issues and concerns, as well as to exchange data and information about ocean resources and uses. These events offer opportunities for BOEM to solicit comments from the public, industry groups, interagency task forces, and federal, state, and local governments to identify suitability and areas of least conflict after a long process of whittling down from a large call area (Ryan et al 2019). During July 2023, BOEM and NOAA held multiple community meetings in Portland, Ellsworth, Rockport/Belfast, Portsmouth, New Hampshire, and Plymouth, MA to learn from members of the fishing community and to reduce conflict.

Moving floating offshore wind energy from the planning stage into the water has required significant coordination between state and federal agencies, and various discussions around offshore wind are happening independently and concurrently at local, state, and federal levels (Table 1). As a result, stakeholders, and many fishermen in particular, have expressed feeling overwhelmed and concerned about the pace of the planning process, particularly by the calls from federal agencies to identify areas of least potential conflict for commercial leasing before the test sites within the research array have been established.

CHALLENGES AND CONCERNS AMONG FISHING INDUSTRY MEMBERS

The concerns voiced by fishermen and fishing industry advocates at public meetings are vast and varying, and include anything from ecological impacts to the siting process itself. Our aim is neither to substantiate nor refute these arguments. Rather, we hope our compilation of these

TABLE 1: Summary of Offshore Wind Initiatives

Date	Policy	Description
2003	Legislature passes Maine Wind Energy Act	Aimed to streamline the permitting process to encourage the development of various wind projects
2008	Maine Ocean Energy Task Force launched	Identify potential obstacles and offer solutions to challenges posed by offshore wind
2009	Maine State Planning Office holds pre-scoping public meetings	Identify potential test sites for the floating offshore wind technology. Meetings were led by facilitators from NGOs, government agencies, and research institutions
2010	BOEM establishes Wind Energy Task Forces composed of local, state, and federal partners.	Identify wind energy areas (WEA) and reduce the complexity of the application process
2019	Maine Offshore Wind Initiative	Launched by the Mills Administration
2019 December	BOEM hosts first Gulf of Maine Intergovernmental Task Force meeting	Identifies the need for a fisheries working group supported by fishermen, processors, dealers and community members
2020–2021 Winter	DMR conducts extensive outreach efforts with fishing industry leaders	Share information and solicit feedback on a proposed 10-12 turbine research array
2021 October	Governor's Energy Office submits federal lease application to establish Maine Research Array	The research array of 10–12 turbines located about 30–40 miles offshore will serve as a test site of the floating offshore wind technology before scaling up of commercial operations .
2021	Legislature establishes Maine Offshore Wind Research Consortium	To guide the processes of researching interactions with floating offshore wind infrastructure in the Gulf of Maine
2023 February	Governor's Energy Office releases Maine Offshore Wind Roadmap	Comprehensive plan that offers detailed strategies for Maine to realize economic, energy, and climate benefits from offshore wind
2023 January–June	BOEM develops draft Wind Energy Areas (WEAs) that will be open for commercial leasing	The process of stakeholder engagement includes community meetings and public comment period from April–July 2023
2023 September–November	BOEM revises draft WEAs	Draft WEAs released in November
	state-led initiatives	
	federal-led initiatives	

concerns will promote thoughtful research and discussions and, in turn, contribute to the identification of common ground on which future planning and decision-making can be based.

Ecology of a Dynamic Socio-Environmental System

The fishermen present at many public meetings have indicated that their generational knowledge of the Gulf of Maine provides a foundation for their concerns. As self-expressed stewards of the ocean, fishermen assert that they are well positioned to comment on and maintain the health of the ocean's ecology. Industrialization of the ocean might alter its environment, and there are a number of risks to

consider before initiating such large-scale projects. In particular, the siting of turbines may negatively affect marine and avian life. Potentially harmful impacts include effects from electromagnetic waves emitted from cables on spawning or cetacean communication; disturbance of toxic materials currently inert in the ocean bottom; whales, and particularly the endangered right whale, which may become entrapped in cabling or mooring lines; disruption of avian migration patterns; and disturbance of coral habitats. Many of the fishermen who offered public comments stated some variation of concerns about the disruption of the Gulf's ecology as some of the most productive ecosystems in the world. Concerns about the industrialization of our shared oceans

has been viewed as a threat to fishermen's stewardship and their cultural heritage.

Many of these comments arose at a BOEM meeting aimed at narrowing a section of the Gulf of Maine to determine the best location for turbines. Using GIS, BOEM and NOAA have created a *suitability map* that depicts the various socio-ecological factors that make an area appropriate (or not) for siting floating offshore wind turbines. While discussing the suitability map at one of the BOEM community meetings in July, one fishing industry representative pointed out that a place identified as suitable today may not be suitable in 10 years.⁹ At a different meeting, another fisherman commented on the time that BOEM has invested in studying the history of the Gulf and its ecology. He remarked, "the period of time that BOEM looked at this from 2008 to 2016 is taking history out of context.... It gets distorted in a short period of time. You have to look at the whole picture of the history of the Gulf of Maine."¹⁰ Many comments about the ecology and environment echo the perspective of many other stakeholders who voiced their concerns that more time is required to better understand the past and current ecology of the ocean.

