



OFFSHORE WIND BEST MANAGEMENT PRACTICES WORKSHOP



*FEBRUARY 5 - 6, 2014
BALTIMORE, MARYLAND*

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1. EXECUTIVE SUMMARY

On February 5 - 6, 2014, the Mid-Atlantic Fishery Management Council (MAFMC or Council) convened a workshop in Baltimore, Maryland on best management practices for offshore wind development off the Outer Continental Shelf (OCS) of the United States. The purpose of the workshop was to solicit feedback and recommendations from stakeholders on a [draft report](#) on best management practices for offshore wind development^{1*}. The report was developed by the [Bureau of Ocean Energy Management](#) (BOEM) and released for public comment in November 2013.

The [Mid-Atlantic Fishery Management Council](#) is responsible for the management of fishery resources in federal waters (3 – 200 miles) off the coast of North Carolina through New York. Although the Council's management activities are primarily focused on marine fisheries, this workshop was part of a broader and ongoing effort by the Council to ensure that the interests of its stakeholders are adequately documented and addressed. Offshore wind development has become an area of increasing interest and concern for Mid-Atlantic fishery stakeholders, and the Council has been actively working with BOEM to identify opportunities for closer collaboration and improved communication.

Three individuals from the United Kingdom were invited to participate in the workshop and share their personal experiences with offshore wind development. The offshore renewable energy sector has developed rapidly in the UK over the past two decades, and fishermen have faced many of the challenges and opportunities that are likely to arise in US fisheries in the years to come. In attendance at the workshop were:

- Colin Warwick, National Fisheries Liaison Officer for [The Crowne Estate](#)
- John Nichols, Thanet Fishermen's Association member
- Merlin Jackson, Thanet Fishermen's Association member

During the workshop, participants worked to identify important "lessons learned" from the UK's experience. These lessons were the foundation for many of the group's recommendations for improving the offshore wind BMPs.

Summary of Recommendations

- Slow down the planning process to allow the fishing industry to become more fully engaged.
- Begin collecting the data necessary to establish environmental and economic baselines.
- Begin developing tools and resources to facilitate better communication between developers and the fishing industry (e.g. a database of interested individuals and organizations).
- Develop clear guidelines for the selection and responsibilities of the fisheries representative (FR).
- Require transparency during all phases of the development process.
- Establish guidelines that specify when, where, and how exclusion zones can be established.
- Develop models to estimate the impacts of scour and sedimentation.
- Establish a role for fishermen in improving safety practices.
- Include fishermen in the environmental monitoring
- Focus on building trust.

The following report is intended to capture the main ideas, themes of discussion, and recommendations from the workshop. These recommendations will be provided to BOEM for consideration during the revision and adoption of final best management practices for offshore wind development.

¹ [Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial Fishers on the Atlantic Outer Continental Shelf: Report on Best Management Practices and Mitigation Measures](#). BOEM, Office of Renewable Energy Programs. November 2013.

2. INTRODUCTION

2.1. Background

Offshore wind development is well underway on the East Coast of the United States. To date, commercial leases have been sold for offshore wind areas in Massachusetts, Virginia, and Rhode Island, and additional auctions are planned for 2014. BOEM has been vocal in its commitment to working in close consultation with both the fishing industry and wind energy developers to reduce future conflicts between fishing and wind-related operations on the OCS. As part of this effort, BOEM is in the process of developing best management practices and conflict mitigation measures to guide the planning, leasing, site assessment, construction and operation of offshore wind development areas.

2.2. Best Management Practices

Best Management Practices (BMPs) are intended to "foster compatible use areas of the OCS and reduce use conflicts within portions of the US Atlantic OCS that may be used simultaneously by the wind energy industry and fishermen." BOEM held eight workshops between October 2012 and March 2013 to get input from stakeholders into BMPs for offshore wind development. The results of these workshops were the basis for the *Draft Report on Best Management Practices and Mitigation Measures* released by BOEM in November 2013. The report includes nine best management practices related to the following topics:

- 1) Fisheries Community Outreach and Communication Program
- 2) Project Siting, Design, Navigation, and Access
- 3) Alternating/Rotating Construction Schedule
- 4) Safety
- 5) Wind Facility Fishing Access
- 6) Environmental Monitoring Plan
- 7) Financial Support for Gear Modification
- 8) Port or Shore-side Improvements
- 9) Measures to Offset Adverse Impacts

2.3. Workshop Overview

2.3.1. Objectives

- Develop specific suggestions and feedback on the draft BMPs to be incorporated into the final BMP document;
- Provide a forum for participants to share concerns and discuss possible mitigation strategies relative to offshore wind development;
- Improve our collective understanding of the current status, and possible impacts, of offshore wind development in the United States, and
- Identify opportunities to incorporate "lessons learned" UK offshore wind into the offshore wind development process in the US.

