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Maine and Offshore Wind Development: Using the Coastal Zone Management Act and Marine Spatial Planning to Influence Projects in Federal Waters

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Maine and Offshore Wind Development:

Using the Coastal Zone Management Act and Marine Spatial Planning to Influence Projects in Federal Waters

by Mary E. Morrissey

Abstract

Federal and state governments have developed ambitious goals for offshore wind projects. While Maine wants to take part in this trend, it has passed a moratorium on offshore wind projects in state waters. Considering this ban, pressure to develop offshore wind energy, and potential impacts of such projects on local ecology and habitats, Maine needs to develops a strong voice in offshore wind projects in federal waters. This article looks to Rhode Island to show how Maine can participate in decisions about offshore wind development and compares Maine's current offshore wind efforts and potential for marine spatial planning to Rhode Island's. The article also proposes short- and long-term actions to guide Maine's development of the offshore wind industry in federal waters.

In April 2021, the Biden Administration called for the United States to achieve net-zero emissions by 2050 (The White House 2021). The administration later revealed plans to scale up offshore wind projects and deploy 30 gigawatts of offshore wind energy by 2030 (US DOI 2021). To help meet these ambitious goals, the Bureau of Ocean Energy Management (BOEM) plans to sell up to seven new offshore wind leases by 2025 in designated areas in US federal waters, including the Gulf of Maine (BOEM 2021). About two weeks after BOEM's announcement, the Mills administration applied to BOEM for a 15.2-square-mile area lease in the Gulf of Maine for the nation's first research site for floating offshore wind in federal waters. According to the Governor's Energy Office, this research array is one part of Maine's plan to "fight climate change, promote renewable energy, and reduce dependence on fossil fuels" through offshore wind and other energy sources.[1]

While Maine demonstrates a commitment to offshore wind, all development must occur in federal waters, as Governor Mills agreed to a legislative ban on offshore wind projects in state waters to allay fishermen's concerns about the effects of such projects on their livelihoods (LD 1619, § 3405). Considering this ban, BOEM's lease sale, and state and federal renewable energy goals, the question becomes, How can Maine influence the siting of offshore wind projects and the conditions under which such projects can develop in the Gulf of Maine? The answer to this question is critical to Mainers and has potentially significant consequences for Maine's maritime interests and economies.

This article examines the potential role that federal consistency review and marine spatial planning can play in this process. The article describes Rhode Island's use of its coastal management plan as a model for offshore wind development in federal waters and then compares Maine's current offshore wind efforts and potential for marine spatial planning with Rhode Island's. Finally, it recommends specific short- and long-term actions that Maine can use to influence offshore wind development in federal waters of the Gulf of Maine considering recommendations generated through the Governor's Energy Office offshore wind roadmap process. These recommendations include

- adopting enforceable policies related to offshore wind into the coastal management plan,
- developing strategic partnerships and signing memoranda of understanding with neighboring states,
- expanding upon current offshore wind efforts to allow for more meaningful public engagement and more robust research efforts, and
- adopting and codifying a marine spatial plan that extends into federal waters.

BACKGROUND

Federal Consistency Review and Coastal Management Plans

Congress passed the Coastal Zone Management Act (CZMA) in 1972 to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." The CZMA encourages states to develop and implement management programs for the land and water resources of the coastal zone. States voluntarily participate in the CZMA by creating their own coastal management plans, which are uniquely designed to "best address their coastal challenges and regulations" (16 U.S.C. § 1452(1)). Pursuant to the CZMA, federal consistency review mandates "that federal actions that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone…be consistent with the enforceable policies of a coastal state's federally approved CMP [coastal management plan]" (OCM 2020: 4). The National Oceanic and Atmospheric Administration (NOAA) administers the program, which gives states "extensive authority over projects implemented beyond the coastal zone if they impact any aspect" of their coastal zones (Perkins 2018: 267–268).

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Coastal management plans include various policies involving ocean resources, energy, ports and harbors, and protected areas (Massachusetts OCZM 2011). They may also include site assessment management plans (SAMPs) that specifically call out and protect unique habitats and species of concern. Notably, both Rhode Island and Maine participate in the CZMA and have their own coastal management plans, but only Rhode Island has designated a SAMP.

