

Appendix A

Stakeholder Consultation Contact Reports

DEVELOPMENT OF MITIGATION MEASURES TO ADDRESS POTENTIAL USE CONFLICTS
BETWEEN COMMERCIAL WIND ENERGY LESSEES/GRANTEE AND COMMERCIAL
FISHERS ON THE ATLANTIC CONTINENTAL SHELF

BPA Call Order #M12PB00006

CONTACT REPORT (CR 04/03/12)

Meeting [] Telephone [X] Other []

Name: Grover Fugate and Dave Beutel of Rhode Island Coastal Resources Management Council
Date: 04/03/2012
Time: 10 am EST
Location: Conference call
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Rhode Island Coastal Resources Management Council (RI CRMC) members Grover Fugate and Dave Beutel to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Rhode Island Coastal Resources Management Council	Grover Fugate (Executive Director)
Rhode Island Coastal Resources Management Council	Dave Beutel (Aquaculture Coordinator)
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	Megan Higgins
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from RI CRMC staff on engaging the commercial and recreational fishing industries in their respective region on offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm and Ms. Farrell summarized the project for Mr. Fugate and Mr. Beutel, emphasizing E & E's familiarity with the RI Ocean Special Area Management Plan

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(Ocean SAMP) and acknowledging Mr. Fugate and Mr. Beutel's experience with executing meetings similar to those planned for the project.

- The discussion focused on potential challenges BOEM may have with the meetings, background on regional fishing issues, and suggestions for conducting a successful meeting with the fisheries stakeholder group. Below is a summary of the topics discussed.

Challenges Anticipated by CRMC

- BOEM's eight scheduled meetings may not be adequate to meet the agency's needs for the project. As part of the Ocean SAMP development, CRMC held over 38 meetings (group and individual) to accomplish a similar task.
- Bottom types vary greatly in the areas offshore Rhode Island. As a result, fishery activities have adapted to the different bottom types with different types of gear creating inconsistency within each fishery. Inherent conflicts will vary greatly along a particular shoreline. Mr. Fugate and Mr. Beutel suggested that BOEM will need to engage stakeholders across gear types. Mr. Hooker emphasized that BOEM will be developing mitigation measures nationally and across gear types.
- There is a disconnect across the fishing industry between perceptions and facts about offshore wind. This will be an issue for BOEM as there are no pilot projects in the U.S. and therefore no quantifiable impacts to be discussed. The fishing groups are particularly concerned about the construction process, especially the short-term impacts. There also is a large amount of uncertainty and concern in the fishing industry regarding operational impacts to fisheries (e.g., noise, electromagnetic fields, etc.) and the size of the zones of these impacts (i.e., protected areas). Answers to these questions affect which mitigation measures will be needed for fisheries. Mr. Fugate and Mr. Beutel reiterated that BOEM will be dealing with perceptions, not facts, when talking to the fishing industry and this will need to be addressed.
- Rhode Island has an integrated fishing industry compared to other states. Mr. Fugate and Mr. Beutel specifically mentioned Massachusetts and the dominance of the scallop industry, primarily due to its revenues compared to the other fisheries in the state. This may be difficult for BOEM because of the different fisheries in RI and associated gear type representatives who should be included in the meetings. Mitigation ideas will vary by fishing gear and compensation will be mentioned.
- There was variability in fishers' attendance at the Ocean SAMP meetings. Mr. Fugate and Mr. Beutel said that in meetings early in their process they had representation

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from all the different groups (i.e., all gear types, near shore fishers, farther offshore fishers). They found that as time passed the fishers from far offshore attended less. They felt it was challenging to keep the trawling community fully engaged, which was an issue because they are the largest fishery in RI. The lobster and gill net fishers spoke for the trawling community.

Regional Background

- The fishing industry in RI is divided as a group and there are several representative organizations for the industry. CRMC found that there were groups of fishers who were comfortable with the Ocean SAMP process and were not very engaged. Other groups were less comfortable with the Ocean SAMP process and were more involved. Some of these representatives wanted involvement in an offshore wind project throughout the whole process, from siting through the operation phase; therefore, the Fishery Advisory Board (FAB) was formed in RI to advise on the process.
- The FAB is comprised of commercial fishing representatives divided by gear types. MA fishermen are on the board as well, also divided by gear type. Most individuals who applied to be on the FAB were from the groups that were less comfortable with the Ocean SAMP process. Mr. Fugate and Mr. Beutel advised BOEM to reach out to all fishing groups and that the FAB was not necessarily representative of all fishing groups.
- The FAB is concerned about the biological sampling methodologies being used by NOAA Fisheries and RI Department of Environmental Management (DEM) to characterize fisheries for Deepwater Wind's Block Island Wind Farm offshore of Block Island, RI. They are also being consulted on the pre-application process and timing of construction, routes, turbine locations, etc.
- The FAB wants to ensure that there will be consistent interaction between fishers and offshore wind developers to minimize potential impacts to fisheries. As part of this process the offshore wind developer pays for a fisheries liaison who acts as a fisheries contact point, informing the FAB of the construction sequence, when pile driving will occur, etc. The liaison role is now required in RI as part of an offshore wind development project and the coastal consistency requirements. The FAB will likely want a similar individual as part of BOEM's process to determine what mitigation and compensation should be.
- Rhode Island Sea Grant is currently working on compiling fishery mitigation methods used in other projects to present to the FAB. They will have subsequent meetings to

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- determine if these mitigation methods should be adopted. They are still assimilating data at this point and will eventually produce a report. Contact person: Jen McCann.
- Mitigation and minimizing impacts is only one component of offshore development to these groups. They will want compensation for future losses and are leery about long-term impacts to the industry (i.e., prohibited areas).
 - Fishers are supportive of the Block Island Wind Farm because they want to see possible environmental impacts and subsequent mitigation measures developed from pilot projects.

Meeting Recommendations

- Wind energy representatives were at the Ocean SAMP meetings; however, the CRMC met with the fishermen separately because usually the discussions were not as effective with the two industries together. Mr. Fugate and Mr. Beutel felt that wind developer representatives came across as trying to placate the fishing industry and did not establish trust. Open communication might be difficult if both entities were in the room together. Mr. Fugate and Mr. Beutel recommended time for each group to talk on their own without the other interest groups present.
 - Holding each meeting at a neutral facility will be key for an effective meeting. URI facilities were recommended as fishing groups often meet there.
 - BOEM's facilitators (i.e., E & E and CBI) should be knowledgeable on the fishing and wind industries. CRMC had experience with a facilitator who didn't know the subject and it showed poorly on everyone. E & E noted that we would be bringing neutral offshore wind technical experts to each meeting.
 - BOEM should look at the major ports in the northeast and hold meetings in these areas; however, individuals should be invited from all over the region. Mr. Fugate and Mr. Beutel recommended Pt. Judith and suggested that we define major ports by the landing values.
 - Allow time for general issue discussion in the beginning of each meeting and don't break out into smaller groups until then. There should be time for comments and a time for responses at the end of the meeting.
 - Allow the most vocal individuals to speak but not dominate the meeting, then open discussion to the rest of attendees.
 - Anticipate about 30 – 40 attendees per meeting.
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- Open the meetings to NGOs because they work with the fishing groups. Mr. Fugate and Mr. Beutel suggested contacting the Conservation Law Foundation (CLF), Save

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The Bay, and The Nature Conservancy. Also recommended inviting representatives from state agencies.

- Building trust is essential. BOEM should reinforce that this is an open process and no set agenda. There will likely be a lot of emotion because of the uncertainty associated with offshore wind development and potential economic impacts to the fishing industry. They are already subject to multiple regulations and are upset with NOAA regarding listing of the Atlantic sturgeon and data including cod numbers and biomass estimates. Expect people to come specifically to vent to BOEM, not necessarily about the subject of the meeting.
- Keep the bottom trawlers engaged because they are the biggest industry in RI, although they were least engaged in the Ocean SAMP process. Lobster and gill net fishermen were most involved.
- If meetings need to be scheduled during peak season, schedule late evening meetings so fishermen can attend (5:00 or 6:00 pm).
- Do not schedule meetings between April through October for the lobster industry.
- Schedule meetings between rolling closures for Gulf of Maine so fishermen can attend. Consider issues for each sector and each area.
- Consider scheduling around weather (i.e., windy days when fishers are not on the water) for gill netters or bottom trawlers.
- Mr. Fugate and Mr. Beutel suggested that E & E contact Jeremy Collie at URI for additional suggestions.
- Also include representatives from RIDEM, Division of Fish and Wildlife, Marine Fisheries [<http://www.dem.ri.gov/topics/mftopics.htm>].

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Brian will send E & E information on FAB members (completed 4/3/12)	Brian Hooker	4/3/12
2	Mr. Fugate will send the names of contacts to E & E	Grover Fugate	
3	Contact Jen McCann at RI Sea Grant when mitigation report is available	E & E	
4	Contact Jeremy Collie (URI) and RIDEM for additional contacts	E & E	

CONTACT REPORT (CR 04/04/12a)

Meeting [] Telephone [X] Other []

Name: Michelle Bachman, Chris Kellogg, and Pat Fiorelli of the Northeast Fisheries Management Council
Date: 04/04/2012
Time: 11 am EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Northeast Fisheries Management Council (NEFMC) members Michelle Bachman, Chris Kellogg, and Pat Fiorelli to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Northeast Fisheries Management Council	Michelle Bachman
Northeast Fisheries Management Council	Chris Kellogg
Northeast Fisheries Management Council	Pat Fiorelli
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	Megan Higgins
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from NEFMC staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
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2. Meeting Summary:

- Mr. Trimm and Ms. Farrell summarized the project for the NEFMC. Mr. Trimm summarized E & E's experience with the Neptune LNG project and his work with fishers in the region.
- The meeting discussion focused on NEFMC's background knowledge of the project and suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

NEFMC Project Background

- NEFMC staff members were aware of the project because of Mr. Hooker's presence at recent NEFMC meetings. Mr. Hooker has updated them on the potential for offshore wind development in the area and the timing of such projects.
- The NEFMC also works with the Mid-Atlantic FMC (MAFMC) and NOAA Fisheries on collecting baseline habitat data offshore in their region.
- Ms. Bachman has been Mr. Hooker's point-of-contact and Mr. Kellogg attended the New Bedford workshop last year which focused on offshore wind and the fishing industry.
- A number of the NEFMC members are interested in offshore wind development and the Council has a link to BOEM's website on their website. Mr. Hooker was going to check to make sure it was the best link to use. BOEM is open to adding more information on their website regarding this project.

Invitee Suggestions

- NEFMC has a list of email contacts to provide to E & E as well as information on the major fishing organizations they work with. They can also post information on their website and post to different fishing groups.
- E & E could also contact NOAA Fisheries for their permit holder list, but this will likely be a time-consuming process.
- E & E would like fishing groups to determine on their own who should represent them at these meetings. Ideally these would be the most effective people in each group.
- E & E confirmed for NEFMC that the stakeholder meetings were not public hearings. The invitee list will be with specific groups (i.e., a mix of fishing interests and wind energy developers). These individuals will be working in breakout groups to compile ideas for BOEM on mitigation measures. The public will be allowed in the room, but they will not be able to participate or specifically involved in mitigation development discussions.

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- After E & E has developed a list of participants they should send it to NEFMC so the Council can identify which areas BOEM should be concerned about in order to gauge the level of discontent.
- If E & E expects different concerns from fishers based on gear type, there should be representatives at the meeting for each gear type to get a comprehensive mix.
- Conservation Law Foundation, Nature Conservancy, and Oceana are some of the active NGO's in the area. NEFMC will send E & E a list of their specific contacts.

Meeting Suggestions

- NEFMC thought the locations presented on E & E's proposed map looked adequate for the time being, but they wanted time to think about it more.
- People are used to talking at council meetings. If E & E is going to hold a public meeting there should be a 15 minute public comment period in the morning and afternoon. This will diffuse complaining from the outlying groups.
- NEFMC thought E & E's use of tables and break out groups would be a good way for everyone to participate. NEFMC will talk to their sector managers (approximately 17) and groups to get contacts. The scallop and herring fishers are the more cohesive groups. Some organizations have their own contacts and NEFMC can send E & E those emails. There are, however, a fair amount of outliers who do not want to be a part of organized groups.
- NEFMC set up a sector program but NOAA advises it. They had a workshop to determine the efficacy of the sectors. NEFMC will assist E & E in determining if sector managers or board members would be more helpful to the stakeholder meetings.
- NEFMC will send E & E a list of council meetings as a suggestion of optimal times and dates to hold the meetings. Ideally it would be the day of a storm at 7pm. They usually plan their meetings over a year in advance. Committee meetings are scheduled a month or more in advance.
- E & E should plan meetings as far ahead as possible.
- BOEM is not requiring a certain number of days between each meeting and is open to clustering them to get more participants. Mr. Hooker is open to beginning the meetings in the southern end of the project area and working north if that makes more sense. The goal is to have the mitigation measures and BMPs completed before there is an EIS.
- Summer is not a good time to hold meetings, people won't come.
- New Bedford should be the location of one of the meetings.
- The scallop season starts March 1 and the groundfish season starts May 1. NEFMC can get more specific information from sector plan leads and can provide E & E with information on seasonal openings and closings. E & E should avoid conflict with areas that is being driven by a specific fishery.

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- NEFMC suggested that E & E develop an educational component for the meetings to update the attendees on the projects and potential impacts. E & E has not developed any materials to-date, but will prepare some for the meetings. Educational materials could be sent to attendees ahead of the meetings when they are invited and can also be available at the meeting. Meetings usually proceed better when attendees are prepared and NEFMC does this with their meetings. E & E may want to develop a website for the educational information or post materials on the BOEM website if acceptable by BOEM.
- BOEM stated no projects are planned to be sited near the lobster coast, but they will have stakeholder meetings near there.
- People in the region fish from MA down to VA, though concerns about offshore renewable development will likely be similar. E & E should focus on the region where the meeting is located (i.e., don't talk about VA at an MA meeting).

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Send Mr. Trimm list of NEFMC meetings, bullet points on the meeting, and location suggestions (RI, MA, ME, CT)	NEFMC	
2	Check on BOEM website link and adding information to site	Mr. Hooker	
3	Send E & E a list of season openings and closings, fishing group contacts, NGO contacts	NEFMC	
4	Send NEFMC list of participants once it is developed	E & E	

CONTACT REPORT (CR 04/04/12b)

Meeting [] Telephone [X] Other []

Name: Mary Clark and Thomas Hoff of the Mid-Atlantic Fisheries Management Council
Date: 04/04/2012
Time: 1 pm EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Mid-Atlantic Fisheries Management Council (MAFMC) members Mary Clark and Thomas Hoff to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Mid-Atlantic Fisheries Management Council	Mary Clark
Mid-Atlantic Fisheries Management Council	Thomas Hoff
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Sarah Bowman
Ecology and Environment	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	Megan Higgins
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from MAFMC staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm and Ms. Farrell summarized the project for the MAFMC. Ms. Farrell provided an overview of the proposed meetings and the work plan development.

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- The meeting discussion focused on MAFMC's recent work in the region, as it was relevant to the project, as well as suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

MAFMC Background

- Mr. Hoff will be retiring from the MAFMC at the end of April 2012. James Armstrong will be taking over wind issue representation for the council.
- Ms. Clark recently led 20 meetings up the Mid-Atlantic coast to discuss the vision and strategic plan for the MAFMC. She worked with the various stakeholders to hear their concerns and ideas for improving management and communication with the MAFMC. They were aiming at 10-12 attendees per meeting and ended up with 5-20. She found meeting locations by establishing contact with the meeting host.
- A lot of fishers are fearful that once offshore wind facilities are built and operating the Dept. of Homeland Security will shut the areas down for fishing access.

Invitee Suggestions

- Ms. Clark will provide contacts for both recreational and commercial fishers to E & E.
- MAFMC has a small list of contacts they are developing on a case by case basis. They want to identify one to two people in each fishing group and have them reach out to their respective network. E & E could use the entire MAFMC contact list or we could specify contacts by location.
- There are fishing associations around the region, but most are not very active. The MAFMC's experience is that the associations are not very helpful in getting people to meetings.
- Recreational fishing clubs are very effective getting people to meetings.
- E & E could also talk to state directors and have them nominate individuals to come to the meetings. They may already be working with BOEM.
- The MAFMC is split 50/50 between commercial and recreational fishers. They estimate the Northeast FMC constituency is 90% commercial/10% recreational and the South Atlantic FMC constituency is 25% commercial/75% recreational.
- E & E may want to get contact information from the local ports as well.
- At a recent MAFMC meeting in Atlantic City they focused on clammers and discussed wind energy and marine spatial planning. Offshore wind energy was not a dominant theme because they are more concerned about other issues (i.e., biological data being used to make management decisions).
- E & E should work with the BOEM offshore wind state coordinators because they can provide the contact names for individuals from their respective task force.
- Commercial fishers are working all year in the Mid-Atlantic region.

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- There is usually a larger turn-out at meetings by the recreational fishers because the president of their community told them to come to a meeting. The commercial fishers are less organized.
- Recreational fishers also fish directly off the coast compared to commercial fishers who fish up and down the coast and further offshore. This affects interest in meetings.