2.3.2. Participation

Approximately 40 individuals participated in the workshop. Participants included commercial and recreational fishermen representing a range of gear types and geographic locations on the East Coast, Council members, Council staff, members of relevant academic and research communities, representatives of offshore wind developers, state employees, and representatives of environmental groups.

Three individuals from the United Kingdom were invited to speak about their experience with the offshore wind industry. The UK has been the focal point of much research about

the intersection of fisheries and offshore wind, and a number of important parallels exist between the UK's past and the US's future trajectory. The objective of inviting the participants from the UK was to identify "lessons learned" from their experiences and to consider how those lessons might be translated into a path forward in the US.

Name	Affiliation
Fred Akers	Great Egg Harbor River Council and Watershed Association
Chris Batsavage	MAFMC Member
Tom Baum	MAFMC Member
Maureen Bornholdt	Bureau of Ocean Energy Management, Renewable Energy Program
Bonnie Brady	Long Island Commercial Fishing Association
Sarah Chasis	Natural Resource Defense Council
Mary Clark	MAFMC Staff
Gwynn Crichton	The Nature Conservancy
Thomas Dameron	Commercial Fisherman, MAFMC Advisory Panel Member
Jeff Deem	MAFMC Member
Skip Feller	Rudee Inlet Charters (For-Hire Recreational)
Dewayne Fox	Delaware State University
Monty Hawkins	Morning Star Charters (For-Hire Recreational)
Anne Hawkins	Kelley Drye
Brian Hooker	Bureau of Ocean Energy Management
Peter Hughes	Atlantic Capes Fisheries (Commercial Processor)
Rhonda Jackson	Fishermen's Energy
Merlin Jackson	Thanet Fishermen's Association
Amy Kenney	Amy Kenney Consulting
Justin Kirkpatrick	Northeast Fisheries Science Center, Social Sciences Branch
Karen Lowrie	Rutgers University
Tony McDonald	Urban Coast Institute (UCI) at Monmouth University
John McMurray	One More Cast Charters (For-Hire Recreational)
Chris Moore	MAFMC Staff, Executive Director
Peter Moore	Mid-Atlantic Regional Association Coastal Observing System (MARACOOS)
Alicia Nelson	Virginia Marine Resources Commission
John Nichols	Thanet Fishermen's Association
Jay O'dell	The Nature Conservancy, Mid-Atlantic Marine Program
Peg Parker	Commercial Fisheries Research Foundation (CFRF)
Arthur Popper	University of Maryland, Department of Biology
Bonnie Ram	University of Delaware, Center for Carbon-Free Power Integration
Richard Robins	MAFMC Member, Chairman
Jimmy Ruhle	F/V Darana R, Captain (Commercial)
David Wallace	Wallace & Associates
Colin Warwick	The Crowne Estate
John Williamson	Sea Keeper Fishery Consulting and Charter

2.3.3. Workshop Format

The workshop took place over two days and included a combination of presentations and facilitated group discussions. In addition to the three invited presenters from the UK, representatives from BOEM gave presentations on the status of US offshore wind development and the draft BMPs. Rather than discussing specific wind energy development projects, the workshop maintained a broad focus on general strategies for mitigating conflict that could be applicable across a wide range of projects and geographic locations. Workshop materials and presentations are available at <http://www.mafmc.org/workshop/offshore-wind>.

3. WORKSHOP RECOMMENDATIONS

During the workshop, a number of recommendations emerged on the best management practices. There were general recommendations that covered the clarity and organization of the BMPs and engagement of the fishing industry. Next the summary provides recommendations on the specific BMPs. Workshop participants heard lessons learned from the UK fishermen based on their first-hand experience, which provide great insight to improve the BMPs. And finally, the summary provides recommendations for specific BMPs that arose from the discussions among workshop participants,

3.1. General

3.1.1. Clarify the purpose of BMPs.

Several participants noted that the purpose of BMPs is unclear. BMPs typically provide non-regulatory guidance for avoiding adverse impacts. BMPs have the potential to be powerful tools for helping offshore wind developers to avoid adverse impacts, but it is unclear where the line is drawn between requirements and suggestions. Workshop participants commented that some aspects of the BMPs sound like suggestions when they should really be requirements. Specific requirements should be laid out clearly in the regulations so that there is no room for interpretation or misunderstanding.