Marine Spatial Planning

Marine spatial planning is a public, sociopolitical process that aims to manage human activities to achieve predetermined outcomes (Ehler et al. 2019). The process promotes "a more rational organization of the use of the marine space and the interactions between its uses, to balance demands for development with the need to protect marine ecosystems" (Ehler and Douvere 2009: 18). Essentially, marine spatial planning allocates human activities to certain marine areas by objective or specific uses. It does not replace single-sector planning, such as offshore wind permitting, rather it provides contextual information for the management of protected marine areas. Marine spatial planning provides environmental, economic, and social benefits. The process identifies areas of ecological concern, allocates space for conservation efforts, reduces conflicts between users, increases certainty regarding access to desirable areas for investments, promotes efficient use of resources and space, and protects cultural heritage.

Marine spatial planning, however, has five main challenges. First, since governments have responsibility for ocean planning, marine spatial planning cannot be effectively carried out without legislative and regulatory efforts (Santos et al. 2021). Second, to produce an innovative, long-term plan, stakeholder engagement must occur early and often. If the process ignores stakeholders until the final stages or limits their engagement to public comment, then it will be difficult to achieve stakeholder acceptance and adoption of the plan. Relatedly, because marine spatial planning is largely a social process, resource-rich interest groups can co-opt the process to the disadvantage of minority stakeholders, particularly those with limited political power or socioeconomic means to organize. Third, marine spatial planning often engages multiple administrative entities and overlaps with regional, local, or other strategic plans, policies, and laws. Integrating all the dimensions of a plan "requires collaboration and coordination——and with this, understanding of the specific enablers and barriers to both" (Ehler et al. 2019: 16). Fourth, errors in plan design and implementation can negatively impact support of the planning process, which reduces efficiency. Additionally, properly engaging various stakeholders can also slow down the process as it requires mitigating conflicts, encouraging compromise, and weighing various viewpoints. Fifth, marine spatial planning could slow offshore wind development. A marine spatial plan may require more coordination to avoid conflicting ocean uses and may not necessarily structurally support the fast-tracking of wind projects. Overall,

however, marine spatial planning is gaining traction around the world, and Rhode Island's Ocean SAMP is an example of a successful marine spatial plan that Maine may want to consider.

RHODE ISLAND'S OFFSHORE WIND PLANNING

By effectively using its coastal management plan and marine spatial planning to develop an Ocean SAMP, Rhode Island's jurisdiction and spatial governance can reach into federal waters and the state has veto power over federal installations. Therefore, if a proposed federal project conflicts with Rhode Island's Ocean SAMP, the federal agency cannot approve the project in question. The Ocean SAMP also "streamline[s] energy permitting requirements across jurisdictional boundaries" (Higgins and Busch 2015: 185–186).

Conceiving and Defining the Ocean SAMP

In January 2006, Rhode Island Governor Donald Carcieri announced a goal of harnessing 15 percent of the state's electricity from wind within a span of three years. (Rolleri 2010: 241), Partly in response to this goal, Grover Fugate, the former executive director of the Rhode Island Coastal Resources Management Council, conceived of the Ocean SAMP (Smythe et al. 2016). Fugate noticed that there was little data on the offshore environment, and the public had little say in any shared vision of this environment. Fugate further recognized concerns with the governor's existing public input process, which included four stakeholder meetings hosted by a consultant. Considering the public discontent and complications over the Cape Wind offshore wind farm in Massachusetts, Fugate believed strong stakeholder input and proactive planning was necessary to develop offshore wind projects responsibly (Love 2014; Smythe et al. 2016). Fugate's idea led members of the council, the University of Rhode Island (URI)'s Coastal Resources Center, the Rhode Island Sea Grant College Program, as well as other URI scientists to develop comprehensive planning, research, and stakeholder processes that would become the Ocean SAMP.

The Ocean SAMP is a regulatory document (R.I. Gen. Laws § 46-23-6 (2019); 650-20-05 R.I. Code R. § 11.10), made up of three integrated approaches: research, policy making, and public engagement. It maps a portion of Rhode Island's state and surrounding federal waters to identify how to use this region and manage its resources to support the state's environmental, social, and economic needs. It also specifically details potential effects on existing uses and resources in the Ocean SAMP area, including impacts on port development and job creation, electricity rates, coastal processes and physical oceanography, marine mammals, and commercial and recreational fishing. This information is essential to mitigate any potentially harmful impacts of offshore wind on persons, oceanic species, and habitats.[2] Ultimately, the Ocean SAMP was one of the first marine spatial plans in the nation and "laid the groundwork for the siting and permitting of the nation's first offshore wind farm" (Smythe et al. 2016: 1).

> ...Rhode Island's jurisdiction and spatial governance can reach into federal waters and the state has veto power over federal installations.