Meeting Suggestions

- Each of the Mid-Atlantic states represented by the MAFMC (VA, MD, DE, PA, NJ, NY, NC) has a wind project proposed offshore, except PA. MAFMC suggested that BOEM hold a stakeholder meeting in each state where a wind project is proposed.
- Ocean City, MD, Atlantic City, NJ, VA Beach, VA, Lewes, DE, and Montauk or Sheepshead Bay, NY were all suggested locations for meetings. These towns would be directly in the line-of-site of a potential offshore wind facility so there may be more interest by the local fishing population to attend a meeting.
- DE may feel slighted if there is not a meeting held there. UDel has a research facility at Lewes which would be a good location for a meeting. There is hardly any commercial fishing in DE but there are a lot of recreational fishers. A lot of the PA recreational fishers go to DE.
- MAFMC held meetings in Ocean City, MD, Atlantic City, NJ, Shinnecock, NY, and VA Beach, VA to inform their stakeholders.
- Shinnecock, NY may be a better location than Sheepshead Bay because more commercial fishers are in the area.
- E & E should contact Roger Pugliese at the South Atlantic Fishery Management Council for suggestions on where to hold a stakeholder meeting in NC. Most recreational fishers are inshore. Hatteras may be a potential location. Do not hold the meetings in Wanchese or Manteo because the fishers are hostile there. Since a potential BOEM project would be south of the Cape, Wilmington, NC might be a good location because there are recreational fishers there all year round. Beaufort, NC is also a possibility.
- BOEM needs to be able to talk to the fishers, not soothe them.
- BOEM staff should be at the meetings to answer questions, especially on homeland security issues. The US Coast Guard will not answer questions on the issue of offshore wind.
- It would be very helpful for E & E to have a 15 minute questions and answer session in order to have a productive meeting. People will want to vent.
- E & E has good experience getting people to work in groups and avoid grandstanding. There will be wind energy technical experts at each meeting to answer questions.

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- Avoid scheduling meetings during winter at the beach communities. Schedule meetings during spring/summer/fall when the recreational fishers are in those locations.
- Depending on BOEM’s budget, hotels were the best location for a meeting from a neutrality standpoint. Other possibilities include libraries or fire houses.
- Ms. Clark will help E & E finalize the list of meeting locations based on her meeting experience in the Mid-Atlantic.
- The MAFMC usually separates meetings by commercial and recreational fishers because they have very different sets of issues for management. They cautioned E & E and BOEM that there is often conflict between the two groups.
- E & E and BOEM should cluster the meetings time-wise. People will not be going from one meeting to the next.
- E & E should consider where people are most likely to be affected by a project vs. fishing ports because the affected individuals would most likely attend a meeting.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Email Ms. Clark a preliminary list of locations for her input	E & E	
2	Send E & E a list of fishing group contacts	Ms. Clark	
3	Coordinate with BOEM State Task Force leads	E & E	
4	Coordinate with contacts at local ports	E & E	

CONTACT REPORT (CR 04/04/12c)

Meeting [] Telephone [X] Other []

Name: John Weber, Ocean Planning Director, Northeast Regional Ocean Council
Date: 04/04/2012
Time: 3 pm EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Northeast Regional Ocean Council (NROC)
Ocean Planning Director John Weber to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Northeast Regional Ocean Council	John Weber
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	Megan Higgins
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from NROC staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm and Ms. Farrell summarized the project for Mr. Weber.
- The meeting discussion focused on NROC's ongoing work in the region as well as suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

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NEOC Background and Current Projects

- Mr. Weber is currently working with the fishing industry and is coordinating with Mr. Hooker on offshore wind energy development.
- Mr. Weber was familiar with the renewable projects proposed offshore ME, RI, and MA and noted that each had similarities and significant differences with respect to impacts on fisheries.
- NROC will be engaging their constituency in the fall. They are looking at three existing NMFS data sets to map fishing patterns, organized by fishery. They want to develop draft products and work with the fishing industry to QA/QC the products. The NROC geography for this research overlaps with BOEM's area of interest; therefore, the data will overlap. Fishers will want to talk about the spatial area. The three NMFS data sets are:
 1. Vessel trip reports. Fishers have to report what they caught and where after every trip;
 2. Vessel monitoring system data. This is collected for any fishery with a spatial closure (i.e., all groundfish, herring, does not include lobster); and
 3. Onboard observer program that records catch statistics.

Meeting Suggestions

- If BOEM's idea is to examine impacts on a project basis, then the location of the meetings should be informed by the projects. If BOEM wants to look at impacts to fishers, then this would be a completely different area.
- E & E's overall goal is to look at how the suggested mitigation measures and BMPs would be applied to each WEA. As such, various gear types and fishing groups will need to be included in the meetings, not focusing in one specific area. The mitigation measures and BMPs could be included partially or wholly in a NEPA document as they apply to the process.
- Mr. Weber attended BOEM's 2011 meeting in New Bedford, MA. E & E should ask the other attendees of that meeting their opinion for improvements for future meetings. It was very clear at the meeting that the fishing industry wanted to know where the proposed offshore wind facilities and associated infrastructure could be located. The specifics on location are extremely important to the fishing industry. E & E and BOEM will likely run into tension at the stakeholder meetings because BOEM does not know location specifics which are very important for determining impacts. The technical experts attending the meetings will be able to answer some of the questions which construction methods would be employed in a particular area.
- BOEM will need to have a process for micro-siting. People will not be able to get all the information they want on potential offshore projects and they will be frustrated about it.

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- E & E will be providing meeting invitees with educational and informational handouts prior to the meeting. In the handouts, BOEM should stress what will not be covered in the meeting so attendees will not be surprised.
- If the meetings are organized by project, there will be a lot of attendees interested in the project and will want to know details. BOEM does not have this information at present.
- If a meeting is going to be in ME, it should be in Portland. University of Maine at Orono would be a good location because it is free, but it is a long drive from Portland.
- Do not hold a meeting in Boston because BOEM would be asking people to drive into Boston when most of the stakeholders live south of Boston.
- Do not hold a meeting in Gloucester because the fishers don't frequent BOEM's study area.
- New Bedford would be the best location for a meeting because the BOEM Task Force meetings are held there.
- Summer and early fall are bad times of the year to hold meetings because the fleet is working. October can be a tough time as well. Most fisheries shut down in November, but not all.
- Mr. Weber was very supportive of BOEM and E & E's using CBI as the meeting facilitator. Stephanie Moura, former Executive Director of the Massachusetts Ocean Partnership and current Executive Director at SeaPlan, was at the New Bedford meeting.

Invitee Suggestions

- Ask the BOEM MA Task Force leaders who they invited to the meetings. They can give the names for specific fishery groups, but double check with the NEFMC and Commission to make sure that we get the right contacts.
- Invite Bonnie Spinazzola, Executive Director of the Atlantic Offshore Lobstermen's Association. She would be a very important.
- Invite Brian Rothschild, Co-Director of the Massachusetts Marine Fisheries Institute at UMass Dartmouth—a partnership between the University of Massachusetts, the Massachusetts Intercampus Graduate School of Marine Sciences and Technology, and the Massachusetts Executive Office of Environmental Affairs.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Talk to BOEM MA about meeting invitees. Cross check this list with	E & E	

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	NEFMC and Commission.		
2			
3			
4			

CONTACT REPORT (CR 04/10/12a)

Meeting [] Telephone [X] Other []

Name: John McGovern, National Oceanographic and Atmospheric Administration
National Marine Fisheries Service Southeast Regional Office
Date: 04/10/2012
Time: 10am EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call John McGovern of the National Oceanographic and
Atmospheric Administration (NOAA) National Marine Fisheries Service
(NMFS) Southeast Regional Office (SERO) to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
NOAA	John "Jack" McGovern
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Sarah Bowman
Ecology and Environment	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	Megan Higgins
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from NOAA NMFS SERO staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

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2. Meeting Summary:

- Mr. Trimm and Ms. Farrell summarized the project for Mr. McGovern.
- The meeting discussion focused on NOAA NMFS SERO's ongoing work in the region as well as suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

NC Fisheries Regional Information

- Mr. McGovern only deals with stakeholders in the South Atlantic region (i.e., NC and states located south of NC). E & E and BOEM intend to hold meetings from ME to NC and were interested Mr. McGovern's opinions on project efforts in his region
- Commercial fishing is very big offshore NC. Black sea bass is a major fishery, as well as shrimp trawling and pot fishing.
- There is a fair amount of recreational fishing offshore NC.
- Some fishers trawl for mackerel.
- The NC commercial fishing fleet is very big off Cape Hatteras and is very opposed to management plans or policies. Sean McKeon is head of a group called the NC Fisheries Association. They are a very vocal organization with strong opinions.
- The NC recreational fishing groups are organized through the Coastal Conservation Association (CCA). Richard "Dick" Brame is a member of CCA and attends all the meetings relevant to their organization.
- BOEM will be engaging the SAFMC more on offshore wind energy development. They have been waiting for the NC WEA to be officially designated. BOEM will be attending the next SAFMC meeting and will discuss the issue.

Invitee Suggestions

- Mr. McGovern recommended E & E talk to staff at NC Department of Environment and Natural Resources (DENR). He also suggested talking to Dr. Louis Daniel at UNC and Dr. Michelle Duval at the South Atlantic Fishery Management Council (SAFMC). Mr. McGovern said he would send E & E the contact information for these individuals.
- Mr. McGovern recommended E & E contact Tom Burgess, who represents the NC pot fishers on the SAFMC, and Mac Currin, who represents recreational fishers on the SAFMC.
- Mr. McGovern will provide E & E names for other contacts on the SAFMC as well as other interested stakeholders. Some will be reasonable, others will be vocal and negative, but E & E and BOEM will likely hear from them nonetheless.
- E & E should talk to Roger Pugliese on the SAFMC. He is very familiar with the fisheries habitat offshore NC.

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- The SAFMC has advisory panels for each fishery (i.e., snapper, grouper, mackerel) and will have the contact and location information for representatives on these panels.
- Mr. McGovern suggested contacting Jack Travelstead from the VA Marine Resources Commission.

Meeting Suggestions

- Beaufort, Morehead City, and Atlantic Beach are all good NC locations for meetings. Morehead City has a big commercial fleet as well as a large fleet of recreational “for hire” individuals. Mr. McGovern recommended holding a meeting in Morehead City or the Beaufort area because they are in the middle of the NC coast.
- SAFMC will have good suggestions for meeting locations. Mike Collins at the SAFMC is the contact for meeting logistics (hotels, etc.).
- NOAA NMFS has a number of recreational and commercial fisheries closures throughout the year (e.g., the grouper fishery is closed for four months). Mr. McGovern suggested that scheduling a meeting anytime between January and April would be good. Summer is not a good time for a meeting because everyone is fishing.
- Start off the meetings with a question and answer session. This will give time for any venting by meeting attendees.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Send E & E contact information for staff at NC DENR, UNC, SAFMC, and others	NOAA NMFS SERO	
2			
3			
4			

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CONTACT REPORT (CR 04/10/12b)

Meeting [] Telephone [X] Other []

Name: Massachusetts Executive Office of Energy and Environmental Affairs (EEA),
Office of Coastal Zone Management and Division of Marine Fisheries (DMF)
Date: 04/10/2012
Time: 2:00 pm EST
Location: Conference call
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Massachusetts EEA and DMF to consult on
stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Massachusetts DMF	David Pierce, Deputy Director
Massachusetts DMF	Kathryn Ford, Division of Habitat Research, Environmental Analyst III
Massachusetts Executive EEA, Office of Coastal Zone Management	Bruce Carlisle, Director
Massachusetts Executive EEA, Office of Coastal Zone Management	Bill White, Assistant Secretary for Federal Affairs
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Megan Higgins
Ecology and Environment	David Trimm
Ecology and Environment	Sarah Bowman

1. Purpose of Meeting:

The intent of the call was to receive input from Massachusetts EEA and DMF on engaging the commercial and recreational fishing industries in Massachusetts on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm and Ms. Farrell summarized the project:

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- Patrick Field of Consensus Building Institute, Inc. (CBI) would be the neutral facilitator;
- Meeting format would consist of tables with worksheet/work plan with questionnaire to discuss items which would then be presented to main group by Patrick.
- Total of 8 meetings would be open to the public. Anticipate 30-50 people; active participants would be those who have been identified as key stakeholders and invited.
- Key is to pick venues that have the most impact to the fishing community.
- E & E/BOEM have spoken to NEFMC, MAFMC, RICRMC, NROC, and NOAA (South Atlantic).

3. Topics of Discussion

Challenges Anticipated by EEA and DMF:

1. Attitude of Fishing Community Toward Offshore Industries

- Bruce Carlisle—EEA undertook and executed the Massachusetts Ocean Management Plan which combined fishing and offshore energy. Within the fishing industry, there are some productive channels, but attitude is tepid at best.

Q: How will these meetings be constructed? How to pull these two factions together and diffuse it?

A [Peggy]: E & E staff members are familiar with risk communication principles and key messages; strategy will be to let people vent; listen to concerns. Team members with fisheries expertise, cable installation, etc. will be present and accessible. Patrick has experience in controversial projects. The approach of using round tables with smaller groups with a focus on a common objective has worked well in the past.

Q: What is the most productive input? Need to get the right people who can provide constructive input and who can feel as though they can speak freely.

- Bill White

Q: Is this for fishing industry only or for offshore industry too?

A [Dave Trimm]: goal is to bring team members with technical experience, but ones who aren't necessary proponents of the wind industry in order to diffuse "them against us" situation. Try not to have a controversial situation.

Q: Who are the participants?

A [Peggy]: 5 people total, along with BOEM representatives, including team members Det Norske Veritas (DNV) (engineers), Dr. W. Graham Lawson (cable design engineer), Dr. Sal Testaverde (fisheries), Dave Trimm, etc.

Brian Hooker—wind industry reps are still being flushed out; welcome suggestions of who to include.

- Most recent Commercial Fishing and Offshore Wind Energy Working Session (June 10, 2011 in New Bedford)—good structure, good participation; however, there were

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a few fishermen who weren't acting in good faith who vocalized their perception of the offshore industry as an incompatible use; derailed a productive session.

2. Compensation

- Goal of compensation: (Dave Trimm) need to let fishermen know that this project is not trying to determine project-specific compensation (gear loss, fisheries landings, etc.). Rather, need to direct conversation toward objectives.
- Present example of/discuss European experience—for developers in Europe, this was a problematic issue because they felt that they were forced to compensate fishermen directly. Fishermen potentially affected by projects in New England and Mid-Atlantic will likely expect the same results from this “experience”. Overseas experience within wind farm areas, particularly those with exclusionary areas, needs to be highlighted and speak to what extent compensation will address exclusionary areas.

Q: What can be done? What has been done?

A: Dave Trimm: Yes, we will look at what has been developed in UK, Norway, etc.

Suggestion: have someone from Europe be present at meetings to testify.

3. Recreating the Wheel

- Bill—Be prepared for negative attitudes. Invitations will need to be carefully crafted so as to not spin wheels. How meeting is introduced/announced will be critical.

4. Validating Mitigation Measures

- Need to find out from group what list of mitigation measures could be incorporated into NEPA document and could really mitigate. Need examples to share with meeting participants at the meeting to address use conflicts.

Brian Hooker: mitigation and BMPs for siting projects are currently being discussed.

Pierce: BMPs won't go over well with industry because of best information available and how it's managed but can be poor because it's the only available information.

Peggy--Remember: there will be project-specific mitigation measures included in NEPA documents as issued by BOEM, along with general mitigation measures.

- Need to understand what measures have been used in Europe especially regarding exclusion areas and compensation for the loss of fishing areas.

5. Miscellaneous

- (Dave Trimm) Homeland Security—outside of realm of discussions.
- Level of involvement of fishermen with Massachusetts Ocean Management Plan (MOP)--Bruce: few read the document. Relied on DMF to distill the salient parts of the plan. The Oceans Act—MOP can't regulate fisheries; but MOP identified areas of high fishing value; also identified important fish resource areas (as provided by DMF); generally, the fishing community thought the process was fair, reasonably transparent, long-term data from DMF provided balance. Dave Pierce—fishermen

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were satisfied with the process because few areas were set aside for offshore farms in state waters.

- Bill White—EEA executed planning document *before* siting farms (baseline surveys); why isn't BOEM getting 100% science for marine spatial planning *before* siting projects? 56% of original planning area within Massachusetts state waters has been removed because of fishing areas (e.g., scallops). Many will use these arguments to stop the development.

Meeting Recommendations

- Invitees: Target audience of 50-60. Sector managers; fishing working group; Habitat Advisory Board; UMass School for Marine Science and Technology (SMAST)—steering committees members. David Pierce will contact SMAST.
- Venues: Fairfield Inn at New Bedford Harbor (used for BOEM Task Force meeting); South Coast area; North Shore of Mass.; Gloucester—DMF's facility/field station or NMFS' new building. Dave Pierce will check into those locations.
- Timeframe: find a time when it won't impact businesses of key constituents (i.e., check groundfish rules and regulations to figure out when fleet will be out fishing; David Pierce—will look at this).
 - Dave Pierce: When is the first meeting scheduled? A [Peggy]: June and fall; may need to push is to the end of fall/winter. Will coordinate with BOEM. *Suggestion:* to configure meeting, work with managers of self-organized groundfish sectors because groundfishing will impact the development of offshore farms. The sectors have taken on a high level role for managing fisheries in New England; engage them early on and feed them info. Result: good communication with leaders of those sectors; talk to them beforehand and tell them what project is trying to achieve.
- Issues to be addressed at upcoming meetings: transmission and a plan to hold fishermen harmless from snagging a cable and/or ruining gear; navigation within the arrays; compensation for cost/value of fish that wouldn't be caught in areas off limits; radar interference for small boats.
- Questions to be addressed at upcoming meetings: Where are the wind farms going to be located? Where will fishing be impacted? What gear can be used? Are there impacts to navigation? If so, what are the mitigations? Safety concerns? Towers—radar. Fog/visibility isn't good; will need to shift because of fog, hurricanes. How will the wind industry mitigate for these impacts? How do we live with these particular WTGs? What can be expected as a result of the structures? Litter between WTGs? What do fishermen want to see for data gathering for offshore wind farms? What types of studies should be conducted prior to issuance of permits?