3.1.2. Improve the clarity and specificity of language used in the BMP document.

Much of the language used to describe the proposed BMPs is too ambiguous to be useful. The excessive use of the words "would," "should," and "could" in the BMP document make it difficult to understand whether BMPs will be required. Workshop participants noted that this makes it hard to build trust and establish expectations when it's likely that developers and fishermen will interpret the BMPs differently.

3.1.3. Reorganize the BMP document to improve readability and utility for primary user groups.

The draft BMP report is over 70 pages long, and the section on BMPs does not begin until page 50. This is the most important part of the document and should be moved closer to the front in the final version. It may also help to reorganize the BMPs to clearly show the phase(s) covered by the BMP, responsibilities, specific tasks, and responsible parties.

3.1.4. Determine who is responsible for implementation and oversight of each BMP.

Many of the BMPs will require a significant amount of time, effort, and/or money to implement. As they are currently written, it is often unclear who is responsible for ensuring that the BMP are implemented appropriately. The BMP document should include guidance on who is responsible for each component of implementation.

3.1.5. Improve communication about how and when to get involved so that fishermen can provide meaningful input at an appropriate point in the process.

Some workshop participants pointed out that the lack of industry engagement to date is partially due to the lack of available (or easily accessible) information about the status of offshore wind projects that may affect them and how they might get involved. While some individuals think they won't be affected by offshore wind projects, others don't think they have the requisite background knowledge to provide input. Even during the earliest phase of a project, development and distribution of communication materials should be a high priority for both BOEM and offshore wind developers. One participant suggested that a flow chart might be especially useful for illustrating how and when they can provide input into siting and planning decisions.

3.1.6. Build trust.

Workshop participants largely agreed that building trust should be the first priority for developers when they initiate contact with the fishing industry. Avoidance and mitigation of conflicts will require a collaborative approach that allows ample opportunities for discussion and feedback. Participants noted that the leasing process appears to already be well underway in the US without a clear role for the fishing industry. Fishermen have valuable knowledge to bring to the table, but they need to be able to *show* developers where and how they fish rather than just talking about it.

3.1.7. Create new ways to utilize fishermen's knowledge and fishing data.

Much of the workshop discussion focused on how a lack of high-resolution fishing data is limiting the fishing industry's ability to demonstrate the significance of particular areas during siting and micro-siting discussions. It was unclear who should take the lead on doing the fine scale data collection; however, there are many efforts underway to compile information on ocean uses and activities, including fishing activity. Several workshop participants suggested that BOEM take the lead on a mapping initiative.

3.2. Communication ([BMP No. 1](#))

Workshop participants emphasized the importance of open and continuous communication between the offshore wind and fishing industries. Although the draft BMP document details the desired interactions between the developers and fishermen, it does not provide specific guidance on how this can be achieved. One particular area of concern that arose during the workshop related to the specific roles and responsibility of different parties and the chain-of-command for decision-making. Some participants expressed concern that developers would gain the upper hand and that the voice of the fishing industry would not be heard.

3.2.1. Lessons learned from the UK Experience

- ***Early communication between developers and the fishing industry(s) is a critical component of conflict avoidance and mitigation.***

In the UK, the Thanet array was positioned across the tide in such a way that made it very difficult for fishermen to fish safely within the site. A slight change in orientation of the array would have significantly reduced conflicts and difficulties for both fishermen and the wind developers. Had the fishing industry, or a fishing industry representative, been more meaningfully involved in the initial siting discussions, the positioning of the array could have adjusted and a significant amount of disruption to the industry could have been avoided.

- ***Establish a unified platform for engaging and making your voice heard.***

Fishermen need to band together by creating some structure to represent their voice. In the UK there is the National Federation of Fishermen's Organizations (NFFO), an umbrella

organization that represents fishing groups from around the country. The Thanet Fishermen's Association was created for small boats in a specific area and chose not to be a part of NFFO.

- ***The fishing industry representative (FIR) is a very important role. Developing and refining the FLOWW document has been challenging and time-intensive, but it has proven to be a very effective model for communication.***

There are a lot of consulting companies who make jobs out of the FIR role. The FLOWW document includes much greater detail about how they are selected than is currently included in the Draft BMP document. Without that specificity, you will not get your desired outcome.

