

WORKSHOP SUMMARY

**Researching Socioeconomic
Impacts on Offshore Wind in
the Gulf of Maine**

Cooperative Institute of the North Atlantic Region Workshop
Gulf of Maine Research Institute
350 Commercial St Portland, Maine

January 10-11, 2024

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**Gulf of Maine
Research Institute**

Overview

This workshop gathered research experts in social science and economics to examine the complex impacts of offshore wind energy in the Gulf of Maine, focusing on investigating critical research questions regarding the socio-economic effects of offshore wind development. Through interactive sessions, panels, and discussions, participants discussed ongoing projects, research approaches, and research needs. The primary aim was to develop a thorough understanding and collaborative approaches that address both the social and economic aspects of offshore wind for sustainable and fair outcomes.

Full Spectrum and Foresighting

[Rob Stephenson](#), Research Scientist; Canadian Department of Fisheries and Oceans

Session Summary:

Future development (including offshore wind energy development) requires greater attention to ‘full spectrum’ sustainability – including ecological, economic, social/cultural and governance outcomes. This is a challenge to management agencies and to researchers. It requires an interdisciplinary/transdisciplinary, forward-looking perspective. Dr. Stephenson provides a perspective on the evolving management, full-spectrum sustainability, interdisciplinary/transdisciplinary research and foresighting.

Key Points:

- Dr. Stephenson emphasizes the importance of cohesive and integrated management for activities such as offshore wind development. This involves considering ecological, economic, social, cultural, and institutional objectives in a comprehensive manner.
- We need to clearly articulate objectives and values regarding offshore wind development, with a specific focus on social and cultural aspects. Dr. Stephenson suggests that without a clear articulation of what needs to be achieved, it is unlikely to be accomplished.
- Research should involve comparing different scenarios against full spectrum outcomes, considering trade-offs, cumulative effects, and winners/losers under various conditions. Dr. Stephenson calls for increased strategic thinking – working across “silos” – with regard to preferred futures and incorporating foresight to plan for long-term consequences and improvements.

Economic and Social Science Research at Bureau of Ocean Energy Management

Emma Chaiken, Economist, Office of Strategic Resources, BOEM

Sindey Chaky, Social Scientist, Office of Renewable Energy Programs, BOEM

Session Summary:

This session explored BOEM's role in social science and economics research and what remains unaddressed in addition to providing guidance for fisheries mitigation. Additionally, the presenters provided updates on the leasing process for offshore wind development in the Gulf of Maine.

Key points:

- In 2021, the state of Maine submitted a research lease application for an offshore wind research array. The application has undergone a review process, including the publication of a draft Environmental Assessment (EA) during the summer. A 30-day comment period was held and there is now an ongoing review of comments to finalize the EA.
- In parallel, there is also a commercial planning and leasing process for offshore wind development happening in the Gulf of Maine. Draft wind energy areas were published in October 2023, and a similar 30-day comment period was held, resulting in over 300 comments from community stakeholders. The final wind energy areas will be published in the first quarter of 2024.
- The high number of comments received during the comment periods reflects the active involvement of stakeholders and the public in the decision-making process.
- BOEM is working with stakeholders to mitigate socioeconomic impacts of offshore wind development through the use of bidding credits for compensatory mitigation, requirements that developers provide an analysis to estimate impacts (IMPLAN model), the integration of public comment, and more.
- Environmental assessments (EA) are key in the offshore wind leasing process. BOEM partners with the National Centers for Coastal Ocean Science and uses modeling to determine suitable acreage for commercial wind projects. Various factors, such as fisheries, industry, and wind speed are considered in this modeling process.
- BOEM is conducting four socioeconomic studies related to the Gulf of Maine, with three planned for funding this year and one in the early stages of development.
 - Gulf of Maine Socioeconomic Impacts of OCS Wind Development on Fishing (AT-23-01)
 - Baseline Tourism and Recreation Along the Gulf of Maine (AT-23-04)
 - Collecting Fishers' Ecological Knowledge (FEK) for use in Gulf of Maine offshore wind planning (AT-24-04)
 - The Effects of Offshore Wind Farms on Property Values in the United States (New Study for FY 2025-2027)