Trust, Transparency, and Time in Knowledge Co-Production

Gathering data to capture the long-term dynamics of the socio-ecological system will provide baselines to compare future changes and disruptions and fill gaps in knowledge about what factors can or cannot be attributed to offshore wind development. Equally as important, a slower process of co-producing knowledge about the historical ecology of the Gulf would provide more time to build rapport between scientists and the fishing industry and, in turn, promote the collaborative process that is required to gather the data necessary to responsibly site offshore wind.

Many fishing industry members agree there is too little data to justify such quick advances in the siting process. Currently, BOEM and NOAA scientists are using the best available data and science to establish an area of least conflict for siting the turbines. They are also requesting that fishermen share their experiential knowledge of the marine environment to fill data gaps and address uncertainties. However, we have observed a reluctance among fishermen to openly share their proprietary information due to concerns about transparency or in general protest. Questions about what will be done with the information are repeatedly asked.

While scientists and government officials have made many efforts to listen to fishermen's voices and concerns, these meetings have revealed a number of fundamental challenges associated with engaging fishermen in the process of advancing an industry they generally oppose.

Equity Issues

Throughout our research process, we have heard two major concerns around equity issues. The first reflects a sentiment observed in comments raised at the Maine Fishermen's Forum and the Offshore Wind Research Consortium meetings. Fishermen are "expected to have all their cards on the table" while developers are not. In the words of one fishing industry representative, "we are told the technology [of offshore wind] is evolving...we don't know what these anchoring systems are going to look like or how they're going to interact with our gear. Yet we know everything about our gear and how the different fisheries interact with each other.... During shrimp season, we move our (lobster) gear, but shrimpers don't get a 30-year lease."¹¹ This sentiment reflects concerns over the asymmetrical power relations in the process of the marine spatial planning and the allocation of authorized ocean uses that could lead to the consolidation of power in the hands of a few developers (Virdin et al. 2021) despite scientific uncertainty around how floating offshore wind technology will interact with fishing gear.

A second equity issue has emerged in our meeting notes: not all fishermen can afford to sacrifice their time on the water to be present throughout this process to ensure their voices are heard. Members of Maine's fishing industry are typically small business owners who own the boat and permit and also operate the enterprise daily. Their work schedule makes it challenging and costly for fishermen to engage in the meetings related to offshore wind development. As one fishing industry representative noted at the Gulf of Maine Intergovernmental Meetings in May, "the speed at which this process is moving is putting those small businesses at a severe disadvantage and is something BOEM should strive to create space and opportunity for greater equity."¹² While some industry representatives can participate as political actors, they often lack the legal expertise, which carries implications for rights over ocean space. These issues raise questions about how our regulatory and legal frameworks can make the process of marine spatial planning more equitable across sectors. Such issues have further exacerbated a general sense of skepticism about the commitment

of federal agencies to building trust and meaningful participation among fishing industry members.

Misaligned Timelines in Expediency of the Process

As demonstrated by the themes and content of the *Roadmap*, the state of Maine is aware of the challenges that offshore wind development will present to the state's fishing industry and has been making significant efforts to remedy negative potential outcomes. Despite these efforts, concerns voiced by fishermen highlight their distrust in the process and those who have designed it. The aforementioned concerns surrounding a lack of data and the unknown ecological consequences of this development speak to the limited amount of time that has been dedicated to gathering baseline data, consulting those with local ecological knowledge, and identifying all possible effects of offshore wind development in the Gulf of Maine. Fishermen have repeatedly questioned why the development process has been slated to move so quickly when there are countless uncertainties left unaddressed.

As the governmental agency in charge of planning offshore wind development in Maine and throughout the rest of the United States, many of these comments and concerns are targeted at BOEM. There is a perception that the timeline presented by BOEM for commercial leasing does not align well with the time required to fulfill the *Roadmap's* goals of promoting stakeholder engagement, equity, or data-driven decision-making. Throughout the planning process, fishermen and other stakeholders have insisted that more time is required to clarify remaining uncertainties. Criticisms related to time are often voiced during public comment periods even if they take shape in various ways. Some fishermen have questioned why the timeline to develop the research array, a test site meant to observe and understand the effects of turbines in the Gulf, coincides with the timeline for a commercial lease sale. This schedule leaves little time to study and understand impacts at the test site before they are scaled up for commercial production. That is, the outcomes of offshore wind development will only be observable after a commercial lease has already been sold to a developer.

CONCLUSION: PATHWAYS TO FINDING COMMON GROUND

We have explored the history of development and documented some of the concerns raised at public

meetings around (1) the overall disruption of a socio-ecological system; (2) trust and transparency around data deficiencies; (3) equity in the decision-making process and allocation of leases; and (4) expediency. These concerns did not go unheard or unnoticed, as evidenced by the recent release of the draft wind energy areas, which represent a 64 percent reduction from the original call area.¹³ Despite these efforts, general skepticism persists that the fishing industry will suffer unintended consequences. It is clear that many fishing industry members are still concerned about the implications of declining lobster stocks and the data gaps around siting turbines and the cables that may interfere with critical habitat and spawning grounds for redfish, haddock, and scallops (Berleant 2023).