3.2.2. Recommendations

- ***Slow down.***

Many workshop participants felt that the planning process for offshore wind had moved too quickly despite the absence of significant industry input. They recommended that BOEM slow down to allow for broader, and more meaningful, industry engagement before moving forward with additional leasing or review of construction and operations plans.

- ***BOEM should begin actively developing a centralized database of fishing organizations and individual fishermen to support rapid and consistent outreach efforts by developers.***

Workshop participants acknowledged that the fragmentation of the fishing industry may pose a challenge for establishing effective communication programs. Rather than rely on fishermen and fishing organizations to “opt-in” to communication networks relative to each offshore wind project, BOEM should take the lead on developing a centralized network of stakeholders. This will help to reduce duplicative efforts and help to ensure that fishermen are brought into the process as early as possible. BOEM should reach out to identify fishing organizations and outlets along the Atlantic coasts. Using existing fishery management agencies, known fishing news portals and online tools, develop a contact list for all known fishing organizations on the east coast.

- ***Provide clearer guidance and specificity about the selection and duties of the Fisheries Representative (FR), and begin identifying potential fishing industry representatives as soon as possible.***

While most workshop participants agreed that having an FR could result in better communication between the fishing industry and developers, some expressed concern about the lack of specific details regarding the specific responsibilities associated with the role. The group felt that BOEM should play an active role in overseeing the activities of the FR and ensuring that they are continuing to accomplish their duties as defined in the BMP.

- ***Require transparency during all phases of the offshore wind development process.***

Workshop participants noted that it's difficult, and sometimes impossible, to find up-to-date information about the status of an offshore wind development project. BOEM should require that information about Priority Wind Energy Areas under consideration, Environmental Assessments, Site Assessment Plans, Construction and Operations Plans, and Easement Requests should be made easily accessible to the public.

- ***Establish a role for the Mid-Atlantic Fishery Management Council in engaging fishermen.***

Nearly all of workshop participants agreed that the Council is optimally positioned to facilitate communication between fishermen and developers. While it was acknowledged that the Council is somewhat restricted in how it can be involved (for example, the Council could not accept money from a developer and distribute it to a fisheries representative), but most participants agreed that greater involvement of the Council would have a

positive impact. One possibility would be for the Council to play a role in identifying potential Fisheries Representatives.

3.3. Siting, design, navigation, and access (BMPs [No. 2](#), [No. 3](#), and [No. 5](#))

Comments on BMPs 2, 3, and 5 are combined into a single section because there is a significant amount of overlap between the BMPs and the associated recommendations from workshop participants. Some thought should be given to how these topics can be organized in a clearer and more useful way.

3.3.1. Lessons Learned from the UK Experience

- ***Develop datasets that demonstrate the spatial dimensions of fishing activities.***
In order for fishermen to engage in the offshore wind planning process effectively, they need to be able to define (and defend) fishing areas of particular significance. Datasets produced by Satellite Vessel Monitoring Systems (VMS) often lack the precision necessary for consideration during the siting process. Although many modern vessels are equipped with spatial monitoring systems that collect large amounts of data, most fishermen are reluctant to share this information. The UK Fishermen's Information Mapping Project was established as a secure way for skippers to contribute fishing data to an aggregated dataset.
- ***Establish baselines prior to development of wind farms.***
Data collection should begin as early as possible to measure changes to the environment.
- ***Every site is different.***
The BMPs and any other guidelines should leave enough room for consideration of each site's unique characteristics.
- ***Developing alternating/rotating construction schedules is much easier said than done.***
UK presenters noted that developers would be unlikely to implement this BMP if it's not a requirement. Time is money, and most developers are not going to give up construction time unless they are required to do so.
- ***Fishermen should develop a "Code of Practice" for fishing in a wind farm.***
This code of practice should cover fishing practices, gear types, how to mark gear, and the procedures for lost gear. The Thanet Fishermen's Association developed one that can serve as a model.

3.3.2. Recommendations

- ***Coexistence has to be part of the leasing conditions.***
There are ways to build wind farms without eliminating fishing access to those areas, but that can only happen when the developers work closely with the fishing industry. Coexistence will require more work but will yield much better outcomes. This process cannot happen effectively without the input and participation of fishermen.
- ***Developers should make sure to account for the full range of fishery interests.***
Different fisheries and gear types will have different interests and concerns. Developers must work to consider and include the full range of fishing interests.
- ***Set clear guidelines for establishing exclusion zones.***
Guidelines should specify how large exclusion zones can be, who will be excluded from them, and under what circumstances they can be established.