Geographic Location Description

In 2010, the Coastal Resources Management Council approved the Ocean SAMP, giving it the force of law. A year later, NOAA approved the Ocean SAMP as part of Rhode Island's coastal management plan, which meant that federal actions that have reasonably foreseeable effects on Rhode Island's coastal zone must undergo federal consistency review to ensure they do not conflict with the Ocean SAMP. However, its adoption only ensured that federal actions or activities that impacted *state* waters were consistent with Rhode Island's coastal management plan. To extend the policies of the Ocean SAMP 27 nautical miles beyond the state's 3-nautical-mile jurisdiction boundary, Rhode Island took the novel approach of applying for a geographic location description.

A geographic location description is an area within federal waters where federal actions have reasonably foreseeable effects on a state's coastal uses and resources. Projects within the geographic location description are automatically subject to federal consistency review. The geographic location description shifts the burden of federal

consistency review from the state—which would otherwise need to continuously monitor whether federal actions are consistent with its enforceable policies and request reviews—to federal agencies. In Rhode Island's case, federal actions that occur within the federal waters of the Ocean SAMP must be consistent with it and other enforceable policies of Rhode Island's coastal management plan. Federal agencies must inform the Coastal Resources Management Council of those federal actions, and the council has the right to review such actions to ensure they comply with Rhode Island's coastal management plan.

NOAA approved the geographic location description as part of the Ocean SAMP in late 2011. This approval was a critical step in expanding Rhode Island's jurisdictional reach. Fugate said of the geographic location description:

> [It] is the *first of its kind* in the state and the nation, and allows the CRMC to have a voice in what kind of offshore development takes place in the federal waters off Rhode Island's coast....This tool will work as a major component of the Ocean SAMP, and both will help further Rhode Island's role as a model for other states in marine spatial planning.[3]

Members of the Ocean SAMP team found that having a marine spatial plan—namely the extensive, high-quality data that accompanied it—was essential in receiving the geographic location description. The council was able to use the research performed by URI scientists to demonstrate how federal activities, including offshore wind, would affect the resources and uses of Rhode Island's coastal zone. Finally, creating the Ocean SAMP required that the Coastal Resources Management Council and leadership cultivate close relationships with federal agencies that ultimately would be affected by the geographic location description. Federal agencies had regular input on the Ocean SAMP and were aware from the beginning that council intended to pursue a geographic location description; thus, the agencies were prepared to participate in and sign off on it.

Strengths of the Ocean SAMP

Beyond its effective use of the CZMA and marine spatial planning, the Ocean SAMP has five other strengths and implementable strategies that Maine might find useful:

1. conceptual benefits
2. tangible goals and guiding principles
3. strong university engagement and research
4. extensive stakeholder and public engagement
5. adequate funding

From a conceptual standpoint, there are several benefits to using an Ocean SAMP model. First, Rhode Island's Ocean SAMP is consistent with the CZMA's requirements and "enhances the possibilities for collaboration and cooperation between and among local, state, and federal agencies and stakeholders" (Burger 2011: 10612). Second, the Ocean SAMP model allows states to better tailor offshore wind projects to their local socio-political and environmental landscapes. Third, from a federalist point of view, the model champions experimentalism, allowing states that support clean energy to more freely pursue scientific and regulatory experimentation. Additionally, developing an Ocean SAMP would ensure that offshore wind projects in affected areas had scientific support. The Rhode Island Ocean SAMP required extensive studies and preparation. This information is available to stakeholders, such as developers proposing offshore wind in the area, which encourages responsible siting decisions.

The Ocean SAMP had clear goals and guiding principles that served as a foundation for the project:

- fostering a functioning, ecologically sound, and economically beneficial ecosystem,
- building a framework for coordinating the decision-making process for state and federal management agencies, and
- establishing a monitoring and evaluation process that supports adaptive management (McCann and Schumann 2013).

These goals and principles particularly capture the management team's desire to be flexible and to continually improve their policies and practices in relation to changing data. Additionally, the team strived to make their process easily understandable and available to the public, as evidenced by the extensive public meetings and robust stakeholder process.

University engagement was evident in the major role that URI, specifically the Coastal Resources Center, played in implementing and developing the Ocean SAMP. URI scientists and other professionals worked on research,

outreach, and project coordination, as well as held leadership roles on the team. URI's participation helped the process to run smoothly. Notably, the URI team had already worked on six other SAMPs throughout Rhode Island; thus, they could work relatively quickly and efficiently. Furthermore, URI's research provided essential scientific background for the policy development. URI scientists engaged in many projects to support the Ocean SAMP, such as studies on ecology, fishing, wildlife and habitats, recreation and tourism, infrastructure, and marine transportation. These studies allowed URI to perform "overall strategic mapping of the waters in the Ocean SAMP boundary area, stressing future-use priorities, and identifying conflicts and possible impacts on marine environment" (McCann and Schumann 2013: 8).