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- David Pierce—Mediator experience has not been a good one; this will be a very challenging discussion. Need to brief Patrick very well prior to the meetings. Is that the strategy? Will Patrick contact MA reps directly before meetings in order to be better prepped?
A [Peggy]: Patrick is from MA. Yes, if MA reps are willing to be in touch w/ Patrick that would be very beneficial. Bruce knows/has worked with Patrick.
Suggestion: have Patrick be the facilitator because someone else from his office stepped in in his place at the last working session and it was more problematic. Stephanie Moura stepped in to do damage control, but by then, it was too late.
Response: E & E will make sure that Patrick is available for MA meeting.
- At last working session, media ground rules were established: no attendee could be quoted by name or for media purposes. However, journalists who attended took exception to that. This was not useful.
- Kathryn Ford—fundamental lack of understanding of the NEPA process and how the information is presented/discussed at the meeting will be used in the process. Fishermen are asked to give away secrets (where they fish) without compensation.
Suggestion: Explain regulatory process and address concerns about issues along the way. What does the process look like? What is the NEPA document? Does this include alternative analyses? How will NEPA documents be used by the regulators?
Response [Dave Trimm]: E & E has experience with NEPA. BOEM’s process is ahead of the curve, because mitigation is typically developed post-NEPA.
- *Recommendation:* form smaller groups who would talk among themselves while at the meeting.
- *Suggestion:* not have proponents at the meetings and instead focus on the technical aspect of the offshore projects from engineers.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Check groundfish rules and regulations to figure out when fleet will be out fishing.	David Pierce	
2	Check availability of DMF’s facility/field station and NMFS’ new building in Gloucester as a potential meeting venue	David Pierce	
3	Contact SMAST re: involvement in meetings	David Pierce	

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Supplemental information provided by Kathryn Ford via email dated Tuesday, April 10, 2012 3:07 PM PST.

The phone call today was interesting and I had a follow-up thought. At many of these meetings I've thought it would helpful to have a 1-page handout with FAQs directed to whatever the user group is. No offense to BOEM, but I've sat through a dozen of their explanations and the process is still very confusing. In fact, it comes off as if they're making it purposefully difficult to figure out what to address and when.

It must be hard for the general public (including fishermen) to know how to follow the process and know when and how their voice can be heard. I've guessed at some of the questions and answers that could come up with fishermen – my attempt at a plainclothes description of what is going on. It's definitely not a silver bullet. I'd like David's take too-- this is a pretty intractable crowd and something like this may be perceived as patronizing. Also, treat the WEAs together – an entire east coast approach. Some of the fishermen are fishing across the entire shelf. Any zooms should include the RI and Mass WEA and Mass WEA areas together.

Where we are:

Q: I don't think wind farms should be built anywhere. Why are we still moving forward?

A: There are existing permit applications to build wind farms and no legislation prohibiting the construction of wind farms on the continental shelf, so we have to address the applications. BOEM is working on being pro-active in siting, constructing, and operating these facilities, instead of simply reacting to developers permit applications. Several documents have addressed potential adverse impacts of developing wind farms (examples), but the point is still acceptable to raise. To be most effective, additional comments to this effect for specific wind farms should be directed at the environmental impact statement for each individual wind farm. Detail regarding the significant environmental or socioeconomic impacts clarifying why the farm shouldn't be built strengthens the argument. You can find out when the EISs are released and the deadline for the required X-day public comment period by signing up for BOEM's listserv. We anticipate these types of documents being available in another X years. In terms of creating a legislative prohibition, it is best to first contact your representative.

Q: Are wind farms going to be installed?

A: Maybe. If a company gets a lease, studies the site, and passes the environmental impact statement process, they may receive a permit in which conditions for construction, operation, decommissioning, and mitigation are defined. The conditions will be specific to that wind farm (not the whole Wind Energy Area). Conditions are developed in the course of the permitting process, and can be recommended by any individual or group during any stage of the public comment period for an individual wind farm (is this true?). Examples of permit conditions are: marine mammal observers required on construction vessels during

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right whale season/annual geophysical survey to verify cables are buried/annual report on safety incidents/etc.

Q: Where will wind farms be?

A: In the Wind Energy Areas defined by BOEM in conjunction with state Task Forces (reference a map of all of the existing and proposed WEAs). Technically, a company can propose to build one anywhere (this is called an unsolicited bid). However, BOEM has created the “Smart from the Start” planning process to encourage more thoughtful siting and planning of wind farms. Companies have an incentive to focus on a Wind Energy Areas since some of the permitting steps in those areas are already complete.

Q: I think the WEAs are in the wrong place and the process of establishing them was back-room cronyism.

A: The establishment of the WEAs went through an extensive public process that is documented at (website). In Mass and RI, the WEA sites were selected using spatial planning approaches in the context of the Mass Ocean Plan and the RI SAMP. To be most effective regarding site specific concerns, you can address comments in the meeting today about ways to avoid and minimize those impacts within the existing WEAs. You can also provide comments regarding the placement of specific wind farms during the public comment period for the individual wind farm.

Q: Will fishing be shut down in a wind farm?

A: Maybe. (I’m getting tired of people saying no. It’s a distinct possibility that a wind farm negotiates a closure or post-construction incidents require one. It won’t be easy, but it is possible.) However, the goal at this stage is to establish locations and operational/design guidance that will minimize the impact to the fishing industry. If we know, for instance, that at least one mile of spacing is needed between turbines for safe vessel transit, that could become a pre-permitting requirement for wind farm design. These “best management practices” could apply to all proposed wind farms, or they may apply in specific places based on the user-base in that area.

Q: What’s the point of this meeting? How will this influence the process? I’m sick of not getting paid for these meetings – what’s in it for me?

Q: I heard Cape Wind is moving forward. What’s up with that?

CONTACT REPORT (CR 05/07/12)

Meeting [] Telephone [X] Other []

Name: Aileen Kenney – Deepwater Wind
Date: 05/17/2012
Time: 2 pm EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Aileen Kenney of Deepwater Wind to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Deepwater Wind	Aileen Kenney
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from Deepwater Wind (DW) staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm gave background on E & E's previous consultation meetings as part of this project. Ms. Farrell summarized the timing of the meetings and talked about the projected outcome to develop BMP measures.
- The meeting discussion focused on DW's regional experience and suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

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DW Project Background

- Ms. Kenney talked about the DW Block Island project, which is located in state waters. As part of this project DW is heavily engaged with fishers because they have a heightened level of concern about the project. She thought that they would be especially concerned about potential construction in federal waters.
- DW has employed Rick Bellavance, a recreational charter boat operator in RI to act as a liaison between DW and the fishing community to ensure open communication. Rick's standing as "neutral" is ambiguous because DW is providing him with funding; however, the relationship seems to be working well.
- DW's work is specific to RI for the time-being.
- Ms. Kenney recently had a five-hour meeting with Mr. Bellavance to discuss their communication process and potentially working with him on a larger scale project.
- DW is going to have an initial public meeting and then have each fishing group nominate someone to represent them. DW anticipates a total of eight representatives for their fishing group. This is just to start their public outreach process. The Block Island project is in state waters; however, it would be impossible for DW to only focus on inshore fishing groups since many fishers work in the inshore and offshore areas.
- Unlike the BOEM meetings, DW will not be talking about mitigation measures at their meetings. They just want to know what the fishers are worried about. Eventually they will get to mitigation measures working with the eight fishing group representatives.
- There are different goals between BOEM and the DW project, but similar issues.

Invitee Suggestions

- In Ms. Kenney's experience with the RI SAMP, the fishers who participate aren't the problem. The problem is getting the non-participatory groups to participate.
- Ms. Kenney suggested BOEM reach out to these non-participatory groups who may be difficult to reach initially by individual phone calls, emails, or going down to the docks and talking to fishers in-person. The relationship the fishers have with BOEM is key.
- Ms. Kenney said she could help E & E with the participant list for the stakeholder meetings. She said Mr. Fugate's (RI CRMC) list of members from the RI and MA Fishing Advisory Boards (FABs) is not enough. Ms. Kenney offered to give recommendations to E & E based on the suggested invitee list.
- DW is trying to reach out to all the fishing groups, but this may not be appropriate for BOEM. She felt that how we got to our short list of invitees would be important.
- E & E may have better success than DW inviting people because we are representing BOEM. Ms. Kenney recommended talking to Mr. Bellavance to determine who to

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- invite in MA and RI. Mr. Bellavance was recommended as a contact to E & E during other stakeholder interviews and his contact information was verified.
- Ms. Kenney couldn't think of any fishery publications for E & E to use to communicate to fishing groups, but she recommended looking at local newspapers.
 - Mr. Bellavance was going send out personal invitations, emails, and put up signs at the docks for the DW meetings. BOEM may not want to do this because the fishery stakeholder meetings are not public hearings.

Meeting Suggestions

- Fall and winter would work best for meetings in RI and MA.
- Ms. Kenney recommended, on the suggestion of Mr. Bellavance, to let attendees know BOEM is timing the project to accommodate the fishers' schedule. This would make them feel more engaged in the process.
- Ms. Kenney said the facilitators E & E chose were good.
- Mr. Bellavance told Ms. Kenney that fishers feel they are going to all these fisheries meetings and talking to regulators and then nothing happens. It is important to have E & E, BOEM, and experts at each of the tables at the meetings so that the fishers know they are being heard. The fishers are taking time from their schedule to attend these meetings, which is a loss of time and money for them.
- BOEM should prep the technical experts and sensitize them to the types of concerns the fishing community will have. BOEM should make a point that the meetings are to get information to be used in the future.
- Ms. Kenney agreed with the suggested meeting locations E & E has developed based on previous consultation calls.
- Ms. Kenney recommended E & E talk with Mr. Bellavance to get his recommendations on the meetings and attendees.
- In terms of the non-participatory fisher groups, Ms. Kenney thought on one hand they could be destructive to a meeting and on the other hand they won't come to a meeting. BOEM should invite all relevant fishery participants regardless of their position on wind energy development.
- Ms. Kenney said to be mindful that fishers were paid a lot of money for compensation for loss of fishing areas from the offshore LNG terminal. This is because the exclusion zones were large. Also, this compensation approach is their only frame of reference. BOEM has not determined the size of exclusion zones, if at all, so they will not be able to answer this question at the meetings.
- Ms. Kenney sent E & E a mitigation report from URI which she thought could provide useful background information.

3. Action Items:

**DEVELOPMENT OF MITIGATION MEASURES TO ADDRESS POTENTIAL USE CONFLICTS
BETWEEN COMMERCIAL WIND ENERGY LESSEES/GRANTEES AND COMMERCIAL
FISHERS ON THE ATLANTIC CONTINENTAL SHELF**

BPA Call Order #M12PB00006

#	Action Item	Responsible Party	Due Date
1	Contact Mr. Bellavance during the course of inviting attendees.	E & E	
2			
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CONTACT REPORT (CR 05/22/12)

Meeting [] Telephone [X] Other []

Name: Erich Stephens – Offshore MW LLC
Date: 05/22/2012
Time: 2 pm EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Erich Stephens of Offshore MW LLC to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Offshore MW LLC	Erich Stephens
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from Offshore MW LLC staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm and Ms. Farrell gave background on E & E's previous consultation meetings as part of this project and talked about the projected outcome to develop BMP measures.
- The meeting discussion focused on Offshore MW LLC's regional experience and suggestions to BOEM and E & E on how to conduct the meetings and communicate with the fishing community. Below is a summary of these topics.

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BPA Call Order #M12PB00006

Offshore MW LLC Project Background

- Mr. Stephens was previously involved in MA's outreach efforts to fishers regarding BOEM's MA offshore Wind Energy Area (WEA). They brought fishers and offshore wind developers together to discuss mitigation measures and potential effects of offshore wind development.
- When MA proposed their WEA, Offshore MW LLC hired a fisheries liaison as part of their outreach process. The liaison set up meetings with fishers and provided Offshore Wind LLC with a memo describing the areas of the WEA which would be least disruptive to fishers. Overall the experience worked well between Offshore MW LLC and the liaison.

Meeting Suggestions

- Mr. Stephens agreed with BOEM's concept for the stakeholder meetings. He was cautious because without a specific project and since there are no offshore wind farms currently under construction, he felt that the meetings may not be seen as a helpful outreach tool and instead generate animosity because the fishers will not get definitive answers on impacts.
- BOEM should be aware that mitigation measures will be equated to monetary compensation by the fishing community. In Mr. Stephens' experience the fishing community was not able to distinguish between the two, which was a hindrance to establishing any sort of mitigation measures for offshore wind development.
- Mr. Stephens felt that monetary compensation paid to fishers as a result of other offshore development in the region had set precedence. He suggested BOEM use a word other than "mitigation" and emphasize that this project is about technology and monitoring and not about compensation.
- BOEM should be cautious not to compare what is happening in the U.S. to what is happening in Europe during the meetings. The Europeans deal with offshore wind development very differently, establishing no fishing zones and providing compensation. They also regulate fishing differently than the U.S.
- Fishers will likely contend that the fishing areas are always changing; therefore, any area proposed for offshore wind development could potentially become an area they would want to fish. Mr. Stephens advised BOEM to get the most recent and reliable fishery data available to inform this issue, even though it is not going to be a complete data set because data collection is variable. This will make discussing the issue of where the fishing areas are located difficult. Fishers may need to be reminded they are fishing a public resource.
- BOEM should make identify available data sources on fisheries, other offshore resources, and potential impacts from offshore renewable energy. Mr. Stephens was

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aware BOEM regularly conducts studies and thought this information should be shared with stakeholders.

- BOEM should be clear about sources of available data on fisheries, other offshore resources, and potential impacts from offshore renewable energy. Also what information will be collected, and what information would be available in the future (e.g., BOEM studies, data to be collected by applicants, etc.) during the stakeholder meetings. Stakeholders will want to know what information will be available once an offshore wind facility is designed and what issues may arise. He suggested that BOEM look at new online fisheries forums as a way to get input on the process and address any criticism from stakeholders. Mr. Stephens recommended more communication between the agencies and the stakeholders once a project is proposed.
- The fishing industry is highly fragmented and may not agree on issues amongst themselves. This is why Mr. Stephens felt it was best to hold off on discussing mitigation measures until a project is proposed.
- Mr. Stephens warned that there will always be issues with the meetings that some stakeholders will be unhappy with.
- BOEM should look at the new online fisheries forums as a way to get input on the offshore wind development process and address any criticism.
- Mr. Stephens recommended a lot more communication should occur between the agencies and the stakeholders once a project is proposed. He felt that there are only a certain number of places to construct a wind farm offshore and most wind farms will likely have similar impacts. In Mr. Stephens’s experience, disagreements tended to be over small issues that weren’t going to dramatically change the situation for fishers or developers.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Erich to give E & E contact information for Offshore MW LLC fisheries liaison	Erich Stephens	
2			
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CONTACT REPORT (CR 05/31/12)

Meeting [] Telephone [X] Other []

Name: Jerri Weigand – NJ Department of Environmental Protection (DEP)
Rhonda Jackson – Fishermen’s Energy
Date: 05/31/2012
Time: 10 am EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Jerri Weigand of NJ DEP and Rhonda Jackson of Fishermen’s Energy to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
NJ DEP	Jerri Weigand
Fishermen’s Energy	Rhonda Jackson
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input Fishermen’s Energy and State of NJ staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm and Ms. Farrell gave background on E & E’s previous consultation meetings as part of this project. Ms. Farrell summarized the timing of the meetings and talked about the projected outcome to develop BMP measures.

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- The meeting discussion focused on the regional experience of Fishermen's Energy and suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

Fishermen's Energy Project Background

- Fishermen's Energy was formed by a group of commercial fishermen in NJ. They operate from Maine to the Carolinas.
- Ms. Jackson attended the 2011 New Bedford, MA fisher forum, which brought together fishers and offshore wind energy developers. She helped put together a similar session in NJ with Fishermen's Energy representatives, commercial fishers, and recreational fishers.
- Fishermen's Energy has completed a demonstration offshore wind project in NJ waters and submitted mitigation measures to BOEM. They did not receive any negative comments on this project.
- Fishermen's Energy reached out to stakeholders prior to submitting their NJ offshore wind project application to BOEM. They asked fishers to help with the project siting decision process. They also involved state and federal agency representatives in this process.
- Ms. Jackson thought the NJ fishers meeting went very well. Attendees looked at maps of the region and discussed how they would arrange the wind turbines and how the project would affect different types of fishing activity (i.e., dredging, nets, etc.). Attendees at the meeting used this information to come up with a suggested plan for where the offshore facility would ideally be located.
- Ms. Jackson thought that the Fishermen's Energy meeting was very productive because they only invited a small group of people. This allowed the participants to interact with one another and not have to talk into a microphone. Ms. Jackson felt that the large public meetings could sometimes be intimidating and less productive than working in small groups.
- Ms. Jackson and Ms. Weigand felt that BOEM would not likely see a high level of contention towards offshore wind development in NJ compared to other states in the region. They said that this was because Fishermen's Energy has been reaching out to a variety of stakeholders since 2007; targeting specific groups and informing them of the process.
- Ms. Jackson felt that public attitudes towards wind energy in NJ were favorable overall. She was concerned; however, about a regional anti-offshore wind energy campaign by the Koch brothers potentially starting in the summer of 2012.
- Ms. Jackson felt that the commercial fishers in NJ fish as far north as ME and as far south as NC. She suggested BOEM refer to the essential fish habitat data to see where commercial fishers are likely to fish, warning that this data would not give exact locations but would outline a general reference area where fishing may occur.