Additional Resources:

- [BOEM Studies Development Plan](#)
 - [Socio-Economic Impact of Outer Continental Shelf Wind Energy Development on Fisheries in the U.S. Atlantic](#) (Volume 1)
 - [Socio-Economic Impact of Outer Continental Shelf Wind Energy Development on Fisheries in the U.S. Atlantic](#) (Volume 2)
 - [NREL Overview of Floating Offshore Wind](#)
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Social Dimensions of Offshore Wind Development in Southern New England

[David Bidwell](#), Associate Professor, Department of Marine Affairs, University of Rhode Island

Session Summary:

This session summarized a decade of social science research on offshore wind energy development in Southern New England, from the Block Island Wind Farm to large-scale projects currently under construction. Dr. Bidwell is engaged in research related to the social dimensions of offshore wind development, particularly focusing on issues of justice, public acceptance, and community responses.

Key Points:

- The Block Island Wind Farm, completed in 2016, offers key insight into public perceptions, support levels, and the impact of informal engagement processes related to offshore wind development. Symbolism, visual impacts, and values play a significant role in shaping stakeholder attitudes.
- Dr. Bidwell noted the "chain of trust" model, which suggests that acceptance of outcomes is linked to trust in the process, and trust in the process is connected to trust in the process leaders. Informal engagement, such as discussions in small groups, contributes to the development of trust among participants. Trust plays a crucial role in shaping perceptions and attitudes toward the overall project.
- Stakeholders often value informal processes more highly than formal procedures such as public meetings, hearings, or comment periods. Small group discussions, one-on-one conversations, and opportunities for direct dialogue with knowledgeable individuals are seen as more meaningful and impactful than formal, structured events.
- Ongoing and future research: studies on recreation and tourism impacts, interviews with community members involved in permitting activities, and upcoming projects exploring energy justice dimensions in different communities. Long-term research is necessary to understand evolving dynamics within the field.

Forward Looking Social Science Panel Question and Answer

Moderator:

Kanae Tokunaga, Senior Scientist, Gulf of Maine Research Institute

Panelists:

[David Bidwell](#), Associate Professor, Department of Marine Affairs, University of Rhode Island

[Christine Beitzl](#), Associate Professor of Anthropology, School of Marine Sciences & School of Economics, University of Maine

[Alison Bates](#), Assistant Professor, Department of Environmental Studies, Colby College

[Angela Silva](#), Social Scientist, Offshore Wind and Ecology, NOAA Northeast Fisheries Science Center

Key Points:

- Social science research dependent upon collaboration must take into account stakeholder fatigue. Questions on how to navigate stakeholder fatigue still remain.
- There is a need to empower communities in decision-making processes and advance coexistence research to address skepticism regarding offshore wind development. For instance, Dr. Bates highlighted her ongoing project collaborating with fishing communities, utilizing virtual reality simulations to address the lack of detailed information on floating wind farms.
- There is a need for alternative ways of imagining communities and considering who is involved in shaping the future of communities. A lack of diversity in the decision-making process calls for more creative thinking to challenge existing structures. Cross-cultural insights and the integration of queer, feminist, and indigenous scholarship are vital to this work.
- There is a need to define and consider communities potentially impacted by offshore wind beyond traditional coastal areas. Cultural aspects in research must be considered; they are often hard to quantify but crucial for establishing a comprehensive understanding of the socioeconomic impacts of OSW.

Economics Sessions:

[Offshore wind development impacts on mid-Atlantic commercial shellfish fisheries: An agent-based modeling approach](#)

[Andrew Scheld](#), Associate Professor, Virginia Institute of Marine Science, College of William & Mary

Session Summary:

Dr. Scheld covered his approach and application of agent-based bioeconomic models in assessing fisheries economic impacts and discussed ongoing and future research directions.