The concurrent rolling out of commercial leases before the research array is established as a test site contributes to the general sense of anxiety and concern that fishermen will be “wiped off the map.” Siting a wind farm in the Gulf of Maine will inevitably lead to loss of fishing grounds for some fishermen. It is not possible for a fishermen to simply relocate to another fishing ground as it may lead to more conflict with other fishermen. Based on our observations, there seems to be some solidarity among fishermen and caution around identifying areas of least potential conflict that are regularly used by another fisherman. For BOEM officials and other proponents of offshore wind, the issue of displacement is typically framed as a tradeoff in which new jobs will be created to support the wind industry. However, many fishermen take pride in their hardworking ethic as self-employed owner-operators whose family has been in fishing for generations. Fishing is part of the identity of many fishermen who have little interest in leaving the fishing industry to be employed by other jobs. As noted by one coastal resident, “There are no subsidies great enough to compensate for changing the entire coastal region forever” (Berleant 2023). Unlike other cultural contexts where community or joint ownership models offer more than a one-time compensation (Warren and McFayden 2010), there is a general fear that displacement of the fishing industry is on the horizon while the benefits will go to commercial offshore wind developers. Despite these concerns, however, it is important to note that the development of floating offshore wind in Maine is still in the early stages, and policies may be subject to change in the coming years.

As our world's oceans increasingly contend with the cumulative impacts of pollution and climate change

(Halpern et al. 2019; Pershing et al. 2021), many scientists and policymakers agree that mitigation technologies and strategies are urgently needed. Offshore wind represents a technological solution to address the challenges of climate change, as well as opportunities to develop a lucrative frontier of Maine's blue economy and opportunities to advance equitable blue growth. This anticipated blue growth is not without its challenges. State and federal agencies recognize the value of research with fishermen to identify areas of least potential conflict in both the development of the Offshore Wind Research Array and the commercial leasing process. However, concerns raised by fishermen in these public meetings suggest that more time is needed to build trust among stakeholders to nurture research partnerships that can deepen our understanding of the transformative impacts offshore wind will have on our shared ocean and coastal communities. Finding common ground will not only require clarity around the differences, scope, and scale of these projects, but also a deliberate process of stakeholder engagement that involves a two-way conversation between fishing industry leaders and developers and regulatory agencies.

ACKNOWLEDGMENTS

This project is supported by the Maine Department of Marine Resources (DMR), Contract #: 13A 20221212000000001647.

NOTES

- 1 <https://www.maine.gov/energy/initiatives/offshorewind/roadmap>
- 2 MCFA is a nonprofit organization that "advocates for the needs of community-based fishermen and the environmental restoration of the Gulf of Maine <https://www.maineoastfishermen.org/>."
- 3 The goal of these meetings was to invite feedback and "on-the-water knowledge from the Gulf of Maine Fishing Community" to inform the spatial models developed by BOEM and the National Oceanic and Atmospheric Administration's National Centers for Coastal Ocean Science. The spatial models will be used to define the draft Wind Energy Areas. For more information about this process, see <https://www.boem.gov/renewable-energy/state-activities/maine/gulf-maine>.
- 4 See also Hall and Lazarus (2015) for a similar methodological approach during the implementation of the VoltunUS 1/8 Scale test site at Castine.
- 5 <https://umaine.edu/news/blog/2020/08/05/diamond-offshore-wind-rwe-renewables-join-the-university-of-maine-to-lead-development-of-maine-floating-offshore-wind-demonstration-project/>
- 6 The Maine Offshore Wind Roadmap summarizes 18 months of around 80 public sessions and meetings among the 24 advisory board members and the four working groups: (1) fisheries; (2) environment and wildlife; (3) renewable energy markets and

strategy; and (4) the supply chain, workforce, ports and marine transportation group.

- 7 <https://rodafisheries.org/portfolio/gulf-of-maine-osw/>
- 8 <https://www.maine.gov/energy/initiatives/offshorewind/researcharray>
- 9 Comment heard at the BOEM Community Meeting in Ellsworth.
- 10 Comment heard at the Gulf of Maine Intergovernmental Renewable Energy Task Force Meetings, May 10–11, 2023.
- 11 Opinion voiced by a lobsterman at one of the Offshore Wind Research Consortium meetings.
- 12 Comment heard at the Gulf of Maine Intergovernmental Renewable Energy Task Force Meetings, May 10–11, 2023.
- 13 On October 19, 2023, BOEM announced a Draft Wind Energy Area (Draft WEA) in the Gulf of Maine and an accompanying a 30-day public comment period. The Draft WEA covers approximately 3,519,067 acres offshore Maine, Massachusetts, and New Hampshire, ranging from approximately 23 to 120 miles off the coast. <https://www.boem.gov/renewable-energy/state-activities/maine/gulf-maine>

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