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- Ms. Jackson recommended BOEM refer to a public opinion survey by Stockton College. The study focused on offshore wind and sustainability/economic development in NJ which might be useful for background information.
- Ms. Jackson said that the primary concern about offshore wind from the recreational fishing community is that people are worried about what they don't know.
- Ms. Jackson thought that recreational fishers in NJ are looking forward to offshore wind development because they see the turbine structures as becoming artificial reefs.
- Fishermen's Energy has talked about installing mooring buoys near the turbines so that the fishers would not interfere with the turbines and be able to fish in the area. Fishermen's Energy has also suggested having separate buoys designated for divers. All suggestions are being taken into consideration by the NJ state agencies.
- Ms. Jackson has not found the majority of stakeholders in NJ to be argumentative. They have been okay with what's been happening with respect to offshore wind development and just want to be at the table when decisions are being made.
- Ms. Jackson felt that the biggest concern from the fishing community in NJ is the potential economic impact if they are excluded from certain areas. The fishers are also concerned with mooring and navigation around offshore wind turbines. They want to be involved in the decision process so they can ensure the wind turbines won't be located in key fishing areas. She said the fishers just want to be treated respectfully.
- Ms. Jackson said fishers weren't included early on in the Cape Wind process; therefore, relationships with fishers became very contentious. She said some fishers are concerned that what happened in Cape Wind would happen in NJ.
- Ms. Jackson felt that one of the best strategies initiated by Fishermen's Energy to get support for their project was talk to high level representatives in the NJ state environmental groups. Through this effort Fishermen's Energy learned what the environmental organizations' concerns and issues were and that they were generally supportive of offshore wind. She said that overall these organizations wanted to know that marine mammals and birds would not be impacted as part of the Fishermen's Energy project.
- Both Ms. Jackson and Ms. Weigand are concerned about working with the shipping industry with respect to offshore wind development. Both Ms. Jackson and Ms. Weigand had reached out to the shipping industry and felt that shippers were most contentious group of stakeholders they had worked with. They found that shippers were not engaged in the offshore wind project outreach and planning process and were not as connected to each other as the fishing industry. Ms. Jackson and Ms. Weigand speculated that this could be because the shipping industry interest groups compete with each other and may not want to work together on issues which may affect them.

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- Ms. Jackson and Ms. Weigand suggested BOEM consider an effort similar to this project to reach out to the shipping industry. Fishermen's Energy tried to put together a port access study, but this was delayed because they received so little input from shippers.
- BOEM recently removed two leasing blocks from the NE portion of the NJ Wind Energy Area (WEA) to accommodate a request from the Coast Guard regarding shipping interests. The blocks were removed from the WEA because of potential conflict with ships coming out of NY and NJ ports.
- BOEM may want to engage the Seaman's Institute on the issue of offshore wind mitigation measures because the Institute works with the shipping industry up and down the east coast and shippers are actively involved as board members.

Meeting Suggestions

- Ms. Weigand suggested BOEM inform attendees at the regional meetings about the geographic scope of all the stakeholder meetings so they realize the extent of BOEM's effort. E & E informed Ms. Weigand that a map of the entire project area would be brought to each meeting, as well as maps specific to each meeting region.
- Ms. Jackson and Ms. Weigand suggested Atlantic City, NJ as a venue for the NJ stakeholder meeting because it is centrally located. They also suggested Stockton College as a potential location, but were unsure of the costs. Ms. Jackson recommended the convention center in Atlantic City because BOEM had recently held a meeting there and an offshore wind conference was held there two years prior. Ms. Jackson and Ms. Weigand warned of a parking expense which would be added to the meeting costs at this facility.
- Cape May, NJ had been suggested as a potential meeting location by other stakeholders. Ms. Jackson said many key NJ stakeholders are located in the Pt. Pleasant area, and Atlantic City would be a good meeting location as it is easy to access and is between Pt. Pleasant and Cape May. She was concerned that since the Fishermen's Energy offices are in Cape May people might think the offshore wind industry was pushing the BOEM meeting if it was held there.
- The more notice BOEM can give people for a meeting the better.
- Fishers are fishing from October to March, but this is a less active time than the rest of the year.
- BOEM may want to consider timing the NJ meeting to coincide with the MAFMC meetings. A lot of key leadership people in the fishing industry would likely attend.
- Ms. Jackson suggested having food at the meeting as an incentive for people to attend. She found that advertising food would be at a Fishermen's Energy meeting helped with attendance.

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Invitee Suggestions

- Ms. Jackson said she would send E & E Fishermen’s Energy’s contact list for the BOEM stakeholder meetings and would suggest ways to share information with the fishing industry in NJ.
- Ms. Jackson and Ms. Weigand suggested BOEM conduct pre-meetings with the commercial and recreational fishers to get specific contacts from within each group. Then BOEM could reach out to the larger fishing group sectors to find additional attendees. Ms. Jackson felt that people will be better participants at meetings when they have been involved from the beginning.
- Ms. Jackson suggested BOEM contact Rutgers University because they have a coastal organization with contacts for offshore wind and fisheries.
- Ms. Jackson suggested BOEM work with the MAFMC to help invite people to the meeting.
- Ms. Jackson offered to help BOEM with the stakeholder meeting and would provide E & E with a list of contacts. Fishermen’s Energy wants fishing and offshore wind energy to co-exist so they are supportive of BOEM’s project.
- Ms. Weigand asked that E & E keep her cc’d on any communication regarding the NJ stakeholder meeting but to use Ms. Jackson as the primary contact for the project.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Ms. Jackson to send E & E list of contacts	Fishermen’s Energy	
2			
3			
4			

CONTACT REPORT (CR 06/01/12a)

Meeting [] Telephone [X] Other []

Name: Kristin Aamodt – Statoil
Peter Marcus Kolderup Greve - Statoil
Date: 06/01/2012
Time: 9 am EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Kristin Aamodt and Peter Marcus Kolderup Greve of Statoil to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
Statoil	Kristin Aamodt
Statoil	Peter Marcus Kolderup Greve
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from Statoil staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Kathleen Leyden, Director of the Maine Coastal Program recommended BOEM and E & E consult with Statoil as part of their initial outreach. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm gave background on E & E's previous consultation meetings as part of this project. Ms. Farrell summarized the timing of the meetings and talked about the projected outcome to develop BMP measures.

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- The meeting discussion focused on Statoil's regional experience and suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

Statoil Project Background

- Ms. Aamodt felt that engaging in an early dialogue with fishers was important to the success of an offshore wind project and corresponds to Statoil's company guidelines for project development. She advised BOEM to be open about information in all stages of an offshore wind project.
- Ms. Aamodt said open communication was a hard balance for Statoil in ME because they don't actually have a project proposal yet. They are trying to start the public outreach process early so they can have an open and honest discussion.
- Statoil has reached out to the Maine fisheries societies (i.e., Maine Coast Fisheries Association, Atlantic Bluefin Tuna Association, and the Maine Lobstermen's Association). Statoil is making a point to keep these organizations informed.
- Statoil is planning to hold a series of open house information sessions in Portland, Rockland, and Goose Bay, ME from June 25-27th, 2012. They plan to have an informal meeting format, distributing informational brochures and showing films on their offshore wind technology. Statoil will display pictures of different offshore wind turbine foundation types so people can get a feeling of what they might expect offshore ME. The meeting will be in an open setting so their staff is available to answer questions. The key purpose of an open house meeting is to show that nothing has been decided and that Statoil is interested in what people think.
- They are trying to have their open house meetings in neutral areas. Statoil is considering research institutes, libraries, and public buildings as potential venues.
- Statoil tried to plan their meeting during the peak fishing season so that people would be around. They didn't want the June meeting to conflict with other meetings in the area. Statoil is inviting stakeholders other than fishers to their meeting, so the fishing season was not the only deciding factor for timing their open house meetings.
- Statoil is not proposing a 200 turbine project with a large transmission array to shore. They are proposing a four turbine project with a small cable to shore.
- Statoil is in the process of identifying data gaps for their project and using a UME study which has a lot of useful public data.
- Statoil is looking to hire a fisheries liaison officer. They want someone who knows the local processes.
- Statoil is also planning to hold direct dialogue sessions with the fishers who they feel would potentially be most affected by their project. They identified these individuals by contacting local ME fishing organizations. Statoil is trying to get an idea of how the fishing area in ME was divided amongst different fishing gear sectors.

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- Engaging in early dialogue about a project has been very successful for Statoil with fishers in Europe. Statoil compensated fishers who were excluded from fishing in areas near their offshore wind project construction zone and tried to work with fishers through the operation phase so the fishers would be minimally impacted. Ms. Aamodt felt that the key to making this effort successful is to find a good balance.
- There is a small fishing exclusion area around some of the turbines in one of Statoil's European offshore wind projects. Ms. Aamodt mentioned a shoal offshore wind project in Europe where the fishers were allowed to fish very close to the turbines. She said restricted areas in the U.S. will depend on the technology (i.e., monopile vs. floating turbine).
- At this point the project process, Statoil is just trying to get information on potential stakeholders. The next step is to talk about impacts and mitigation measures. Statoil still needs to understand the potential impacts from their project.
- Mr. Hooker asked Statoil to send E & E a generic BMP sheet Statoil had developed as part of their offshore wind work in Europe. Mr. Greve explained that Statoil had produced a document on impact assessment based on ITC performance standards. The document also discussed manufacturing issues of offshore wind technology. Mr. Greve explained the document is a comprehensive analysis on how impact assessment should be conducted and how to engage with stakeholders through the various phases of impact assessment. He thought that BMPs from this document may be beneficial for the BOEM project. Ms. Harris will coordinate with Mr. Greve on sending the document.

Meeting Recommendations

- In Statoil's experience, it is better to hold multiple meetings as appropriate so people don't feel slighted if they are not invited to a single meeting.
- Ms. Aamodt recommended explaining the timeline of an offshore wind project (i.e., when to expect development and the size of a project) to stakeholders as a way to deal with questions around the uncertainties. She suggested BOEM have a dialogue with directed information (not vague assumptions about projects).

Invitee Recommendations

- Ms. Aamodt recommended E & E coordinate with the Island Institute in Rockland, ME. She felt they were a very important entity for engaging with fishers in ME. The Island Institute produced a report on a recent ME fisherman's forum. Ms. Aamodt thought that BOEM needed to get in touch with the fishers in the region because reaching out to the local communities would be extremely valuable.
- Statoil has received good reception in the area because of their relationship with the Island Institute.

3. Action Items:

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#	Action Item	Responsible Party	Due Date
1	E & E to coordinate with Statoil on offshore wind BMP document.	E & E	
2			
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CONTACT REPORT (06/01/12b)

Meeting [] Telephone [X] Other []

Name: Kris Ohleth – Atlantic Wind Connection (AWC)
Stephanie McClellan- AWC
Date: 06/01/2012
Time: 10 am EST
Location: Teleconference
E & E Task #: EE-001096-0091-03
Subject: Summary of Team call with Kris Ohleth and Stephanie McClellan of AWC to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
AWC	Kris Ohleth
AWC	Stephanie McClellan
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from Atlantic Wind Connection (AWC) staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen would be most available, and
- 5) Identifying contacts.

2. Meeting Summary:

- Mr. Trimm gave background on E & E's previous consultation meetings as part of this project. Ms. Farrell summarized the timing of the meetings and talked about the projected outcome to develop BMP measures.

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- The meeting discussion focused on AWC's regional experience and suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

AWC Project Background

- AWC reached out to MAFMC as part of their permitting outreach process. Ms. Ohleth had presented updates on the AWC project to the MAFMC three times. She specifically talked to the MAFMC habitat group as they would be most impacted by the AWC project.
- Ms. Ohleth felt that AWC has a challenge getting support for their project because the fishing community is wary of offshore transmission lines being constructed up the east coast. The transmission line would be considered another obstacle for fishing gear; therefore, fishers are lukewarm to AWC.
- AWC is currently focusing their outreach efforts in NJ because the first phase of AWC is proposed for offshore NJ.
- Ms. Ohleth said there had not been a lot of outreach to commercial and recreational fishers in MD as part of AWC. She thought that the MD fishing community had not been widely engaged with respect to offshore wind.
- AWC hasn't worked with third party commercial fishers at this point.
- AWC held a series of town meetings to introduce people to the project.
- AWC is not proposing specific mitigation measures at this time. They are focusing on outreach and engaging the communities who may be potentially impacted by the project.

Meeting Suggestions

- Ms. Ohleth felt it was important not to hold meetings in big cities or state capitals (i.e., Boston, Baltimore, etc.) but to meet in towns where the fishers are located (i.e., Pt. Pleasant and Montauk).

Invitee Suggestions

- Ms. Ohleth and Ms. McClellan recommended E & E contact a recreational fishing group called the Jersey Coast Anglers Association (JCAA) and talk to their director, Tom Fote. JCAA is very active in the NJ recreational fishing community and supportive of offshore wind. Ms. McClellan felt that JCAA members recognized their ability to fish was directly impacted by pollution in the watershed, inland waterways, and the impacts from fossil fuel runoff, hence; they are very supportive of offshore wind and a reduction in the use of fossil fuels.
- Ms. McClellan worked for the Governor's office in DE and was involved with the Bluewater Wind project offshore DE. She said the Center for Inland Bays mission overlaps with other interests in DE, including fishing, and they might a good group to speak with regarding additional stakeholder recommendations for this project. Ms.

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McClellan offered to send E & E the names of individuals in DE that may be good contacts for the BOEM meetings.

- Ms. Ohleth and Ms. McClellan recommended E & E contact Jim Lanard, the Offshore Wind Development Coalition because he organized the fishing/offshore wind workshops in New Bedford, MA.
- Ms. Ohleth and Ms. McClellan recommended E & E contact Fara Courtney, Executive Director of the Offshore Wind Collaborative because she is involved in a large-scale stakeholder engagement process related to Cape Wind and has significant outreach roles in RI and ME. Her outreach efforts extend up the east coast, from NC to ME.
- Ms. Ohleth and Ms. McClellan also suggested E & E contact Susan Reed from the Conservation Law Foundation because she is also working on outreach to commercial and recreational fishers with respect to offshore wind.
- Ms. Ohleth and Ms. McClellan recommended E & E contact the Mid-Atlantic Regional Council on the Ocean (MARCO) because they are engaged in a stakeholder process which may have some symmetry with BOEM’s project. Ms. Ohleth suggested talking to Tony MacDonald and Jay O’Dell specifically.
- Ms. Ohleth and Ms. McClellan recommended E & E contact Peter Mandelstam at Acadia because he has been working in the regional offshore wind industry since 2006.
- Ms. Ohleth and Ms. McClellan recommended E & E contact Jeremy Firestone at the University of Delaware because he has been developing an offshore wind project (test site) in DE state waters.
- Ms. McClellan recommended E & E reach out to David Small at the Delaware Department of Natural Resources and Environmental Control (DNREC) because he has a lot of contacts in the fishing community and could help E & E engage them.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Contact Ms. Ohleth for recommended stakeholder contact information as needed.	E & E	
2	Ms. McClellan to provide additional stakeholder contacts for E & E	AWC	
3			
4			

CONTACT REPORT (CR 06/05/12)

Meeting [] Telephone [X] Other []

Name: Pat Keliher, Commissioner, Maine Department of Marine Resources (MDMR)
Joe Fessenden, Colonel, ME Marine Patrol, MDMR
Meredith Mendelson, Deputy Commissioner, MDMR
Deirdre Gilbert, Director, State Marine Policy, MDMR

Date: 06/05/2012

Time: 11 am EST

Location: Teleconference

E & E Task #: EE-001096-0091-03

Subject: Summary of Team call with Maine Department of Marine Resources (MDMR) staff to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
MDMR	Pat Keliher
MDMR	Joe Fessenden
MDMR	Meredith Mendelson
MDMR	Deirdre Gilbert
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from MDMR staff on engaging Maine's commercial and recreational fishing industries on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

**DEVELOPMENT OF MITIGATION MEASURES TO ADDRESS POTENTIAL USE CONFLICTS
BETWEEN COMMERCIAL WIND ENERGY LESSEES/GRANTEES AND COMMERCIAL
FISHERS ON THE ATLANTIC CONTINENTAL SHELF**

BPA Call Order #M12PB00006

2. Meeting Summary:

- Mr. Trimm and Ms. Farrell gave background on E & E's previous consultation meetings as part of this project. Ms. Farrell summarized the timing of the meetings and talked about the projected outcome to develop BMP measures.
- The meeting discussion focused on the regional experience of MDMR and suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

ME Project Background

- MDMR felt that attendees at BOEM's ME Task Force meeting came to the meeting assuming that offshore wind development was well underway. MDMR appreciated how BOEM tried to stress that this was not the case.
- Fishers are looking to MDMR to be an advocate for them in the offshore wind development process. MDMR's role is in the permitting process, not advocacy.
- Statoil is responsible for educating people about their project. MDMR had suggested to Statoil that they hire a fisheries liaison to fulfill the education and outreach role.
- The extent of Statoil's project is undetermined at this point and people are worried how big it will get and what the impacts could be. BOEM should try and give people as much information as possible up front to calm any fears.
- ME has a significant amount of enforcement responsibility around offshore cables and structures. There are many inhabited offshore islands that have cables running to shore. These cables can break, creating a security issue, and the islands lose power. ME also has a security area around their offshore aquaculture facilities, which require enforcement because fishers try to illegally harvest catch there.
- ME has a joint enforcement agreement with NOAA; therefore, they have state enforcement staff working in federal waters.

Meeting Recommendations

- E & E said they were considering scheduling the ME stakeholder meeting to coincide with the ME Fishermen's Forum, which is held in Rockland, ME. MDMR staff advised against this because they felt the forum would likely not be an appropriate venue for fishers to provide constructive comments on mitigation measures. There was an offshore wind session during the forum last year and it was poorly attended.
- MDMR suggested BOEM hold a "pre-meeting" at the Fisherman's Forum so people would have a heads-up about the full stakeholder meeting.
- MDMR staff recommended BOEM avoid scheduling a meeting during September or October because the lobster fishery would be going strong during this time. The lobster fishery season stretches into early winter. Mid-March would be the best time to hold a meeting in Maine.