- ***Additional modeling work is needed to estimate the actual impacts of scour and sedimentation.***

Developers should also do research on existing wind farm sites in other parts of the world to ground truth results (not just theoretical).

- ***Assess the feasibility of alternating/rotating construction schedules.***

There are many considerations across fisheries and species, which could make it difficult to prioritize which considerations are most important when developing the construction schedule. Participants noted that the overlap among fisheries and gear types would make it unlikely that developers could develop a schedule that minimizes disruptions..

3.4. Safety ([BMP No. 4](#))

Workshop participants expressed concern about the lack of detail included in this BMP and confusion about who was responsible for overseeing and enforcing implementation of safety measures. Generally, participants felt that the existing regulations for lighting and marking wind farm structures would not be adequate given the anticipated amount of traffic around wind farms..

3.4.1. Lessons Learned from the UK

- ***Safety and navigation are critical.***

In some cases too much lighting can be confusing to vessels. Consider the impact on radar and other navigation tools within the wind farm. Make sure the site is lit appropriately and that small and large boats alike can navigate safely in the wind farm in all weather conditions. The UK fishermen found AIS to be the best system to ensure safe navigation.

- ***Implement speed limits during both construction and ongoing servicing of the offshore wind farm.***

While speed is important to the offshore wind industry, it becomes a safety concern if service boats are moving quickly or creating wakes that threaten the safety of nearby fishermen.

- ***Establish a process for dealing with marine debris.***

In the UK, massive debris was uncovered during grappling before cable installation. While some debris was brought to shore, a lot was left on the bottom. This debris caused gear entanglement. There needs to be communication about how to handle debris between the fishing industry and offshore wind developers.

3.4.2. Recommendations

- ***Clarify the purpose of this BMP (and consider removing it).***

Safety doesn't really seem like a "best management practice" category since many of the other topics relate to optional or negotiable practices. The topics covered in this section should developed by technical experts and written into law.

- ***Establish a role for fishermen in improving safety practices.***

As the document is currently written, it is not clear what kind of input BOEM wants from fishermen. There certainly could be a role for fishermen to participate in the development of safety measures to supplement existing requirements, but this role would need to be much more clearly defined.

- ***Focus on preventative measures.***

As always, the most important component of safety should be accident avoidance. Further development of this section should place a greater emphasis on potential causes of accidents and associated methods of avoidance.

- ***Develop an emergency plan.***

While the focus should remain on preventing accidents, BOEM should require the development of an emergency plan in case an accident does happen. The emergency plan should clearly identify a chain of command, identify who will be involved, and establish a communication plan for notifying the fishing industry.

3.5. Environmental Monitoring Plan ([BMP No. 6](#))

The content of this BMP appears to be an adapted excerpt from an existing regulation—further contributing to the broader confusion about the purpose of best management practices. The section is also extremely short (114 words), and the few issues that are mentioned (timing for maintenance and inspections, safety zones during inspections, communication with the fishing industry during maintenance activities) seem out of place. Although participants generally agreed that environmental monitoring is extremely important, the lack of detail or thoroughness made it challenging for workshop participants to develop specific suggestions for improvement.

3.5.1. Lessons Learned from the UK

- ***Sand shifts over time.***

Depending on the bottom type, currents and storms can drastically change the bottom over time. Fishermen have knowledge of the bottoms and developers should tap into their knowledge to prevent cables being exposed when sand predictably shifts.

3.5.2. Recommendations

- ***Consider the effects of offshore wind on natural resources***

Participants expressed concern that this section of the document barely mentions the potential impact of wind farms on the living marine environment and does not provide any guidance for monitoring such impacts. This section should focus on issues such as habitat impact, migration patterns, and spawning locations and include much greater detail on the frequency, type and amount of information collected.

- ***Establish an environmental baseline before construction begins, and a timeline that specifies when and what type of information is collected.***

It is extremely important to have comprehensive baseline data before construction begins. We should already be working on collecting this data in areas that are being considered for wind farm development. If we wait until we already suspect that changes are occurring, it is too late to measure the extent of those impacts.

- ***Data collection areas should be larger than the footprint of the wind farm for each site (or potential site).***

The geographic scope for baseline information needs to be equivalent to the potential sedimentation footprint of the array rather than the actual footprint of the array. In some of these areas, the actual wind farm footprint is much smaller than the sedimentation footprint, as well as the influence of the wind farm on living marine resources. Early consultations for leasing areas should involve the identification of site-specific data needs.