The stakeholder process was a central feature of Ocean SAMP development. In addition to the Ocean SAMP project management team, there were five advisory committees and various technical advisory committees, comprised of scientists, stakeholders, and other experts. Once the management team finalized the Ocean SAMP draft and submitted it to the full council for approval, the draft went through a public review process, including time for public comment and workshops. Public meetings were particularly important for direct users of the Ocean SAMP area such as fishermen. When the process began, many fishermen came to the stakeholder meetings and voiced concerns regarding the impact of offshore wind on the fishing industry. As a response, the management team maximized their participation, provided them with access to information, facilitated meetings just for fishermen, and incorporated some fishermen in research efforts. The involvement of fishermen and the management team's response to such involvement demonstrates how the stakeholder process opened opportunities for public input and adapted to the needs of the community.

A final strength worth mentioning is the Ocean SAMP's funding. Initially, the management team requested $6 million from the state. The state responded by providing $3.2 million from the Rhode Island Renewable Energy Fund in 2010. However, Rhode Island soon realized that the Ocean SAMP had the potential to put it at the forefront of offshore wind efforts, so the state provided an additional $2.8 million from the Rhode Island Economic Development Corporation. In 2011, the US Department of Energy contributed another $666,050, which was used to alleviate data gaps and continue preexisting research projects. Finally, URI gave a $1 million in-kind donation in the form of the research vessel. Most of the funding went to research, since the Ocean SAMP required new studies and a significant amount of information, including about where to place windfarms so they would have minimum impact on the environment. The Ocean SAMP would have been difficult without the financial support of the state.

Area of Mutual Interest with Massachusetts

As the Ocean SAMP process developed, the Technology Development Index—a research project that sought to identify sites for offshore wind development—revealed that an ideal location for wind projects was in federal waters near the boundaries of Massachusetts state waters and the eastern edge of the Ocean SAMP. The governors of Rhode Island and Massachusetts also recognized the potential of this area, along with budding competition over wind energy siting and distribution benefits, so they created a memorandum of understanding (MOU). The MOU designates a "400-square mile Area of Mutual Interest in federal waters, equidistant from their coasts" (Smythe et al. 2016: 30). The agreement recognizes the joint impacts and benefits of the area; therefore, neither state can develop projects in the area of mutual interest without support from the other, and they must share in the costs and profits of such projects. To ensure coordination, the states appointed the Massachusetts Office of Energy and Environmental Affairs to SAMP stakeholder status.

The MOU signaled to BOEM that Rhode Island wanted to work collaboratively with Massachusetts to develop offshore wind projects in the area (Smythe et al. 2016). The MOU further indicated to BOEM that the area was of regional interest and had the support of research and stakeholders for offshore wind development, which is significant because BOEM often defers to states when selecting lease areas. Since the signing of the MOU, there have been two wind projects in the area of mutual interest—Revolution Wind and Sunrise Wind. Most recently, BOEM has published a Notice of Intent to Prepare an Environmental Impact Statement for both projects and is currently engaging in the scoping process.

Revolution Wind and Sunrise Wind are projected to be operational by 2023 and 2025, respectively.

MAINE'S OFFSHORE WIND EFFORTS

Gulf of Maine Intergovernmental Renewable Energy Task Force

In June 2019, Governor Mills received a request from BOEM to join a Gulf of Maine Intergovernmental Renewable Energy Task Force. The request emerged from the New Hampshire governor's request to develop a task force for offshore leasing and development off the coast of New Hampshire. Recognizing that these efforts would naturally impact the "natural, socioeconomic, and cultural resources shared by neighboring states," BOEM also solicited participation from state and local governmental entities from Maine and Massachusetts, as well as certain federal agencies and tribes.[4] The task force met on December 12, 2019, at the University of New Hampshire. The meeting facilitated coordination between interested entities, provided states with the opportunity to present information regarding existing activities and marine conditions in the Gulf of Maine, and provided regional goals.