**DEVELOPMENT OF MITIGATION MEASURES TO ADDRESS POTENTIAL USE CONFLICTS
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BPA Call Order #M12PB00006

- Any location from Rockland, ME to Portland, ME would be good to hold a meeting because Statoil's project will be affecting fishers in that area. They suggested Boothbay Harbor and Wiscasset area as potential locations.
- The MDMR staff advised BOEM not to talk about mitigation measures at the beginning of a meeting because the discussion will turn into questions about impacts and the value of the fisheries.
- MDMR suggested BOEM provide meeting attendees with a comprehensive overview of what information is available, including information from Coast Guard and NOAA. Then BOEM should ask attendees which areas are important to them.
- BOEM should consider the cable impact area and inshore fishers for the meetings.

Invitee Recommendations

- MDMR recommended BOEM reach out to the Maine Lobstermen's Association, Down East Lobstermen's Association, Mid-Coast Fishermen's Association, Coastal Conservation Association, O'Hara Corporation, Maine Charter Boat Captain's Association, Associated Fisheries of Maine, Atlantic Bluefin Tuna Association, and the Maine Aquaculture Association for meeting contacts.
- The fishing associations may have information which could be useful to BOEM.
- Ms. Mendelson will be the point of contact for BOEM on this project. She will provide additional contact information to E & E for the stakeholder meetings.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	List of contacts for E & E	MDMR	
2			
3			
4			

CONTACT REPORT (CR 06/06/12)

Meeting [] Telephone [X] Other []

Name: Catherine McCall, Director, Coastal and Marine Assessment, Chesapeake & Coastal Service, Maryland Department of Natural Resources (MDNR),
Carrie Kennedy, MDNR, Fisheries Service
Chris Cortina, MDNR, Chesapeake & Coastal Service
Gwynne Schultz, Chesapeake & Coastal Service
Mike Luisi, MDNR Fisheries Service

Date: 06/06/2012

Time: 3 pm EST

Location: Teleconference

E & E Task #: EE-001096-0091-03

Subject: Summary of Team call with Maryland Department of Marine Resources (MDNR) staff to consult on stakeholder meetings

Attendees:

Company or Agency Name	Participant Name
MDNR	Catherine McCall
MDNR	Carrie Kennedy
MDNR	Chris Cortina
MDNR	Gwynne Schultz
MDNR	Mike Luisi
Bureau of Ocean Energy Management (BOEM)	Brian Hooker
Ecology and Environment (E & E)	Peggy Farrell
Ecology and Environment	Jennifer Harris
Ecology and Environment	David Trimm

1. Purpose of Meeting:

The intent of the call was to receive input from MDNR staff on engaging the commercial and recreational fishing industries in their respective region on the topic of offshore wind development. Specifically, BOEM and E & E were looking for recommendations on:

- 1) Regional locations associated with high fishing efforts or ports,
- 2) Meeting locations easily accessible to fishermen,
- 3) Meeting venues which are neutral,
- 4) Identifying time frames when fishermen are would be most available, and
- 5) Identifying contacts.

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2. Meeting Summary:

- Mr. Trimm and Ms. Farrell gave background on E & E's previous consultation meetings as part of this project. Ms. Farrell summarized the timing of the meetings and talked about the projected outcome to develop BMP measures.
- The meeting discussion focused on the regional experience of MDNR and suggestions to BOEM and E & E on meeting participants, location, and timing. Below is a summary of these topics.

MDNR Project Background

- MDNR began working with BOEM in early 2010 on establishing the location for the MD Wind Energy Area (WEA) offshore MD. They started a stakeholder outreach initiative for the WEA in the spring of 2010. MDNR held open houses and had discussions with representative stakeholders, such as commercial and recreational fishermen.
- In June 2010, MDNR staff held a meeting with commercial fishermen in Ocean City, MD to review nautical charts, discuss prime fishing areas, and the types of gear the fishers were using. They also discussed mitigation practices and reviewed the European mitigation measures used in offshore wind development. MDNR collected this information and combined it with sensitive species information to present a revised WEA to BOEM.
- MDNR also worked with the Coastal Fisheries Advisory Committee (CFAC), which is comprised of recreational fishers. CFAC asked their constituency to outline their fishing areas offshore. MDNR used information from the meetings with commercial and recreational fishers in their recommendations to BOEM.
- In 2011, MDNR continued outreach on this issue and engaged the Mid-Atlantic Regional Council on the Ocean (MARCO), a group that was initiating a regional approach to offshore wind development planning.
- MDNR has some data layers/shapefiles they put together from the 2010 WEA effort. The shapefiles contain information on commercial fishing, recreational fishing, and general offshore use data. The information is not public at this time. MDNR said they would consult with the fishers before they made the information public. BOEM requested using the data for the project work plan, which will not be a public document.
- There is not much variation in the fishing gear types used offshore VA, MD, and DE.
- At the 2010 MDNR WEA meeting commercial fishers were most concerned about bottom gear getting caught on a submerged cable from an offshore wind park or transmission line. They were also concerned about navigating through turbines, depending on how they would be spaced offshore. The fishers asked MDNR how close they could get to the turbines and the size of the turbines.

**DEVELOPMENT OF MITIGATION MEASURES TO ADDRESS POTENTIAL USE CONFLICTS
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- MDNR felt that the recreational fishing industry was generally supportive of offshore wind development because they viewed the turbine structures as similar to artificial reefs. Recreational fishers will be supportive if they can fish around the structures.

Meeting Recommendations

- MDNR has maintained good contact with the recreational fishers on the coast. Some reside in the region year-round, but MDNR warned some would not be in the area during the winter. They felt that overall there will be enough representatives from the recreational fishing industry no matter what time of year BOEM decides to hold the stakeholder meeting in MD.
- MDNR recommended holding the stakeholder meeting at the Ocean Pines Library in Ocean City, MD. The venue has a large room and is free. BOEM would have to do all the set up, but the hours for using the room are flexible. They also recommended the UMD Eastern Shore Coastal Ecology Center, but warned the room may not be large enough for BOEM's needs.
- MDNR thought that the commercial and recreational fishers would be able to work together at the stakeholder meeting without a lot of animosity. They said that the commercial fishers would likely not talk about where they are fishing when the recreational fishers are present. .
- MDNR thought it would be best for BOEM to contact one or two commercial fishermen to see when they are fishing to determine the best time to hold a meeting. Sometimes they fish at night. Other times they fish during the day depending on what they are fishing for. MDNR offered to get E & E these contacts.
- MDNR asked if BOEM would be changing any of the structure or content of the meetings depending on location. Mr. Hooker said overall the meetings would be the same, with the exception of Maine, because the technology proposed for the Statoil project would be a floating turbine as opposed to a monopile structure.
- BOEM should consider the concerns of enforcement agencies as part of this project. MDNR has a natural resource police force that is authorized to work in federal waters. They warned BOEM that fishers are wary of the Coast Guard creating exclusion zones around offshore wind facilities. Mr. Hooker said BOEM would do its part to work with the Coast Guard on these issues.
- MDNR is working with other Mid-Atlantic states and coastal zone agencies, Rutgers University, Monmouth University, and MARCO on a series of ocean stakeholder meetings to be held in 2012. MDNR would like to coordinate with BOEM on the meeting schedule.

Invitee Recommendations

**DEVELOPMENT OF MITIGATION MEASURES TO ADDRESS POTENTIAL USE CONFLICTS
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- MDNR found that a lot of the fishing industry from DE and VA was coming into MD waters. BOEM should consider this when inviting stakeholders to the meetings.
- MDNR said Ocean City, MD would be a good location for a meeting because the stakeholders who would be most affected by offshore wind development are located there. They advised BOEM to reach out to the fisheries commissions located in Annapolis, MD. MDNR said Annapolis fishers would not likely come to the outreach meeting because they do not fish offshore Ocean City, MD, but they should be aware of the meeting.
- BOEM should invite the chairperson of each recreational and commercial fishing commission to the stakeholder meeting. MDNR said they would send BOEM these contacts.

3. Action Items:

#	Action Item	Responsible Party	Due Date
1	Send contact information to E & E	MDNR	
2	Send final meeting schedule to MDNR	E & E	
3	Determine if offshore use shapefiles can be used by BOEM	MDNR	
4			

Appendix B

Stakeholder Workshops Meeting Materials

Fisheries / Offshore Wind Energy Mitigation Measures Development

Overview

The Bureau of Ocean Energy Management (BOEM) recognizes that offshore wind development and fishermen will have use conflicts.

BOEM is developing best management practices (BMPs) and mitigation measures for analysis and decision making under the National Environmental Policy Act (NEPA) associated with wind energy development and activities on the Outer Continental Shelf (OCS) as they relate to interaction with commercial and recreational fishing practices.

To address future conflicts between fishing and wind projects within the OCS, BOEM wants input from commercial and recreational fishing industries, as well as fisheries management agencies and scientists, relative to proposed offshore wind energy development.

In order to effectively engage the fishing industry and its many fisheries and technologies, as well as wind energy developers, eight stakeholder workshops will be held from Maine through North Carolina to allow for dialogue among the parties. The goal will be to identify the very best, on-the-ground knowledge, information, and data to develop a robust set of BMPs for reducing conflicts. Workshops have been scheduled during the winter to avoid peak fishing season to the extent possible. The workshops will be half-day working sessions. Your input is essential.

After completion of the eight stakeholder workshops, the findings and results of the outreach will be documented in a report and made available to the public. This report will include:

- BMPs and mitigation measures suggested during the outreach meetings;
- Measures identified in studies, currently proposed projects, and European offshore construction practice; and
- Relevance for reducing potential fisheries/wind energy conflicts in Atlantic offshore areas and use for future BOEM NEPA decision-making actions for OCS renewable energy leasing and development.

Solving the Regulatory Puzzle for Permitting Offshore Energy Facilities

What regulations apply to an offshore wind energy “facility”?

Facilities may include offshore components of subsea transmission cable, wind turbine generator(s), and transformer platform. Onshore components consist of power transmission cables, substation, and pipelines.

- National Environmental Policy Act (Stewardship of the Oceans, Our Coasts & the Great Lakes)
- Endangered Species Act
- Marine Mammal Protection Act
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Protection, Research, and Sanctuaries Act
- National Marine Sanctuaries Act
- Executive Order 13186 (Migratory Birds)
- Coastal Zone Management Act
- Clean Air Act
- Clean Water Act
- Marking of Obstructions
- Executive Order 13547
- Ports and Waterways Safety Act
- Rivers and Harbors Appropriation Act
- Resource Conservation and Recovery Act
- National Historic Preservation Act
- Archaeological and Historical Preservation Act
- American Indian Religious Freedom Act
- Federal Aviation Act
- Federal Power Act
- Executive Order 13007 (Indian Sacred Sites)



Who are the primary regulators?



What is the difference in the permitting process for wind projects in state versus federal waters?

State Waters Primary Permitting Agencies (up to 3 nautical miles)

- Coastal states from Maine to North Carolina seaward limits are 3 nautical miles seaward of the baseline.
- The U.S. Army Corps of Engineers has jurisdiction over offshore structure permitting, as do the State Coastal Structure Permitting Agency and State Water Quality Agency (if separate from structure permitting).

Federal Outer Continental Shelf Permitting (beyond 3 nautical miles)

Federal jurisdiction is the farthest of 200 nautical miles seaward of the baseline. The Energy Policy Act of 2005 grants the Department of the Interior (DOI) authority to regulate federal offshore renewable energy and alternate uses of the Outer Continental Shelf (OCS) (Section 388), creating the Alternative Energy and Alternative Use Program. The DOI's Bureau of Energy

Ocean Management (BOEM, formerly Minerals Management Service) created a regulatory framework for the issuance of leases for renewable energy and alternate uses (30 Code of Federal Regulations [CFR] 285).

- State Coastal Zone Management Agency (Coastal Zone Consistency Certification)
- Federal and state agencies involved include:
 - National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (marine mammals, sea turtles, essential fish habitat)
 - U.S. Fish and Wildlife Service (migratory birds, certain threatened and endangered species)
 - U.S. Army Corps of Engineers (Section 10, Rivers and Harbors Act/Section 404, Clean Water Act)
 - State Historic Preservation Officer (Section 106 of National Historic Preservation Act)
 - U.S. Environmental Protection Agency (EPA) Clean Air Act Federal Conformity Analysis and EPA Clean Water Act (National Pollutant Discharge Elimination System [NPDES])
 - U.S. Coast Guard
 - Federal Aviation Administration (Notice of Proposed Construction)
 - U.S. Department of Defense

What is the permitting process on the Outer Continental Shelf?

Federal agencies are required to evaluate the potential impacts to the human environment associated with a proposed federal action. According to the National Environmental Policy Act (NEPA), the lead federal agency

“Major federal actions” may include new and continuing activities; project/program financed, assisted, conducted, regulated, or approved by a federal agency; new or revised agency rules/plans/policies/procedures; and legislative proposals.

needs to determine whether the proposed action (a major federal action) is significantly affecting the quality of the human environment (40 CFR § 1502.3). The federal agency will prepare an **Environmental Assessment (EA)** or an **Environmental Impact Statement (EIS)** to analyze the effects on resources and determine if impacts will be “significant.”

The potential resources to be analyzed include:

- Physical Resources – geology and sediments, oceanography, water quality, air and climate, noise, and electromagnetic fields;
- Biological Resources – avian and bat resources, freshwater and coastal wetlands, wildlife, fisheries, benthos, vegetation, and threatened and endangered species; and
- Socioeconomic Resources and Cultural Resources – urban and suburban infrastructure, population and economics, visual resources, cultural resources, recreation and tourism, competing uses, and navigation and transportation.

Applicants may have an ownership interest on the OCS via:

- a **Limited Lease** for resource assessment and technology testing;
- a **Commercial Lease** for full development and power generation;
- a **Right-of-Way (ROW) Easement** for cables, pipelines, and associated facilities that are not associated with a single lease and/or a **Right of Use and Easement (RUE)** for installations such as a substation or maintenance platform not associated with a single lease.



The steps in the **BOEM lease issuance** and development process trigger NEPA environmental review including:

- a **Site Assessment Plan (SAP)** which describes site characterization activities including any relevant site survey results;
- a **Construction and Operations Plan (COP)** which describes the plan that will be executed for construction including a detailed Facility Design Report and Fabrication & Installation Report; and
- a **General Activities Plan (GAP)** must be submitted within six months of lease issuance describing all activities and operations related to technology testing including any facilities siting and project easement.

How are the SAP, COP, and GAP approved?

BOEM will issue leases through either a competitive or noncompetitive process. Both processes will comply with federal statutes and seek input from affected states, local governments, and stakeholders. BOEM has streamlined the permitting process for offshore energy facilities. For example:

- **Established an Atlantic Offshore Wind Energy Consortium.** Secretary of the Interior Ken Salazar and the governors of ten East Coast states signed a Memorandum of Understanding to promote the efficient, orderly, and responsible development of wind resources on the OCS.

- **Established State Task Forces.** Assist government decision-making regarding renewable energy leasing and development on the OCS, (Maine, Rhode Island, Massachusetts, New Jersey, Virginia, Delaware, Oregon, Maryland, New York, Hawaii, North Carolina, and South Carolina, and are in process for Florida).
- **Launched Smart from the Start.** A wind energy initiative to facilitate siting, leasing and construction of new projects on the Atlantic OCS, thus spurring the rapid and responsible development of wind resources. The goals of the initiative are tri-fold: to identify priority Wind Energy Areas for potential development, improve coordination among local, state, and federal regulators, and accelerate the leasing process. (For information on Smart from the Start, see: <http://boem.gov/Renewable-Energy-Program/Smart-from-the-Start/Index.aspx>.)

What studies need to be conducted for a project to gain state and federal approval?

Onshore and offshore environmental studies and surveys are conducted in accordance with the requirements of the SAP, COP, and GAP, including:

- Bathymetric surveys
- Sediment surveys
- Benthic surveys
- Archaeological surveys
- Fish surveys
- Lobster surveys
- Marine mammal surveys
- Hydrodynamic modeling
- Avian and bat surveys
- Noise assessment
- Visual assessment
- Navigational risk assessment
- Threatened and endangered species surveys
- Wetlands surveys
- Geological survey

Additionally, BOEM, through its Division of Environmental Sciences, manages the Environmental Studies Program which develops, conducts, and oversees scientific research specifically to inform policy decisions regarding development of OCS energy and mineral resources. Past and ongoing studies within the Atlantic Region include:

- Effects of Pile Driving Sounds on Auditory and Non-Auditory Tissues of Fish
- Characterization and Potential Impacts of Noise-Producing Construction and Operation Activities on the OCS (Part I)
- Characterization and Potential Impacts of Noise Producing Construction and Operations Activities on the OCS (Part II)
- Underwater Hearing Sensitivity in the Leatherback Sea Turtle (*Dermochelys coriacea*): Assessing the Potential Effect of Anthropogenic Noise

- Atlantic Marine Mammal and Sea Turtle Data Search and Literature Synthesis Including Stranding and Nesting Sites
- South Atlantic Information Resources: Data Search and Literature Synthesis
- Ecospatial Information Database (ESID) U.S. Atlantic Region
- Information Synthesis on the Potential for Bat Interactions with Offshore Wind Facilities
- Synthesis, Analysis, and Integration of Air Quality and Meteorological Data for the Atlantic Region
- Surveying for Marine Birds in the Northwest Atlantic
- Acoustic Monitoring of Temporal and Spatial Abundance of Birds Near Structures on the OCS of the Atlantic and Gulf of Mexico
- Pilot Study of Aerial High-Definition Video Surveys for Seabirds, Marine Mammals, and Sea Turtles on the Atlantic OCS
- Compendium of Avian Information: Part 2
- Exploration and Research of Mid-Atlantic Deepwater Hard Bottom Habitats and Shipwrecks with Emphasis on Canyons and Coral Communities
- Roadmap: Technologies for Cost Effective, Spatial Resource Assessments for Offshore Renewable Energy
- Atlantic Marine Assessment Program for Protected Species (AMAPPS)
- Evaluating Acoustic Technologies to Monitor Aquatic Organisms at Renewable Sites
- Developing Environmental Protocols and Modeling Tools to Support Ocean Renewable Energy and Stewardship
- OCS Renewable Energy and Space-Use Conflicts and Related Mitigation
- Energy Market and Infrastructure Information for Evaluating Alternative Energy Projects for OCS Atlantic and Pacific Regions
- Protocols for Baseline Studies and Monitoring For Ocean Renewable Energy
- Inventory and Analysis of Archaeological Site Occurrence on the Atlantic OCS
- Atlantic Wind Energy Development: Recreation and Tourism Economic Assessment

(For more information on the individual studies, see <http://boem.gov/Studies/>.)