- ***Include fishermen in the environmental monitoring***

Fishermen and fishing boats should be employed to assist with the environmental monitoring. Fishermen will know the bottom and habits of living marine resources in the area that can improve the environmental monitoring program.

- ***Clarify the role of the developer in conducting environmental monitoring.***

If the developer will be directly involved in the collection, analysis, and reporting of environmental data, then this BMP should include guidelines for monitoring activities. It

should also specify whether the developer will be responsible for any portion of monitoring costs.

- ***Provide guidelines for using wind farms to improve habitat.***

Research has shown that wind farms have potential to improve habitat *if* they're designed and monitored properly, but there is a lot of uncertainty and confusion about how this might be done.

3.6. Financial Compensation (BMPs [No. 7–9](#))

The UK experience has been a strong example of the need for clearly defined roles and responsibilities related to financial compensation. These BMPs have the potential to contribute to conflict, rather than mitigate it, if the terms and conditions of compensation are not established and communicated clearly.

3.6.1. Lessons Learned from the UK

- ***Ensure that the compensation agreements are clearly defined and understood by all parties involved.***

Financial compensation is only feasible when the terms are clearly defined and agreed upon in advance. A great deal of thought needs to go into the details of how compensation will work; otherwise, it will never happen.

- ***Identify which parties will be responsible for paying for fishing industry involvement.***

In most cases, fishermen will need financial support to participate in the process. If the wind farm was not sited in their fishing area, fishermen would not need to pay for these expenses.

3.6.2. Recommendations

- ***Developers should be responsible to pay for the FL, FR and legal fees associated with the fishing industry involvement in the offshore wind process.***

The developer should provide funding for the fishery liaison (FL) and fishing representative (FR), as well as legal fees required in the development of contracts and agreements.

- ***Require lessees to compensate fishermen for lost and damaged gear.***

Placing the burden of responsibility for lost gear on the developer will create a strong incentive not to develop on important fishing grounds. This stipulation would require that a clear claims process be established prior to any construction or operations activity.

- ***Establish a consistent process for submitting and processing claims. This should include specific guidelines for calculating compensation under a range of potential scenarios.***

Although some compensation scenarios will be straight-forward, others will be much more complicated. For example, if the construction of a wind farms results in a direct loss of biological productivity in an area, how will fishermen be compensated? Will they be compensated for lost catch, or will they be compensated for the cost of additional fuel needed to fish elsewhere? Will individual fishermen be expected to request compensation, or are the developers expected to take the initiative? Without clear answers to these questions, it is unlikely that compensation for financial (or other) losses can occur without significant conflict among user groups.

- ***Replace the term "gear conversion" with "gear modification"***

"Gear conversion" and "gear modification" are used interchangeably in the document, but they are different and are not interchangeable. Gear modification is a preferable term.

- **Collect data necessary to establish a social and economic baseline.**
Having an accurate baseline will be necessary for fishermen to demonstrate that offshore wind projects have adversely affected them.
- **Establish an offshore wind contingency fund**
The workshop participants recognized that this is not a BMP recommendation but requires a statutory change by Congress; however, BOEM should support the establishment of a contingency fund. Significant funding (more than the \$2 million cap on oil and gas) should be set aside to mitigate anticipated costs of gear loss, loss of fishing and/or catches, and other mitigation measures to compensate fishermen for losses associated with offshore wind facilities.

4. CONCLUSION

Offshore wind has the potential to create an extremely valuable resource for the United States: clean, renewable energy. However, the development of offshore wind farms cannot happen without consequences. In addition to the potential impacts on the marine environment, offshore wind development could result in challenges for individuals who live on the coast or rely on the ocean's resources for a living. Many of these conflicts can be mitigated or avoided entirely through effective planning, coordination, and collaboration among stakeholders.

This workshop was intended to provide a forum for participants to share concerns and discuss possible mitigation strategies relative to offshore wind development. While some participants arrived at the workshop with limited knowledge about the offshore wind development process, most of them left with a desire to stay engaged and informed in it.

Best management practices are most effective when they are developed and refined through an iterative process. Several participants noted on the difficulty to develop mitigation strategies for conflicts that cannot be fully anticipated. These comments should be taken seriously. In addition to refining the initial BMP document, BOEM should begin developing a long-term plan for revising BMPs and conflict mitigation measures over the long-term.