Key Points:

- Dr. Scheld and his team developed an agent-based simulation model called the Spatially Explicit Fisheries Economic Simulator (SEFES), which is applied to assess the economic impacts of offshore wind development on commercial fisheries, focusing specifically on surf clam, scallop, and quahog fisheries.
- Results from the model simulations indicate potential reductions in revenues and increases in production costs for the surf clam fishery, particularly impacting fleets operating in New Jersey and southward. In contrast, the scallop fishery shows smaller impacts, with boats finding alternative fishing areas and minimal overlap with existing lease areas.
- Dr. Scheld acknowledges the data-heavy nature of the model, emphasizing the need for extensive parameterization and validation processes but emphasizes its value for understanding the impacts of emerging uses of the ocean, such as offshore wind development.

Additional Resources:

- [The Atlantic surfclam fishery and offshore wind energy development: 1. Model development and verification](#)
- [The Atlantic surfclam fishery and offshore wind energy development: 2. Assessing economic impacts](#)

Rhode Island Lessons: Offshore Wind and Fisheries

Todd Guilfoos, Associate Professor, Dept. of Environmental and Natural Resource Economics, University of Rhode Island

Session Summary:

Dr. Guilfoos covered his work supporting the mitigation process, working with the fishermen and wind energy companies and discussed ongoing and future research directions.

Key Points:

- Building from his experiences working with the Rhode Island fishery advisory board and offshore wind developers, during which the contentious nature of negotiations regarding impact mitigation led to the resignation of members of the board, Dr. Guilfoos highlights key areas of improvement in the mitigation process:
 - A valuation of impacts before lease sales and better incorporation of trade-offs during the leasing process.
 - Considering locations of individual turbines through trade-off valuations during siting decisions.
 - Independent review of damage assessments and funds distribution
 - A clear understanding of the entire offshore wind development process

Forward Looking Economist Panel Question and Answer

Moderator:

Kanae Tokunaga, Senior Scientist, Gulf of Maine Research Institute

Panelists:

[Di Jin](#), Senior Scientist, Marine Policy Center, Woods Hole Oceanic Institute

[Hirotsugu Uchida](#), Professor, Dept. of Environmental and Natural Resource Economics, University of Rhode Island

[Caroline Noblet](#), Associate Professor, School of Economics, University of Maine

John Primo, Sr. Social Scientist, Environmental Studies Program, BOEM

Key Points:

- It is important to move beyond focusing solely on the negative impacts of offshore wind development in order to consider potential positive effects, such as protected areas and artificial reef benefits for fisheries.
- We need a more holistic economic analysis of offshore wind; agent-based models may be effective for short-term predictions but raise questions about their validity for mid to long-term scenarios due to challenges in predicting industry adaptations. Squid fisheries in Rhode Island, for instance, illustrate the unforeseen changes and adaptations within the fishing industry.
- The negotiation process for compensation often involves discrepancies between estimated values and industry demands – we need high-resolution spatial data to establish a comprehensive understanding of the impacts on fisher's livelihoods.

[FishFLOW IEA: An Integrated Ecosystem Assessment of interactions between fisheries and floating offshore wind in the Gulf of Maine using knowledge co-production](#)

[Julia Bingham](#), Postdoctoral Fellow, Coastal Resources Center & RI Sea Grant

[Angela Silva](#), Social Scientist, Offshore Wind and Ecology, NOAA Northeast Fisheries Science Center

Session Summary:

The IEA team presented their conceptual model and discussed current priority linkages, potential impacts, and possible indicators based on their review of public comments and reflections from participatory workshops.