Fishing Frequently Asked Questions (FAQ) Related to Wind Energy on the Outer Continental Shelf (OCS)

1. Can Regional Fishery Management Councils have representation at BOEM's Intergovernmental Renewable Energy Task Force meetings?

- BOEM has established intergovernmental task forces with ten states.
- These task forces are for federal-state consultations and are limited to state government officials designated by the Governor, officials from affected federal agencies, elected local government officials, and elected tribal leaders. Regional Fisheries Management Councils do not meet these criteria, unless specific individuals from the Councils are also representatives of a state or Federal entity. Those members may represent Council interests on the intergovernmental task forces.
- Regional Council members and staff are encouraged to attend the meetings and participate in the question and answer period held at the conclusion of task force meetings.
- BOEM has participated in public information sessions and Regional Fisheries Management Council meetings in the North and Mid-Atlantic OCS Planning Areas as part of information-sharing efforts, and will continue to seek public input and comments on proposed activities.

2. How is Coastal and Marine Spatial Planning incorporated into the offshore wind energy planning process?

- BOEM recognizes the importance of coordinating with other OCS users and regulators, following principles of coastal and marine spatial planning (CMSP), and coordinating with the regional planning bodies as established by the National Ocean Council.

3. Will the U.S. Coast Guard (USCG) be able to conduct search and rescue operations within a wind turbine array?

- Yes. In the case of the Cape Wind Energy Project, a control center will be monitored 24 hours a day, 7 days a week. The control center will have the ability to shut down individual wind turbines within two minutes of notification from the USCG.
- The Cape Wind Energy Project is also required to have a helipad on the electrical service platform that could be accessed by USCG helicopters.

4. If fishermen are displaced or economically impacted, will compensation be available? If so, how?

- The Fishermen's Contingency Fund, established under the OCS Lands Act of 1978, compensates U.S. commercial fishermen and other eligible citizens and entities for property and economic loss caused by obstructions specifically related to oil and gas development activities on the OCS.
- BOEM does not have the authority to establish a similar mitigation fund related to OCS renewable energy development.

5. Will offshore wind facility structures be removed after the expiration of a lease?

- Within two years after cancellation, expiration, or other termination of the lease, the lessee would be required to remove all devices, works and structures from the site and restore the leased area to its original condition.
- Bottom-founded structures and their related components would be severed at least five meters (15 feet) below the mud-line to ensure that nothing would be exposed that could interfere with future lessees and other activities in the area.
- Rights-of-way facilities (such as electrical transmission cables) may stay in place as long as they are being used and properly maintained.

6. In its evaluation of offshore wind facilities and their potential impacts, does BOEM consider other marine uses that may also impact the fishing community?

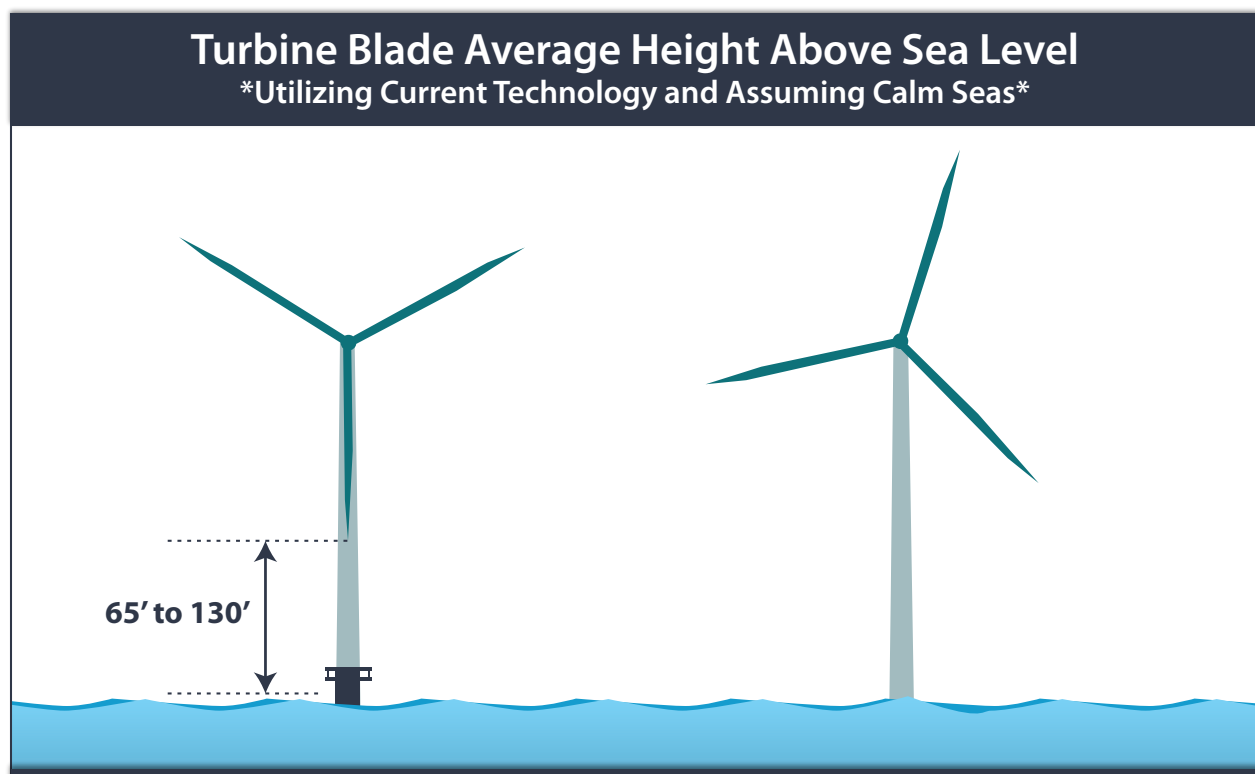
- Yes. As part of our analysis of potential impacts for construction, operation, and decommissioning of a commercial offshore wind facility, BOEM will evaluate existing and likely future uses of the coastal and ocean environment.
- This includes fishing; oil and gas development; military activities; sand and gravel extraction; commercial, recreational, and military vessel traffic; and other renewable energy facilities.

7. Will areas in and around wind turbines and other structures exclude vessel traffic and fishing activity?

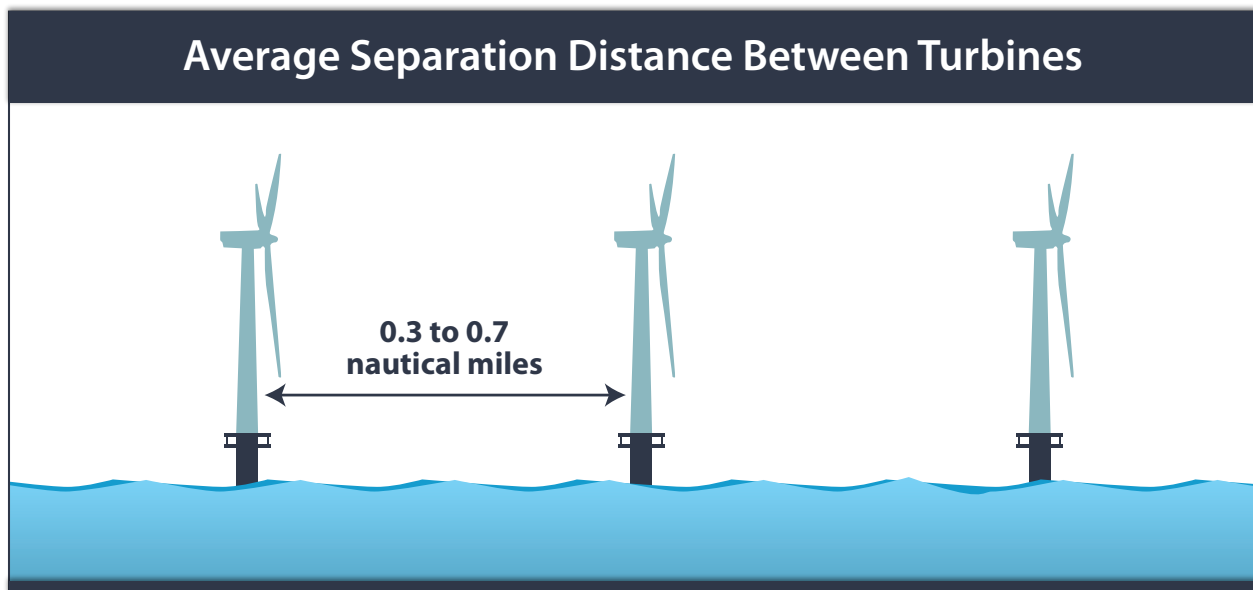
- BOEM does not intend to restrict vessel traffic in and around offshore wind facilities.
- If a safety zone or buffer were implemented, it would likely be implemented by the USCG under their mandate to ensure safety at sea. The USCG has stated that safety zones and buffers would be evaluated on a case-by-case basis.
- For the Cape Wind Energy Project, the USCG has stated that it does not intend to implement any safety zones around wind turbine locations.
- In certain oil and gas platforms in the Gulf of Mexico and Pacific Ocean, the USCG has implemented a 500-meter safety zone for all vessels, except those under 100-feet in length and not engaged in towing.

8. What is the average height above sea surface and distance between wind turbines?

- Based on the current technology, the lowest point of the rotor sweep would be 65 to 100 feet above the sea surface. As larger turbines are used, rotor sweep would be almost 200 feet above the sea surface.
- For example, on a 3.5 MW Siemens unit, the rotor diameter is 120 m (blade length of 58 m). If the unit is installed on an 80 to 90 m tower, the tip from the blade to calm seas would be from 20 to 40 m, or 65 to 130 ft.
- For larger turbines, such as the Siemens 6 MW, the rotor diameter is 154 m (blade length of 75 m). If the unit is installed on a 100 to 120 m tower, the tip from the blade to calm seas would be from 25 to 45 m, or 81 to 146 ft.



- Spacing between turbines is determined on a project-by-project basis to minimize wake effect between turbines and is based on rotor diameter and turbine size.
- A spacing of seven rotor diameters between units has been used in Denmark.
- In some land-based settings, turbines are separated by much greater distances, as much as 10 rotor diameters from each other.
- It is anticipated that U.S. offshore wind turbines will use rotors of 100 m or more in diameter, so turbines would be spaced at least 0.3 to 0.5 nautical miles apart.
- The Cape Wind Energy Project will have an overall rotor diameter of approximately 107 m (351 ft) with a spacing of six rotor diameters between rows and nine rotor diameters between columns. Therefore, spacing within the array will be 0.34 nautical miles (629 meters) by 0.54 nautical miles (1,000 meters) between each wind turbine generator.



9. How deep are the electrical transmission cables buried under the sediment?

- Varies by project, but cables will be buried below the seafloor at an appropriate depth based on the underlying geology.
- Mitigation measures, such as concrete mats, may be used in cases where a minimum burial depth is not practicable.
- The standard commercial practice is typically to bury submarine cable 1 to 3 m deep in water shallower than 2,000 m to protect it from external aggression hazards, such as fishing gear and anchors.
- Cables may be buried as deep as 10 m under the seabed, depending on the local hazards, water depth, and substrate composition.

10. What are the effects of turbines on navigation and radar issues for fishing operations within or near the turbine arrays?

- The USCG has statutory authority for promoting the safety of life and property on the OCS. Vessels used for offshore wind facilities are subject to USCG licensing and inspection.
- To ensure navigational safety, all structures will have appropriate markings and lighting in accordance with USCG requirements for Private Aids to Navigation.
- Wind facilities will be sited at reasonable distances from radar installations to minimize interference with commercial air traffic control, national defense, and weather radar systems.
- As each project is unique, a radar study will be needed for a site-specific project.

- BOEM has several best management practices (BMPs) to address the potential effects of alternative energy project development including:
 - Siting of facilities to avoid unreasonable interference with major ports and USCG-designated Traffic Separation Schemes.
 - Placing proper lighting and signage on structures to aid navigation and comply with any other applicable USCG requirements.
 - Studying proposed wind turbines potential interference and solutions with commercial air traffic control, national defense, and weather radar systems.

11. Are there siting considerations to address potential impacts to fisheries and habitat (e.g., turbine configuration to minimize navigational impacts and turbine design options to provide habitat for species such as lobster)?

- BOEM has received public input regarding the placement of wind turbine inner array cables in a manner that would facilitate the use of bottom tending mobile gear within the array with the least amount of cable crossings.
- BOEM plans to gather additional information through future public comments and studies.

12. What are the effects of electromagnetic fields (EMF) on fish species?

The following studies examine the effects of EMF on marine animals (primarily fish):

- On July 7, 2011, BOEM completed the study "Effects of EMFs from Undersea Power Cables on Elasmobranchs (Sharks and Rays) and Other Marine Species." This study researched potential ecological effects of EMFs emitted by sub-sea power transmission cables, suggested solutions that reduce EMF exposure, and identified data gaps and future research priorities.
- The Department of Energy's Pacific Northwest National Laboratory is concluding a study titled "Effects of Electromagnetic Fields on Fish and Invertebrates." This study looks at behavioral responses of selected finfish, crabs, and spiny lobster to EMF produced in a laboratory setting.
- The Oregon Wave Energy Trust has also conducted an EMF study that will be released soon.
- A United Kingdom study, "EMF-Sensitive Fish Response to EM Emissions from Sub-Sea Electricity Cables", looked at behavioral reactions of certain sharks and rays to EMF in a large sea pen. The report concluded that although some fish appeared to respond to EMF, no positive or negative effects could be determined.

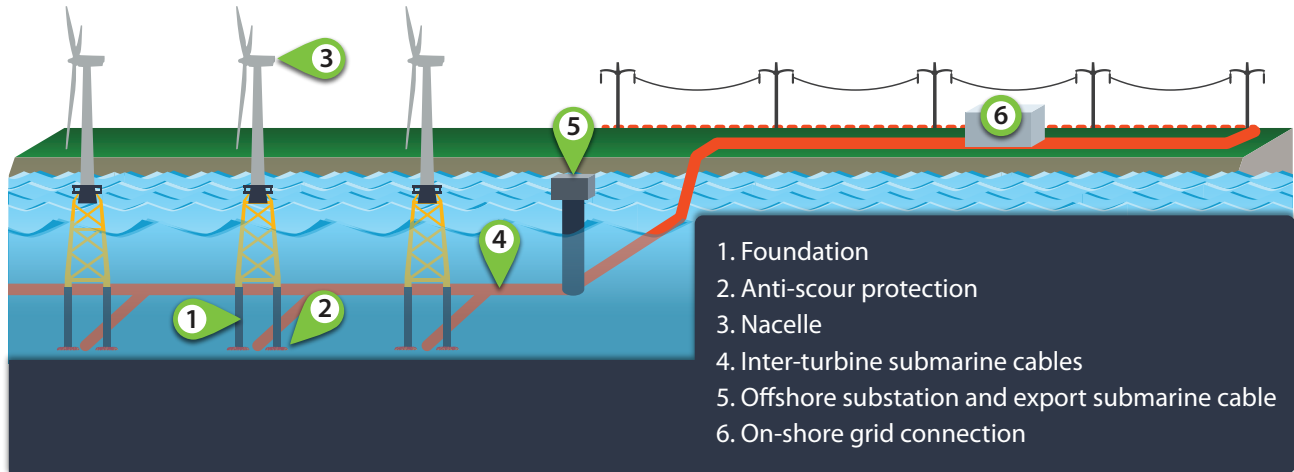
13. Where can I find more information about offshore wind energy development in the Atlantic?