APPENDIX 1: PRESENTATION SUMMARIES

4.1. Offshore Wind Development in the US

4.1.1. [Update on BOEM's Offshore Wind Renewable Energy Program](#)

Maureen Bornholdt, Program Manager for BOEM's Office of Renewable Energy Program

Ms. Bornholdt presented an update on recent progress with offshore wind development in the U.S. and provided an overview of the staged offshore wind authorization process. The presentation covered recent offshore wind lease sales, current planning and leasing activities by region, and opportunities for the fishing industry to provide input.

Presentation Highlights:

- The term "leasing" was used to refer to many different activities that take place during the offshore wind development process, so it was divided into four phases: Planning and Analysis, Leasing, Site assessment, and Construction and Operation.
- The leasing process includes all elements of a typical contract (timing, rent, operations fees, bonds, etc.). The leasee (or potential leasee) is expected to maintain ongoing engagement with stakeholders, intergovernmental task forces, and work groups throughout this process.
- BOEM held its first two offshore wind lease sales in 2013. Two leases were issued to Deepwater Wind for wind energy areas (WEAs) off of Rhode Island and Massachusetts. One lease was issued to Dominion Virginia Power for a WEA off of Virginia.
- Additional planning and leasing activities occurred in Maine, Massachusetts, Rhode Island, New York, New Jersey, Delaware, Maryland, and Virginia.
- State task forces have been established to assist government decision-making within the umbrella of BOEM. Members of the public can provide input on proposed projects through state task forces that were established to assist the decision-making process.

4.1.2. [Overview of Proposed Best Management Practices](#)

Brian Hooker, Bureau of Ocean Energy Management, Office of Renewable Energy Program

Brian Hooker, marine biologist with the Bureau of Ocean Energy Management, presented an overview of the draft best management practices and the process that BOEM undertook to describe the draft BMP document.

Presentation Highlights:

- Data from vessel monitoring systems (VMS) and vessel trip reports (VTRs) were analyzed during the process for identifying potential wind energy areas.
- The draft BMPs were based on input provided by stakeholders during a series of eight workshops held between October 2012 and February 2013.
- BOEM is in the process of conducting biological and socioeconomic studies to inform the identification of wind energy areas and review of site assessment plans and construction and operation plans.
- Stakeholders may continue to offer input and recommendations on the development and application of BMPs.
- BOEM welcomes continued input from the fishing industry throughout all phases of offshore wind development.

4.2. Offshore Wind: The UK Experience

Three individuals from the United Kingdom were invited to attend the workshop and share their experiences with offshore wind development in the United Kingdom. All three presenters emphasized the significance of the the Fishing Liaison with Offshore Wind and Wet Renewables (FLOWW) group, established in 2002 to foster communication between the fishing and offshore renewable industries. FLOWW's objective is to encourage co-existence of both industries. The group is made up of organizations with representatives from the fishing industry, developers, government and the Crown Estate, and facilitated by a secretariat that is funded by the Crown Estate. FLOWW is an industry initiative, not a government agency.



Colin Warwick, John Nichols, and Merlin Jackson with Mid-Atlantic Fishery Management Council Chairman Rick Robbins

In early 2014, FLOWW released a report, *Best Practices Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison*. The report provides guidance to Fisheries Liaisons on their role throughout the process - leasing, planning, construction and operation - and on specific issues - mitigation, safety, loss of gear, and a claims process. The report was developed over three years and serves as a model for establishing productive dialogue and building trust between offshore wind developers and the fishing industry.

4.2.1. [History of Offshore Wind Development in the United Kingdom](#)

Colin Warwick, National Fisheries Liaison for the Crown Estate in the UK

In the UK, the Crown Estate owns the ocean bottom within territorial seas. Mr. Warwick fished the UK waters for four decades before handing the family business to his children. Now, he serves to improve communication and coordination between the fishing industry, the Crown Estate and offshore wind developers. Mr. Warwick provided an overview of commercial fishing in the UK, including landings and gear types, and then showed the wind farm footprint and phases of the offshore wind program.

4.2.2. [UK Fishermen's Information Mapping Project](#)

Colin Warwick, National Fisheries Liaison for the Crown Estate

During his second presentation, Mr. Warwick focused on the UK Fishermen's Information Mapping Project (UK FIM), a fishermen-led project that translates fishermen's knowledge onto maps. UK fishermen initially ignored offshore wind development process until after the wind farms were already developed—in some cases right on top of the best fishing grounds.