Aqua Ventus

Aqua Ventus is an 11-megawatt floating offshore wind technology pilot that will be located south of Monhegan Island, more than 12 miles off the coast of Maine. The University of Maine (UMaine) has partnered with New England Aqua Ventus, LLC, to develop this project. New England Aqua Ventus owns the project and will manage all aspects of permitting, construction, assembly, deployment, and ongoing operations. UMaine designed the VolturnUS floating concrete hull technology that will support the wind turbine and will lead design, engineering, research and development, and postconstruction monitoring. Additionally, UMaine along with the state of Maine and the US Department of Energy funded many studies and surveys to characterize the environment of the test site.[5] Land-based construction of the project will likely begin in 2023, with the cable work starting in 2023 (Charpentier 2021b). New England Aqua Ventus leadership projects that the turbine will be towed out to the site and moored in place in 2024.

Research Array

On October 1, 2021, the Governor's Energy Office submitted an application to BOEM to lease a site 30 miles offshore in the Gulf of Maine. The site covers 15.2 square miles, will feature up to 12 turbines, and will represent "the nation's first floating offshore wind research site in federal waters" (Office of Governor 2021). The research array emerged in part as a response to the federal government's ambitious energy goals and to "ensure that Maine develops [the offshore wind] industry in a manner that capitalizes on [its] innovative technology and abundant resources, while protecting [its] interests, industries, environment and values."[6] The research generated from the array will allow stakeholders to see the potential impacts of offshore wind on the environment and will likely inform projects in the future. If BOEM approves the application, a full development process—including permitting and formal public comments—will occur, a process that may take several years to complete. In the meantime, involved parties continue to fill research gaps and develop a research plan.

Roadmap

Along with the research array, the Governor's Energy Office developed the Maine Offshore Wind Roadmap. The roadmap was formed to create an economic development plan for Maine's offshore wind industry. Supported by a $2.166 million grant from the US Economic Development Administration, the roadmap will detail how to advance offshore wind in ways that support Maine's people, economy, and heritage.[7] An advisory committee and several working groups, comprised of experts from a range of organizations, are in the process of developing the roadmap. Between July 2020 and January 2021, the roadmap members developed initial recommendations. As of March 2022, four working groups released their draft recommendations. Following this release, they will refine and consolidate recommendations based on public and stakeholder feedback. From July to November 2022, they will finalize the roadmap content. Finally, from December 2022 and beyond, the roadmap members will communicate the roadmap.

The roadmap process seeks to understand and plan for the state's role in commercial offshore wind in the Gulf of Maine. In the draft recommendations, the working groups contemplate further areas of research, funding needs,

regional collaboration, policy development, and other areas specific to the working group's goals and constituency needs. These findings may be used by the Governor's Energy Office, legislators, and other leaders to make decisions related to offshore wind. However, as of early March 2022, the roadmap advisory group has made no mention of how the roadmap will contribute to BOEM's call for a lease sale in the Gulf of Maine.

Moratorium on Offshore Wind Projects

Shortly following the announcement of the research array and roadmap, Governor Mills signed into law LD 1619—An Act to Establish a Moratorium on Offshore Wind Power Projects in Maine's Territorial Waters. The law restricts the state from licensing, permitting, approving, or authorizing leases, easements, or other real property interests for offshore wind projects in state waters for 10 years. The Mills administration proposed the moratorium to appease local fishermen (particularly lobstermen), many of whom opposed the research array. Fishermen voiced concerns over what they saw as potentially disastrous impacts on the industry (Linder 2021). Because the moratorium confines offshore wind to federal waters for the foreseeable future, federal consistency review and other means will be important for establishing Maine's voice in projects beyond its jurisdiction.

MARINE SPATIAL PLANNING IN MAINE

If Maine can implement a marine spatial plan, there are potential environmental, social, and economic benefits—not least of which would be more efficient coordination of offshore wind efforts with other marine industries, such as aquaculture and fisheries, while protecting areas of biological and ecological concern. There are, however, several challenges to implementing marine spatial planning in Maine.

Since marine spatial planning is a sociopolitical process, it must receive ample support from government actors. Changes in administrations can risk progress, depending on leadership's views of marine spatial planning. A marine spatial plan must also fit within Maine's current legislative and regulatory framework. Presently, the Department of Marine Resources coordinates federal consistency review in Maine. The authorizing legislation—12 MRSA § 6052 (2017)—can be amended to incorporate departmental responsibilities to oversee a marine spatial plan. As Rhode Island codified the Ocean SAMP in 650-20-05 R.I. Code R. § 11.10, Maine similarly could build out a regulatory framework, explaining the marine spatial plan's goals, means of implementation, decision-making authority, general polices, and regulatory standards. While detailing a workable legal framework is beyond the scope of this article, more attention is needed to outline how a marine spatial plan will fit into Maine's current framework, as well as the level of current support among government actors for such a plan.