Key Points:

- Integrated Ecosystem Assessment (IEA) is a NOAA-structured approach based on ecosystem-based management principles. It aims to assess social and ecological impacts from offshore wind development in the Gulf of Maine by systematically considering risks, impacts, and trade-offs.
- The IEA emphasizes collaboration with various stakeholders, including fishing communities, researchers, managers, and developers. The process involves an iterative approach, starting with a thematic analysis of public comments and feedback from various groups. The conceptual mapping process is used to identify relationships and connections within the system, with the goal of coordinating different approaches and creating an assessment that is responsive to community concerns.
- The project is currently in the stage of setting priorities and developing indicators for the assessment. This involves zooming in on specific aspects, such as fishing gear compatibility and economic concerns. The team is considering how to track and measure these indicators, acknowledging the need for an adaptable and responsive approach.

Additional Resources:

- [Gulf of Maine Offshore Wind Integrated Ecosystem Assessment \(IEA\) Stakeholder FAQs](#)
- [FishFLOW IEA Project Summary](#)

Sea Grant and Maine Offshore Wind Research Consortium Opportunities

[Lindsey Williams](#), Associate Director and Assistant Director for Workforce Development, New Hampshire Sea Grant

[Katy Bland](#), Blue Economy Research and Engagement Associate, New Hampshire Sea Grant/NERACCOOS

Key Points:[New funding opportunity announced](#)

- Thanks to a collaboration between the Northeast Fisheries Science Center and the International Sea Grant programs in the Northeast, this opportunity focuses on better understanding fishing community interactions with offshore wind development in the Northeast. The goal is to advance actionable social science research to address the fast-paced changes in the field. The funding, with a maximum of \$400,000 over three years, has a 25% match requirement, providing flexibility for partnerships. Letters of Intent are due February 15th, and proposals can be submitted by April 1st.
- The RFP outlines three major themes: offshore wind planning and engagement, understanding fisheries and offshore wind development interactions, and monitoring. Examples include developing approaches to community benefit agreements, testing protocols for long-term socio-economic monitoring, and considering justice and power dynamics.

Resources and Opportunities / Wrap Up and Next Steps

Hannah MacDonald, Program Manager, Gulf of Maine Research Institute

Explore existing funding opportunities and share knowledge on additional sources for future collaboration.

Collaboration Brainstorm Session

Summary of Breakout Discussions

Uncertainty Breakout Session:

Types of Uncertainty:

- Various types of uncertainty ought to be considered, including epistemic and aleatory uncertainties.
- Uncertainty analysis can be viewed as a tool to enhance resilient management systems.

Fisher Behavior and Adaptation:

- Understanding fisher behavior and adaptation is crucial for site design decisions.
- Wind farms interact with historic trawls used for stock assessment, potentially leading to more restrictions on fisheries due to lower-quality data.

Fishing Effects:

- An increase in fishing costs is deemed fairly certain, with potential impacts on different fishing gear.

Research Opportunities:

- Observing post-construction changes in fisher behaviors and predicting effects, especially in floating wind farms.

Landside Risks:

- Uncertainties around landside operations, such as staging ports, manufacturing processes, and potential bankruptcy concerns.

Public Trust Breakout Session:

Stakeholder Engagement Strategies:

- Explore effective forums for communication and information sharing by considering the goals and preferences of attendees.
- Evaluate the role of different entities involved in the sharing of information and consider data visualizations to improve understanding.

Comparative Studies:

- Consider conducting comparative studies on stakeholder engagement and decision-making processes in different regions and industries, such as the parallels between offshore wind leasing and 1970s oil drilling in Alaska.

Community Perceptions and Benefits:

- Examine the link between economic benefits, community perceptions, and overall trust in the science behind offshore wind projects.
- Assess the significance of community benefit agreements and whether the perceived profits in offshore wind are considered beneficial enough.