Most of the analyses of fishing industry activity had been based on data from vessel monitoring systems (VMS), which often excludes small vessels and does not provide information at high enough resolution to inform micro-siting decisions. VMS data also lacks important information about the ocean bottom, tides, and patterns of fishing activity. While most fishermen tend to be reluctant to share detailed information about where they fish, the sudden development of many important fishing areas motivated some UK fishermen to band together in an effort to "put UK fisheries on the map."

With £150,000 (UK pounds) and fishermen going around the country asking for plotter data from different fisheries, ports, and gear types, UKFIM put the fishing footprint on the map. UKFIN provides a tool for fishermen to explain the fishing activity in a particular area to offshore wind developers in ways that can be understood, reducing user conflict in wind farms.

4.2.3. [UK Experience: Thanet Fishermen's Association and Wind Farms](#)

Merlin Jackson and John Nichols, Thanet Fishermen's Association

Merlin Jackson and John Nichols, members of the Thanet Thanet Fishermen's Association, gave a presentation on the impacts of offshore wind on the fishing industry in the UK. They focused on "lessons learned" in the UK and offered a range of recommendations for both the fishing industry and BOEM to help mitigate and avoid potential conflicts.

Presentation Highlights:

- Thanet Fishermen's Association (TFA) is an association of 45 small, day boat vessels (<10m) who fish in two of the world's largest wind farms.
- In 2005, the fishing industry was caught off guard when they learned that wind farms had been sited on important fishing grounds.
- Fishermen were concerned that significant decisions had been made without the opportunity to provide input on the location or to comment on potential impacts of offshore wind development on UK fisheries
- To ensure that their voices were heard, members of the fishing industry established a committee to work on wind issues, and the positions of fishing industry representative (FIR) and fishing industry liaison (FIL) were established. These developments significantly improved communication and trust between fishermen and developers.

APPENDIX 2: AGENDA

February 5 – 6, 2014, Baltimore, Maryland

Embassy Suites Baltimore- Inner Harbor, 222 St Paul Pl, Baltimore, MD 21202

Wednesday, February 5

12:30 Register/Check-In

1:00 Weather Delay due to snow

3:00 Welcome

Rick Robins, Chairman, Mid-Atlantic Fishery Management Council

- Opening Remarks and Introductions
- Agenda overview
- Participant introductions

3:30 Introduction to US Offshore Wind and BMPs

Brian Hooker, Bureau of Ocean Energy Management

- A brief introduction due to weather delays.

3:40 Presentation(s): The U.K. Experience

Colin Warwick, National Fisheries Liaison for the Crown Estate

- Overview of UK fishing activities
- The Crown Estate and offshore energy in the U.K.
- UK Fishermen's Information Mapping Project
- Overview of The Fishing Liaison With Offshore Wind And Wet Renewables Group (FLOWW)

Merlin Jackson & John Nichols, Thanet Fishermen's Association Members

- Relationship of Thanet Fishermen's Association with wind farms

5:30 Panel Discussion: Lessons Learned from the U.K. Experience

Colin Warwick, Merlin Jackson & John Nichols

- U.K. fishermen share their perspectives on offshore wind in the U.K., with an emphasis on lessons learned

6:00 Reception

Dinner on your own

Thursday, February 6

Breakfast on your own

9:00 Presentation: Overview of U.S. Offshore Wind Development

Maureen Bornholdt, Bureau of Ocean Energy Management

- History and recent progress of offshore wind development in the U.S.
- Next steps and the future for offshore wind on the east coast

9:45 BMPs In Depth: Description of BMPs in Context of Process and Development Phases

Brian Hooker, Bureau of Ocean Energy Management

- Description of each of the nine draft BMPs
- How will BMPs fit into process and development phases.
- Highlight specific areas where additional development is needed.

10:30 Break

10:45 Group Discussion: Reflect on UK experience and initial thoughts on proposed BMPs

Facilitator: Amy Kenney

- Clarity, feasibility, and practicality of draft BMPs
- What's missing?

12:30 Lunch on your own

1:30 Group Discussion Continued - Discuss and comment on specific BMPs

- Small working groups will discuss and provide comments on each of the BMPs
- BOEM & U.K. expertise will be distributed around the breakout groups to provide expertise

3:30 Wrap-Up, and Closing Remarks

4:00 Open discussion

Optional

- Council staff, BOEM available for Q&A
- Fill out individual comments on BMPs

5:00 Adjourn