If managed effectively, a marine spatial plan organizes ocean space and mitigates conflicts between ocean users. Creating a marine spatial plan may be a challenge for Maine, however, given the Gulf of Maine's size. The Gulf of Maine spans 36,000 square miles of ocean and 7,500 miles of coastline, with Maine stretching along 3,478 miles of that coastline and the rest being split between Nova Scotia, New Brunswick, New Hampshire, and Massachusetts. Rhode Island's Ocean SAMP covers a much smaller area. Rhode Island has only 384 miles of coastline, and the Ocean SAMP spans approximately 1,467 square miles of ocean. It took the leadership team and stakeholders a year to define the boundaries of the project, delineating a renewable energy zone, areas of particular concern, areas designed for preservation, the area of mutual interest with Massachusetts, and research priority areas. Because Maine has more area to cover, it presumably will need to expend more energy and resources in defining the limits of a marine spatial plan and dividing such area among different ocean uses.[8]

Given that there are over 4,800 lobster licenses in Maine,[9] the state must obtain the support of its fishing communities, particularly lobstermen, to successfully create a marine spatial plan. It is evident that fishermen have concerns with marine spatial planning and offshore wind development. For instance, a study of stakeholder responses to offshore wind in midcoast Maine found that fishermen "were more negative about the prospects for offshore wind" than other interviewed groups (Acheson 2012: 45). Many fishermen in the study were concerned that wind turbines would result in conflicts with fishing gear, catches, and displacement. Additionally, fishermen were the driving force of the offshore wind moratorium (Trotter 2011). Finally, several fishermen opposed the

Obama Administration's National Ocean Policy Implementation Plan, which includes elements of marine spatial planning, and other federal regulatory programs. In these cases, fishermen desired a seat at the table and a formal role in shaping policy to protect fishing resources. Kendall (2016) describes regulatory processes related to the National Ocean Policy as red tape that would impede New England fishermen's ability to make a living.

> It is possible that involving fishermen in research...may reduce their resistance to marine spatial planning and offshore wind efforts....

Bakker et al.'s (2019) research on fishing communities' attitudes toward marine spatial planning in Scotland found that fishermen had a resilient community identity that positioned them against outside influences and led them to see marine spatial planning as a threat to their way of life. Since they thought marine spatial planning would not benefit their industry, fishermen had little incentive to get involved in policy making. The authors determined that research that supported sustainable fisheries and branding could involve fishermen in the planning process and that their time on the water and knowledge of the marine environment could be leveraged to significantly engage fishermen in research and the stakeholder process (Bakker et al. 2019). Rhode Island's Ocean SAMP management team succeeded in this regard, involving fishermen in research and other policy development. The team purposely created opportunities just for fishermen so they felt they had a voice, and the team exchanged knowledge with the fishermen to build trust.

It is possible that involving fishermen in research, providing them with data involving fishing grounds, and allowing for the meaningful exchange of ideas may reduce their resistance to marine spatial planning and offshore wind efforts in general. These sentiments are reflected in draft recommendations from Maine's Offshore Wind Roadmap Fisheries Group. Among other things, the Fisheries Group recommends that offshore wind developers create clear communication plans and notification procedures to facilitate meaningful engagement between the developers and fishermen throughout the project's life. The group also encourages BOEM to actively engage with Maine's fishing industry through workshops, meetings, and informal conversations. Finally, the group specifically calls for ongoing engagement with fishermen in the mapping of areas of concern (Maine Offshore Wind Initiative 2022).

FOLLOWING RHODE ISLAND'S SAMP PROCESS

There are several additional considerations that may support or impede Maine's ability to adopt Rhode Island's approach to offshore wind development. In some cases, Maine can capitalize on pre-existing efforts, such as the research array and roadmap processes. Like Rhode Island, Maine has a strong relationship with a state university—the University of Maine. UMaine has the potential to support an Ocean SAMP, considering that it has faculty and staff who have worked on offshore wind technology for over 10 years. UMaine also led the Aqua Ventus project and produced beneficial technology and studies to support it. Additionally, UMaine's School of Marine Sciences has a wide range of researchers working on marine issues who could likely lend their expertise to the project.[10] Additionally, professors at the University of Maine School of Law can assist technical staff to build a regulatory framework and avoid legal challenges that might accompany an Ocean SAMP. With sufficient funding, Maine can use the expertise and experience of UMaine scientists and professors to identify and fill research gaps for a potential Ocean SAMP.