- Information on the planning process and the status offshore wind leases, including opportunities for comment, can be found on the BOEM website at: <http://www.BOEM.gov/offshore/RenewableEnergy/index.htm>
- Information specific to off-shore wind development and fisheries conflicts can be found in the document "Identification of OCS Renewable Energy Space-Use Conflicts and Analysis of Potential Mitigation" located at the BOEM website at:
<http://www.boem.gov/Environmental-Stewardship/Environmental-Studies/Renewable-Energy/Renewable-Energy-Research-Completed-Studies.aspx>

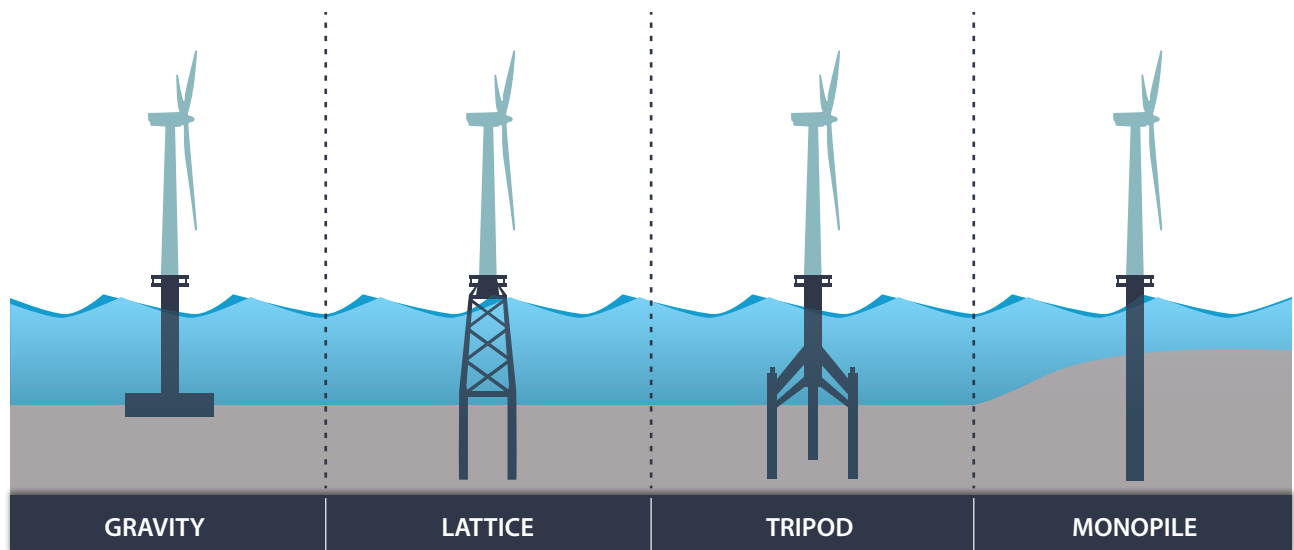


Offshore Wind Basics

*Mitigation Measures
Development*



Foundation Types



Current Fishing Best Management Practices

Lessees and grantees shall work cooperatively with commercial and recreational fishing entities and interests to ensure that the construction and operation of a project will minimize potential conflicts with commercial and recreational fishing interests.

Lessees and grantees shall review planned activities with potentially affected fishing organizations and port authorities to prevent unreasonable fishing gear conflicts. Lessees and grantees shall minimize conflict with fishing activity and gear by notifying state and Federal regional fishery management organizations and local fishing groups of the location and time frame of the project construction activities well in advance of mobilization with updates throughout the construction period.

Lessees and grantees shall use practices and operating procedures that reduce the likelihood of vessel accidents and fuel spills.

Lessees and grantees shall avoid or minimize impacts to the commercial fishing industry by marking applicable structures (e.g., wind turbines, wave generation structures) with USCG-approved measures (such as lighting) to ensure safe vessel operation.

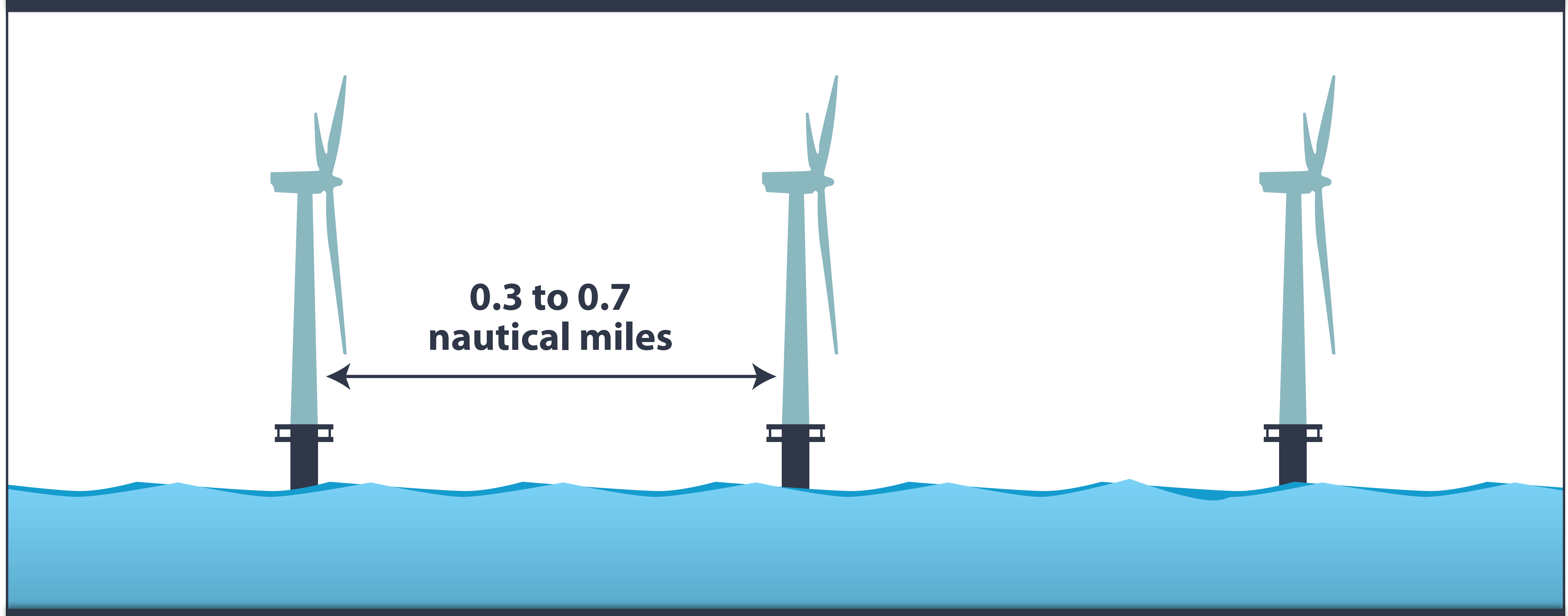
Lessees and grantees shall avoid or minimize impacts to the commercial fishing industry by burying cables, where practicable, to avoid conflict with fishing vessels and gear operation. If cables are buried, lessees and grantees shall inspect cable burial depth periodically during project operation to ensure that adequate coverage is maintained to avoid interference with fishing gear/activity.

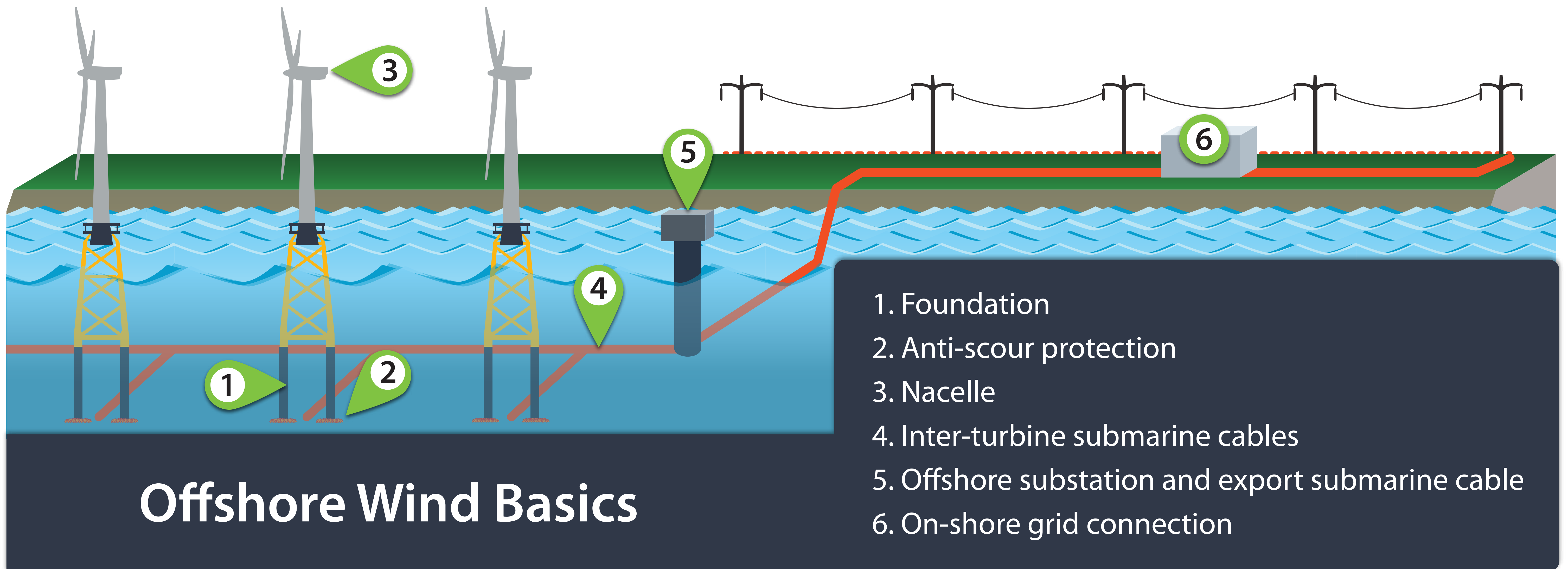
Turbine Blade Average Height Above Sea Level

Utilizing Current Technology and Assuming Calm Seas

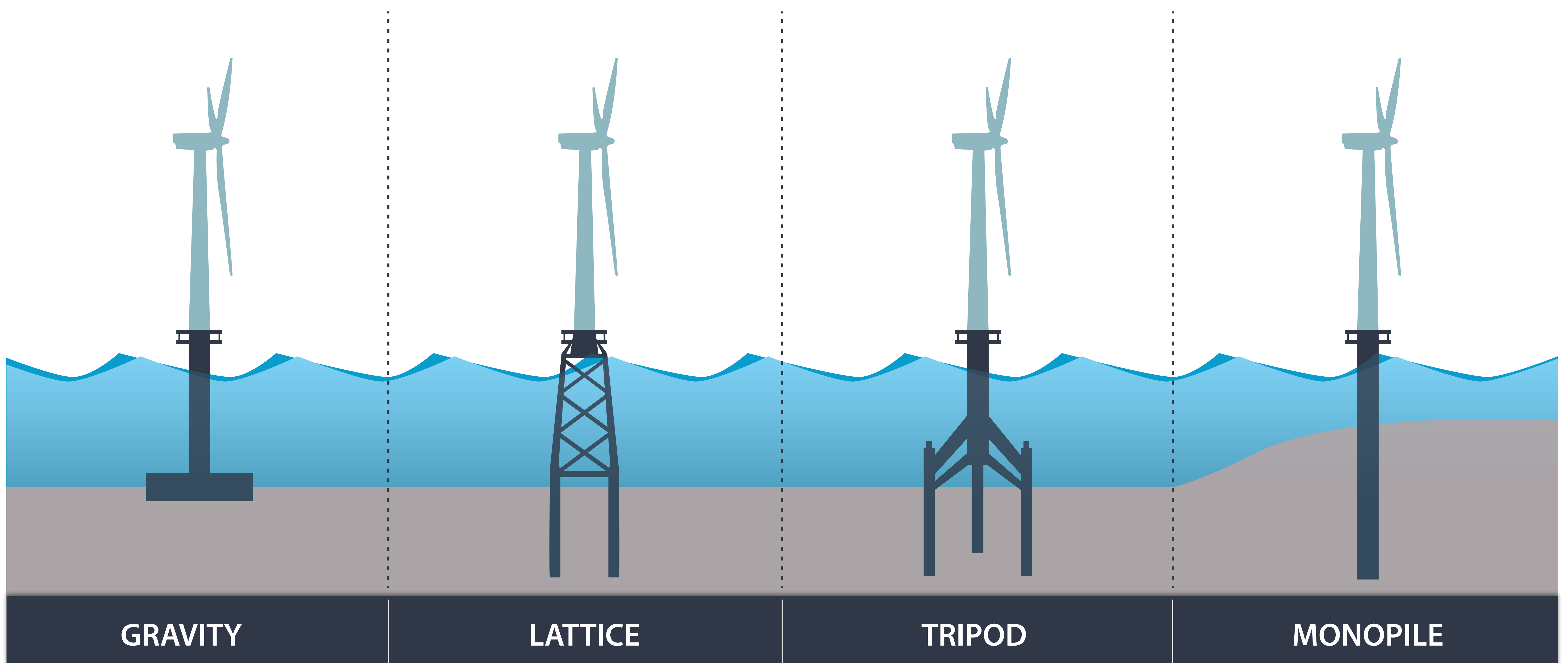


Average Separation Distance Between Turbines





Foundation Types



Previously Identified Offshore Wind Development Concerns

Exclusion Zones/Access

- Who will be excluded from the wind farm itself and around transmission cables?
- Can vessels transit through or would they have to go around?
- Which gear, fishing sector, or industry would be excluded, or will every activity be allowed or excluded within wind farm borders?
- How close can vessels approach turbines?
- Will the entire area be a closed exclusion zone or will it be just a small exclusion circle around individual turbines?
- Tie-ups and trespassing issues – who enforces the rules? Would it be the state or a federal agency, or a combination of both?
- Should anchoring be allowed so fishermen can access the reefs, or is that too risky?
- The entire area would have to be closed during initial construction, and monitoring can be done to ensure no impact on fisheries.
- How will closures be marked?
- For smaller vessels, safety zones are impractical in rough seas because they are already limited in where they can safely transit.
- If we have another 9/11, will the whole area be shut off to everybody?

Notes:

Regulations

- How will offshore wind rules overlay and interfere with all the other fisheries management measures that exist?
- There is a general feeling that fishermen don't have the opportunity to comment on issues for fisheries impacts in the current NEPA structure because the current EA being discussed may only be covering the site assessment activities to be undertaken, for example.
- Overall concern due to multiple fishing area restrictions (whales and protected marine mammals, council closures, sand and gravel mining, cable laying, shipping and freight activities, visual/aesthetic stakeholders, DOD, Native Americans, etc).

Notes:

Communication

- Often there is a communication breakdown especially with vessels that are home-ported elsewhere.
 - Can the Harbor Masters and Dock Masters play a role in information dissemination?
 - How can fisherman be notified that an area is closed for inspection or maintenance?
 - USCG Notice to Mariners can be used but are not sufficient. Can a new communication process be created with the Coast Guard?
 - What happens if there is an emergency at sea due to wind turbine equipment?
 - More time is needed for notifications. NOAA weather channel may be better for energy information.
 - How can fishermen be notified that an area is closed for inspection or maintenance? Email notifications would help with maps showing state projects.
 - Pleasure boaters may not read a NOAA nautical chart. How does information get to the general public?
-

Notes:

Siting Process

- Some fishermen may not feel like they are included in the process and wonder if it is too late to have any real input.
 - Some feel that this process should have happened during creation of the WEAs and not now after they are already developed.
 - Timing for the fishing industry to pay attention to actual development proposals, turbine configurations, etc.?
 - How can they be sure that NGOs who would like to close large areas of the ocean to fishing don't jump on board and have significant input?
 - Turbines can be spaced so nets can be pulled around them and so transit can be done through it, but the spatial orientation sometimes depends on sediment.
 - What is the likelihood that offshore wind facilities will also be used for aquaculture and tidal energy projects in the future?
-

Notes:

Safety

- What is the actual distance from sea level to blade tip?
- What happens if parts of the turbine or other equipment break off and hurt somebody or another emergency happens at sea?
- Will EPIRBs work within wind arrays?
- What if a vessel has a mechanical breakdown inside a wind facility? They could be drifting without power and need room to restore steering.

Notes:

EMF

- What are the effects of EMF on fish and people? Is it an attractant or a repellent for fish?

Notes:

Radar Interference

- Will there be any radar interference from turbines?

Notes:

Maintenance

- How often, who does it, how long does it last, and what does it involve?
 - Will underground cables be inspected or replaced?
 - Will there be exclusion zones during maintenance?
-

Notes:

Health

- What are the short- and long-term health effects of fishing near wind turbines and cables producing EMFs to people with pacemakers or other medical conditions?
-

Notes:

Fish

- Will wind turbines, cables, EMF, and/or noise affect fish migration? What if it creates an obstacle and restricts migratory and pelagic patterns?
 - Will fish decide to avoid the entire area and go around?
 - Will fish actually be attracted to the scour and other areas?
 - Can wind turbines be installed in areas already closed off to fisheries?
 - Concerns that unwritten areas where fishermen prefer to fish and find productive may become affected, and if fish are displaced from these areas, conflicts among fishermen may increase as well.
-

Notes:

Liability

- Fishermen have vessel insurance and gear insurance concerns. Who pays when there is a loss of gear or that got caught on cables or turbines?
 - Are there innovative ways that developers can make wind structures and farms more fishing friendly so that gear doesn't get snagged? This would involve exchange of ideas and information between fishermen and wind industry.
 - Possibility for entrapment of lobster gear on lattice and other turbine foundation types.
 - How to ensure cables stay buried with natural changing topography and storms.
-

Notes:

Enforcement

- If exclusion zones will exist, who will monitor the area and enforce penalties?
-

Notes:



Possible Best Management Practices and Mitigation Measures to Reduce Conflicts between Fishing and Wind Industries

1. Communication and Engagement

Are there specific methods of communication that can be used to keep fishermen informed? For example:

- Use of a dedicated very high frequency (VHF) channel for the transmission of any warnings related to local renewable energy projects.
- Use of a vessel monitoring system, such as Boatracs in the Northeast Atlantic that can send and receive emails to notify fishermen of important issues.
- Direct mailings, letters and emails, and announcements in fisheries trade publications.
- Radio Navigational Warnings and Notices to Mariners can be issued before and during offshore wind farm construction.
- Institute a full Public Relations campaign to educate fisherman and all boaters of new chart icons/legend, traffic alerts, and construction alerts.
- On-going consultation should occur throughout the life of a project, not just at the design and construction stage.
- Each project should consider establishing a long-term committee of stakeholders and for them to meet regularly to address on-going issues and concerns.
- Strong relationships with fishermen of all gear types within an area is very important. Developers should help fund the participation of liaisons and representatives of commercial fishing given the expense of such engagement.