Process Improvement and Transparency:

- Analyze the marine spatial planning processes in different states and assess how community engagement shapes perceptions.
- Evaluate the role of bridging organizations like Sea Grant and GMRI in the leasing process and consider ways to enhance the introduction of local knowledge.
- Explore indicators of successful outcomes, identify points of trust-building in the process, and seek opportunities for revisions to enhance stakeholder input.

Cultural Dimensions Breakout Session:

- There is a need to define focus communities and recognize the diverse system of communities; e.g. fishermen and place-based communities.
- Calls for greater quantification; what is it that we value?
- Culture and heritage are alive and dynamic.
- Is it the role of NGOs to identify “community” by utilizing the connections/networks they have established?
- Social network analysis can be used to find community organizations that drive participation.
- What is the ideal government structure to address cultural issues holistically? BOEM, NOAA, other agencies?

Workshop Agenda

Wednesday, January 10th, 2024

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| 8:45 - 9:10 | <i>Coffee and Light Breakfast</i> |
| 9:10 - 9:30 | <p>Welcome</p> <p>Kanae Tokunga, Senior Scientist, Gulf of Maine Research Institute Hannah MacDonald, Program Manager, Gulf of Maine Research Institute</p> |
| 9:30 - 11:00 | <p>Full Spectrum and Foresighting</p> <p>Rob Stephenson, Research Scientist; Canadian Department of Fisheries and Oceans</p> <p>Future development (including offshore wind energy development) requires greater attention to ‘full spectrum’ sustainability – including ecological, economic, social/cultural and governance outcomes. This is a challenge to management agencies and to researchers. It requires an interdisciplinary/transdisciplinary, forward-looking perspective. Stephenson will provide a perspective on the evolving management, full-spectrum sustainability, interdisciplinary/transdisciplinary research and foresighting.</p> |
| 11:00 - 11:15 | <i>Break</i> |
| 11:15 - 12:15 | <p>Economic and Social Science Research at Bureau of Ocean Energy Management (BOEM)</p> <p><i>Emma Chaiken, Economist, Office of Strategic Resources, BOEM</i> <i>Sindey Chaky, Social Scientist, Office of Renewable Energy Programs, BOEM</i></p> <p>This session will explore BOEM's role in social science and economics research and what remains unaddressed in addition to providing guidance for fisheries mitigation.</p> |
| 12:15 - 1:00 | <i>Lunch provided by GMRI</i> |
| 1:00 - 1:30 | <p>Social Dimensions of Offshore Wind Development in Southern New England</p> <p>David Bidwell, Associate Professor, Department of Marine Affairs, University of Rhode Island</p> <p>This session will summarize a decade of social science research on offshore wind energy development in Southern New England, from the Block Island Wind Farm to large-scale projects currently under construction.</p> |
| 1:30 - 2:15 | <p>Forward Looking Social Science Panel Question and Answer</p> <p>Moderator: <i>Kanae Tokunaga, Senior Scientist, Gulf of Maine Research Institute</i></p> <p>Panelists:</p> |