Interregional efforts and partnerships will also be critical for Maine as it develops an Ocean SAMP, as recognized by the roadmap working groups in their draft recommendations. The working groups called for strategic partnerships between Maine and other New England states to establish more robust project-monitoring requirements, to collect habitat data in the Gulf of Maine, to encourage workforce and infrastructure development, and to address gaps in the supply chain (Maine Offshore Wind Initiative 2022).

Maine's size and population, energy needs, and renewable energy generation also need to be considered. First,

Maine comprises about half the land area of New England but only 13 percent of the population (Rooks 2020). States like Massachusetts and Connecticut are much smaller than Maine but have larger populations and generate more energy overall. Second, most of Maine's electricity is bought and sold through a regional grid, made up of all the New England states (Kasina et al. 2021: 7). In 2020, Maine's share of the region's annual load was 10 percent, and a significant amount of electricity sold in Maine is generated outside the state. Third, Maine already is a leader in wind energy. Again in 2020, 79 percent of Maine's in-state electricity came from renewable resources, including wind farms. Maine also produces more wind energy than any other New England state, accounting for approximately two-thirds of all wind-powered generation in New England (US EIA 2021). Although the state does have the physical space for development and has led the region in onshore wind efforts, it may need to rely on other states for port infrastructure, workforce needs, and energy exportation and sales. Reigniting the BOEM intergovernmental task force can help Maine negotiate energy transmission with other New England states.

Beyond the intergovernmental task force, Maine can sign an MOU with New Hampshire, which may have a shared interest in particular waters. Rhode Island and Massachusetts are not the only states to sign such an agreement; in 2020, Maryland, North Carolina, and Virginia entered an MOU, which provided the states with a framework to promote, develop, and expand offshore wind. They also designated a SMART-leadership team with representatives from each state, with the goal of streamlining offshore wind development in the region. Overall, the states committed to work together to "increase regulatory certainty, encourage manufacturing of component parts, reduce project costs through supply chain development, share information and best practices, and promote synergy between industry and the signatory jurisdictions" (North Carolina Governor 2020). In Maine's case, an MOU would allow it to collaborate with New Hampshire and Massachusetts and take advantage of their greater energy needs and port infrastructure. Furthermore, through an MOU, Maine can work with bordering states to designate areas of mutual interest.

Maine's Offshore Wind Roadmap has a stakeholder engagement process that the state can likely use for the Ocean SAMP drafting process. In its current state, however, the roadmap stakeholder process is not as robust and transparent as the Ocean SAMP's process. The Ocean SAMP organized over 100 meetings and developed clear guiding principles and timelines to engage stakeholders in meaningful and effective ways. As of May 2022, the roadmap had organized fewer meetings, and it is unclear how the public will provide input and participate in discussions on roadmap recommendations.[11] In terms of transparency, the Ocean SAMP team ensured that stakeholders had access to research data, with the clear end goal of submitting the Ocean SAMP for NOAA's approval (Smythe et al. 2016). The roadmap, on the other hand, asks for stakeholder recommendations, but the advisory committee has not made clear how these recommendations will be used and how the roadmap fits in with the BOEM 2023 lease (Maine's Offshore Wind Initiative 2022). Despite these shortcomings, Maine can take advantage of its stakeholder connections and build a larger, holistic, and transparent stakeholder process as it develops an Ocean SAMP.

> Maine...[accounts] for approximately two-thirds of all wind-powered generation in New England.

Additionally, Maine's Ocean SAMP will face resistance from various community members. In addition to fishermen, coastal property owners also represent a potential source of resistance. For example, property owners in East Boothbay expressed concern over drilling and cable construction for the Aqua Ventus project (Charpentier 2021a). Residents feared the underground cables would cause property damage and impede water access (WGME 2021). Though these concerns are valid, property owners with significant power in their communities can bring lawsuits and a strong, dissenting voice to the stakeholder process. Engaging influential communities and providing them with accessible, scientific data to justify siting and construction decisions may help alleviate some of their concerns and ensure a productive stakeholder process.

Research is a final consideration for developing an Ocean SAMP. Maine will need to invest millions of dollars in an extensive research plan to site responsibly and appease stakeholders. As described earlier, the research array will provide valuable insight into the effects of offshore wind on the environment, which can be used to develop an Ocean SAMP. However, it will take several years to construct and produce meaningful studies, and with the offshore wind industry moving at accelerated pace, it is likely that Maine will need to generate other research efforts to keep up with industry demands. The roadmap also offers several study ideas from its stakeholders. For instance, the Environment and Wildlife Working Group suggests conducting a mapping exercise in 2022 to identify areas of greatest conflict between offshore wind energy development and wildlife. The group also calls for baseline monitoring studies for areas identified through this mapping exercise and track studies for species of concern (Maine Offshore Wind Initiative 2022). While identifying gaps in research may ultimately ensure that offshore wind development does not negatively impact the environment and local industries, the roadmap does not provide clear plan of who will perform and fund these studies.

The Northeast Ocean Data Portal, established in 2009, can be a useful tool as Maine develops an Ocean SAMP. The data portal provides expert-reviewed interactive maps and data on the ocean ecosystem, economy, and culture of the Northeast, which can be used to inform ocean planning processes and facilitate decision-making.[12] Federal and state agencies, nongovernmental organizations, and scientists contribute data to the portal, which is maintained by Northeast Ocean Data Working Group. Because the data portal, the research array, and the roadmap have already been funded and offer insights into research gaps that deserve more attention, they can serve as a starting point for Maine's Ocean SAMP process.

Recommendations

There are several actions that Maine can take to replicate Rhode Island's model and responsibly develop offshore wind in the Gulf of Maine. Immediate options include

1. Increasing opportunities for dialogue and public input beyond the designated public comment period in the roadmap process.
2. Involving the fishing community in research efforts.
3. Using the Northeast Data Portal in the roadmap process to help identify gaps in research and mitigate the impact of offshore wind development on habitats and ecosystems.
4. Developing educational campaigns to inform stakeholders of the benefits of a robust offshore wind industry in Maine.
5. Developing strategic partnerships with other states to identify areas of concern and how each state's offshore wind goals will impact the development of the Gulf of Maine.

Longer-term options include

1. Signing MOUs with neighboring states to mitigate competition and take advantage of each individual state's strengths and industry capacities.
2. Creating a marine spatial plan, capitalizing on pre-existing offshore wind research, recommendations, and strategic partnerships with institutions like the University of Maine.
3. Codifying the marine spatial plan in legislation and adopting it into the coastal management plan.
4. Expanding the marine spatial plan into federal waters by applying for a geographic location description through NOAA.

Although a marine spatial plan such as the Ocean SAMP may be the most effective and enduring strategy, Maine can use the other strategies described in this article to achieve its overarching goal of influencing offshore wind development in federal waters.

OPPORTUNITIES AND CONCLUSIONS

The offshore wind industry poses challenges for the state that extend beyond its jurisdiction. Considering BOEM's potential lease sale in the Gulf of Maine and the moratorium on offshore wind development in state waters, Maine may not be able to direct projects in ways that most benefit its people and protect its habitat, wildlife, and ocean industries. Federal consistency review and marine

spatial planning, however, would ensure that offshore wind projects in federal waters are consistent with the enforceable policies of Maine's coastal management plan and are coordinated in ways that minimize conflicts with other ocean uses. Rhode Island serves as a primary example of how to use federal consistency review and marine spatial planning effectively in the form of an Ocean SAMP. The Ocean SAMP not only extended Rhode Island's jurisdictional reach into federal waters, but it used a robust stakeholder process, strong guiding principles, scientific data, funding, and university relationships to encourage responsible marine spatial planning and offshore wind development. Maine can begin working on its own marine spatial plan by capitalizing on preexisting efforts like the roadmap and taking more immediate actions, such as developing interstate partnerships, to ensure responsible offshore wind development. The offshore wind industry is moving quickly, and it is in Maine's best interest to take proactive steps to extend its influence into federal waters. Maine's marine economy, environment, and ecology depend on it.

ENDNOTES

1 https://www.maine.gov/energy/initiatives/offshorewind

2 More information about Rhode Island's Ocean SAMP process is available here: https://seagrant.gso.uri.edu/oceansamp/index.html

3 Quoted in a news release from RI Coastal Management Council, available here: http://www.crmc.ri.gov/news/2011_1206_gld.html

4 Letter from Walter D. Cruickshank to Governor Janet T. Mills, ME, June 14, 2019.

5 https://umaine.edu/offshorewindtestsite/scientific-surveys-results/

6 https://www.maine.gov/energy/initiatives/offshorewind/researcharray

7 https://www.maineoffshorewind.org/road-map/

8 https://www.gulfofmaine.org/public/gulf-of-maine-council-on-the-marine-environment/about-the-gulf-of-maine/; https://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_coastline#Table

9 From the Department of Marine Resources' Maine Lobster Fishing License and Trap Tag Counts webpage: https://www.maine.gov/dmr/science-research/species/lobster/licenses-tags.html

10 https://umaine.edu/marine/

11 https://www.maine.gov/energy/initiatives/offshorewind/meetings-archive

12 https://www.northeastoceandata.org/about

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