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| | <p>David Bidwell, Associate Professor, Department of Marine Affairs, University of Rhode Island</p> <p>Christine Beitzl, Associate Professor of Anthropology, School of Marine Sciences & School of Economics, University of Maine</p> <p>Alison Bates, Assistant Professor, Department of Environmental Studies, Colby College</p> <p>Angela Silva, Social Scientist, Offshore Wind and Ecology, NOAA Northeast Fisheries Science Center</p> |
| 2:15 - 3:15 | <p>Economics Session</p> <p>Andrew Scheld, Associate Professor, Virginia Institute of Marine Science, College of William & Mary</p> <p>Dr. Scheld will cover his approach and application of agent-based bioeconomic models in assessing fisheries economic impacts and discuss ongoing and future research directions.</p> <p>Todd Guilfoos, Associate Professor, Dept. of Environmental and Natural Resource Economics, University of Rhode Island</p> <p>Dr. Guilfoos will cover his work supporting the mitigation process, working with the fishermen and wind energy companies and discuss ongoing and future research directions.</p> |
| 3:15 - 3:30 | Break |
| 3:30 - 4:00 | <p>Forward Looking Economist Panel Question and Answer</p> <p>Moderator:</p> <p>Kanae Tokunaga, Senior Scientist, Gulf of Maine Research Institute</p> <p>Panelists:</p> <p>Di Jin, Senior Scientist, Marine Policy Center, Woods Hole Oceanic Institute</p> <p>Hirotsugu Uchida, Professor, Dept. of Environmental and Natural Resource Economics, University of Rhode Island</p> <p>Caroline Noblet, Associate Professor, School of Economics, University of Maine</p> <p>John Primo, Sr. Social Scientist, Environmental Studies Program, BOEM</p> |
| 4:00 - 5:00 | <p>FishFLOW IEA: An Integrated Ecosystem Assessment of interactions between fisheries and floating offshore wind in the Gulf of Maine using knowledge co-production</p> <p>Julia Bingham, Postdoctoral Fellow, Coastal Resources Center & RI Sea Grant</p> <p>Angela Silva, Social Scientist, Offshore Wind and Ecology, NOAA Northeast Fisheries Science Center</p> |

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| | IEA team presents their conceptual model and discusses current priority linkages, potential impacts, and possible indicators based on our review of public comments and reflections from participatory workshops. They will invite the audience to join us in a discussion of key indicators, data sources, and knowledge gaps informing the next stage of the assessment. |
| 5:00 pm | <i>Optional Happy Hour at The King's Head; 254 Commercial St, Portland, ME 04101</i> |
| Dinner on your own | GMRI is proud to partner with area restaurants to promote responsibly harvested seafood from fishermen and purveyors in the Gulf of Maine. They have committed to always having Gulf of Maine seafood on their menus, educating their staff on seafood sustainability, and continually improving the sustainability of their operations. We recommend our culinary partners restaurants and several are within walking distance from GMRI and hotels. |

Thursday, January 11, 2024

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| 8:45 - 9:10 | <i>Coffee and Light Breakfast</i> |
| 9:10 - 9:55 | FishFLOW IEA: An Integrated Ecosystem Assessment of interactions between fisheries and floating offshore wind in the Gulf of Maine using knowledge co-production <i>Julia Bingham, Postdoctoral Fellow, Coastal Resources Center & RI Sea Grant</i> <i>Angela Silva, Social Scientist, Offshore Wind and Ecology, NOAA Northeast Fisheries Science Center</i> IEA team presents their conceptual model and discusses current priority linkages, potential impacts, and possible indicators based on our review of public comments and reflections from participatory workshops. They will invite the audience to join us in a discussion of key indicators, data sources, and knowledge gaps informing the next stage of the assessment. |
| 9:55 - 10:15 | Sea Grant and Maine Offshore Wind Research Consortium Opportunities <i>Lindsey Williams, Associate Director and Assistant Director for Workforce Development, New Hampshire Sea Grant</i> <i>Katy Bland, Blue Economy Research and Engagement Associate, New Hampshire Sea Grant/NERACOOS</i> |

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| 10:15 -10:20 | <p>Resources and Opportunities / Wrap Up and Next Steps Hannah MacDonald, Program Manager, Gulf of Maine Research Institute Explore existing funding opportunities and share knowledge on additional sources for future collaboration.</p> |
| 10:20 - 12:00 | <p>Collaboration Brainstorm Session Hannah MacDonald, Fisheries Engagement/Offshore Wind Program Manager, Gulf of Maine Research Institute</p> <ol style="list-style-type: none"> 1. Break into focus groups based on research areas of interest to discuss what collaboration is possible in the future. Find a group that provides complimentary skills. 2. Brainstorm a draft collaborative research project idea 3. 5 minute pitch to larger group |
| 12:00 | <p><i>Lunch provided by GMRI</i></p> |
| 12:30 | <p><i>Depart GMRI</i></p> |