Notes:

2. Project Design, Navigation, and Access

Studies and Analysis

Are there specific studies that should be prepared?

- BOEM-required navigational risk assessments for proposed wind farms help to consider existing vessel traffic patterns (including fishing vessel use) and measures to minimize conflicts with existing waterway users. Any other suggestions for the content of the risk assessment or other ideas for navigation conflicts?
- An intergenerational study on fish is needed for acoustics and acoustic thresholds.

Spacing of Turbines

Is there a way to space individual turbines that would be more compatible with fishing?

- Space turbines at distances to allow safe passage of boats between the structures. How much space is needed between turbines to promote safe navigation of fishing vessels within a wind farm?
- Should wind turbines be spaced closer together to minimize the footprint of the overall affected area? Some wind projects may not have much flexibility on this measure.
- If exclusion zones around turbines are determined necessary to promote safety, should they be kept small in size or include exemptions for small vessels that would not be endangered by the turbine blade sweep?
- Consider exclusion zones for non-commercial vessels or for a specific industry or sector only.

Navigational Safety

Some examples of different navigational safety measures are listed below. Should specific navigational precautions be implemented? Would any of these be useful?

- “No-Anchoring Areas” – These areas would have defined boundaries where anchoring is hazardous or could result in damage to the marine environment.
- “Precautionary Area” – An area with defined limits where ships navigate with particular caution and where the direction of traffic flow may be recommended.
- “Recommended Route” – A route of undefined width, for the convenience of ships in transit, which is often marked by centerline buoys.
- “Recommended Track” – A route that has been specifically examined to ensure, as much as possible, that it is free of dangers and along which ships are advised to navigate.
- “Traffic Lane” – An area within defined width in which one-way traffic is established.
- “Safety or Buffer Zone” – An area established around vessels, around each turbine and substation (post-construction), around the corridor during cable installation, and a post-construction anchorage exclusion zone. Sizes of buffer areas and safety zones can be changed during various phases of the project.

Cabling

Are there specific cable burial methods that can be implemented to help to avoid conflicts with specific types of fishing gear? Discuss the implications of cable burial depths on recreational and commercial fishing. Burial depths and fishing types established for site-specific project in the UK and Cape Wind are listed for reference.

- Bury submarine cables 1-3 meters deep in water shallower than 2,000 meters to minimize interactions with fishing gear and anchors. Cape Wind subsea cables will be buried a minimum of 6 feet below the seabed.
- Cables may be buried as deep as 10 meters under the seabed, depending on the local hazards, water depth, and seabed conditions.
- Different size cables can be buried at various depths depending on local conditions and use within the wind farm. For example, subsea cables which connect the wind turbines together can sometimes be buried to a minimum depth of 1 m; subsea cables which connect each row of turbines to the substation platform can be buried to a minimum depth of 2 m; and the subsea cable which delivers the electricity from the offshore substation platform to shore can sometimes be buried to a depth of 1-3 m depending on localized seabed conditions.
- In some cases, working groups were created that includes cable owners and fishermen who collaboratively discuss underwater cables and ways to minimize lost fishing gear and prevent damage to cables. Do you think such a group could be useful in your area?
- Implement methods (inspection and maintenance) to ensure cables are checked and monitored and remain buried, and standard procedures for when a cable becomes unburied.
- Look to other cable rules for guidance – what are the requirements for the telecommunications industry?

Notes:

3. Safety, Liability and Insurance during Operations

Safety Procedures

What types of safety measures can be implemented to protect fisherman and wind project equipment?

- Sequence activities to minimize impacts during construction. Examples include scheduling construction when fisheries are inactive and reducing the amount of time needed to construct a project.
- Design operational requirements and procedures for wind farm shutdown during search and rescue or salvage operations.
- Mock emergency response trials should be required so that responders are experienced in handling an emergency inside an offshore wind facility should one arise.
- Should vessel tie-up to turbines be allowed?
- Developers should offer classes and training sessions to fishermen and others so they have all the information they need to operate safely.
- Insurance companies may resort to dropping policies for fishermen fishing inside the wind area. How to prevent this?
- Include same limitations on liability as used for the telecommunications industry.
- For insurance, consider wind farm similar to any other ocean obstruction.

Marking, Charts, and Education

How can fishermen be notified about wind turbine and cable locations and other hazards through navigational aids, nautical charts, and other methods? For example:

- Marking of offshore wind turbine foundations with the lights and other navigation aids required by the U.S. Coast Guard. Would radar reflectors on the base of the wind turbine support structure provide any benefit?
- Update navigational charts to ensure safe passage in the vicinity of the offshore renewable energy projects and illustrate any traffic routes, safety areas, and other navigational requirements.
- Outreach to the fishing community to inform mariners traveling in the vicinity of offshore renewable energy projects ways to identify and avoid hazards. Should education be conducted through stakeholder groups, classes, publications, etc.? Other methods?
- Other methods to communicate the location and routing of offshore wind facilities and associated cables?
- Include cable locations in charts and Notices to Mariners.
- BOEM should require charts to be updated on a regular basis, and for notification of those updates to be sent to stakeholders and the public.

Gear

Could fishing gear used near turbines be modified to reduce potential conflicts?

- Can gear be modified?
- Can pot strings be shortened or net size or trawl length modified to improve fishing performance and minimize interference within wind farms?
- Should studies be considered in coordination with fishermen to design and test new gear or gear modifications?
- A *Communication Plan* should be developed for gear entanglement issues. Clear communication channels are needed for gear loss during fishing operations.

Contingency Funds

Internationally, there are examples of funding mechanisms that have been established to compensate fishermen for gear lost or damaged as a result of wind energy projects, and for related purposes. Recognizing the BOEM does not currently have the authority to establish or manage fishing mitigation or compensation funds related to offshore wind energy facilities, should such an approach be considered in the U.S.? For example:

- Within the U.S. offshore oil and gas industry, the federal Fishermen's Contingency Fund (FCF) has been established. FCF is a revolving fund paid for by assessments on oil and gas interests, and was established in 1978 by an amendment to the Outer Continental Shelf Lands Act. It compensates fishermen for property and economic loss caused by obstructions related to oil and gas development on the OCS. NMFS processes FCF claims, while BOEM coordinates communications with OCS lease holders. Could a similar approach work for the U.S. offshore wind industry? NOTE: BOEM does not have legal authority to implement or require such an approach for offshore renewable energy facilities under current law.
- Within the offshore subsea communication cable business, there are examples of agreements between undersea fiber-optic cable companies and fishing associations that release participating fishermen from any possible civil liability for "ordinary negligence to a fiber optic cable company" and provide compensation for gear that becomes snagged on a cable. Could similar agreements between fishermen and offshore wind developers work in the U.S.?
- Should other approaches to compensating fishermen for lost gear or fishing opportunities related to offshore wind energy development be considered?
- If fisherman know up front there is a fund to compensate for verified loss/damaged gear, it will be an incentive to make safe decisions at sea.
- Would reduction in the fishery be a feasible mitigation measure? In other words, pay people to stop fishing and get out of the industry.

Notes:

4. Natural Resources

Are there specific measures that can be implemented to lessen the impact on fisheries and the environment? For example:

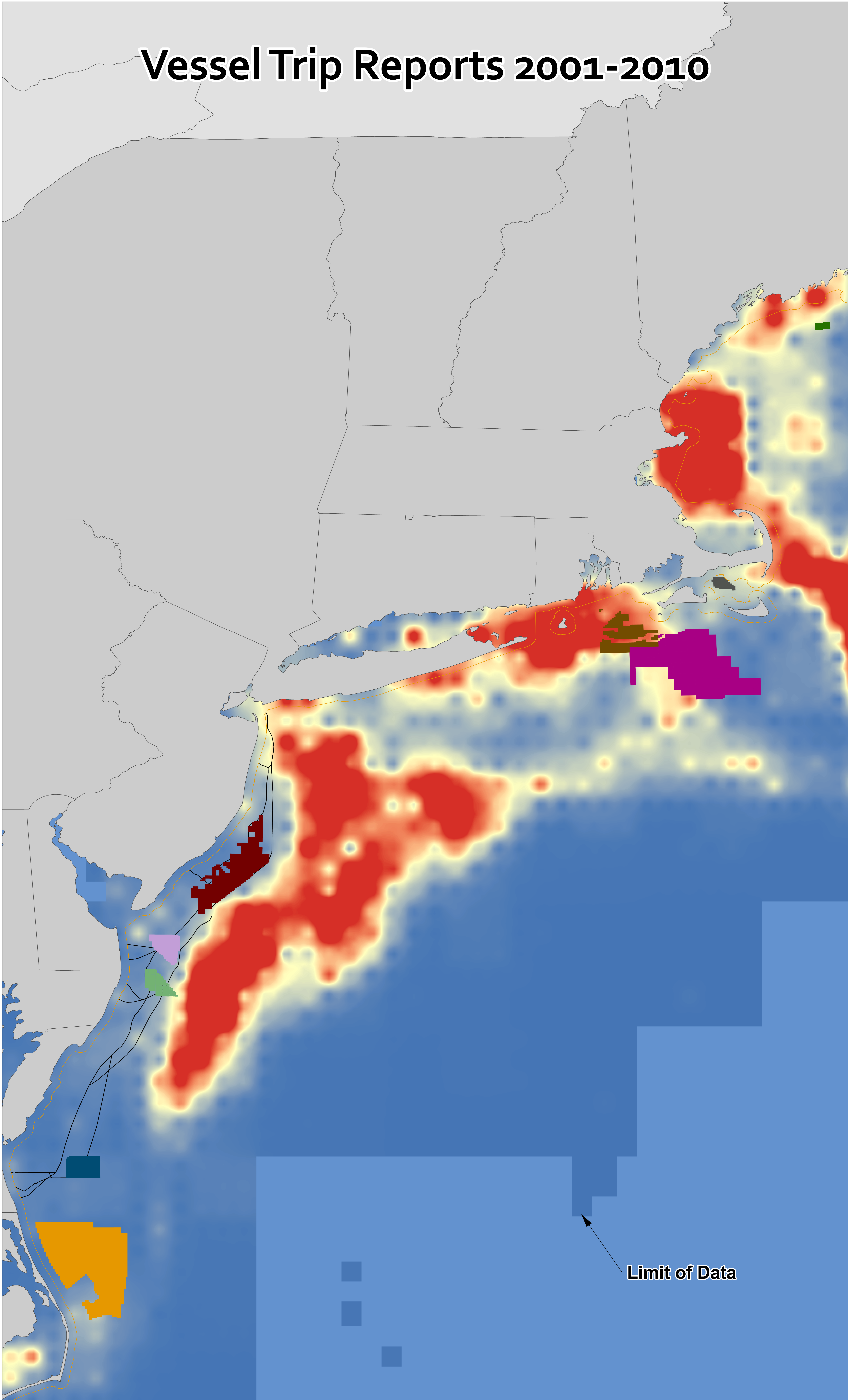
- Avoiding the siting of offshore renewable energy facilities in high-use fishing grounds.
- Site offshore facilities in areas that are already off-limits to fishermen.
- Use technologies to reduce impacts to resources and habitats (e.g., bubble curtains to minimize noise impacts from pile driving), and schedule activities outside of known breeding seasons for target commercial fisheries.
- Make sure cables have EMF shields to further mitigate risk to the fishery, especially juveniles and breeding stock.
- Construction can be done in a phased process instead of closing off the entire area all at the same time, which would minimize impacts.
- Construct as much as possible onshore before moving equipment offshore so the impact to the marine environment is minimized.
- Lay cables alongside existing communication cables to reduce bottom disturbance.

Source: BOEM 2012-083, Identification of Outer Continental Shelf Renewable Energy Space-Use Conflicts & Analysis of Potential Mitigation Measures, OCS Study, and feedback from stakeholders.

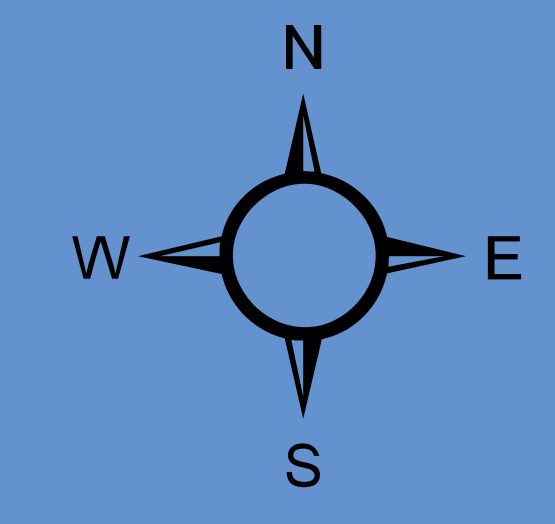
Notes:



Vessel Trip Reports 2001-2010



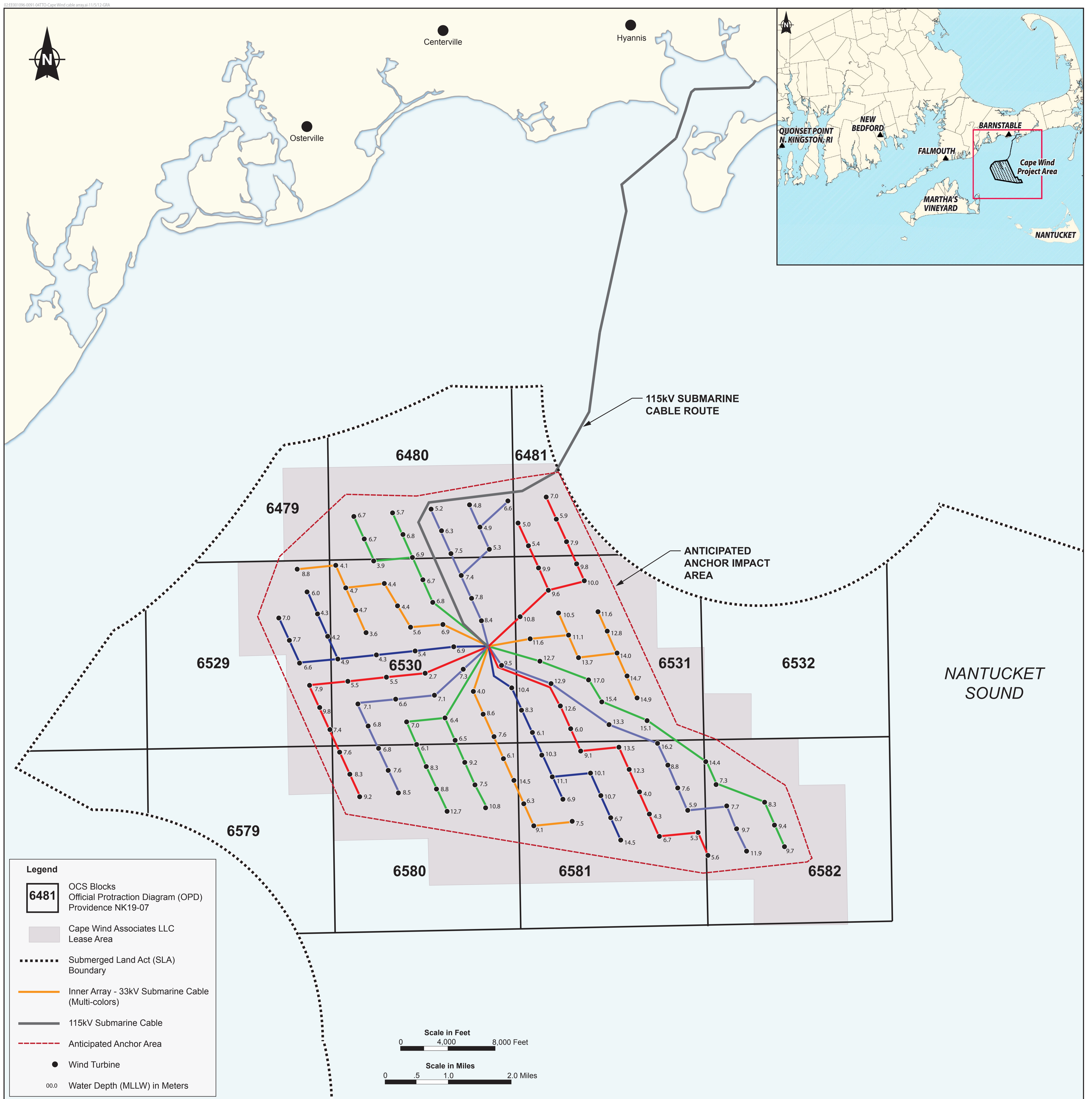
Limit of Data



0 50 100
Nautical Miles

Fed/State Boundary	Maryland WEA	Delaware Lease Area
Atlantic Wind Connection	Massachusetts WEA	Cape Wind Lease Area
All Gear (Annual)	New Jersey WEA	Maine Planning Area
Effort (Days)	Rhode Island / Massachusetts WEA	North Carolina Planning Area
High	Virginia WEA	
Low		

Cape Wind Transmission Cable Array



- Total 130 Siemens 3.6 megawatt wind turbines capable of producing 468 MW of energy
- 0.4 miles between turbine rows and 0.6 miles between turbine columns
- Transmission cables will be buried at or below 6 feet beneath the seafloor
- Anticipated Anchor Impact Area = approximate impact area during construction

Appendix C

Stakeholder Workshop Meeting Minutes

**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

VIRGINIA BEACH WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: October 12, 2012 (1:00 P.M. to 4:00 P.M.)

Location: Virginia Aquarium & Marine Science Center, Virginia Beach, VA

RE: Development of Mitigation Measures to Reduce Conflicts between Wind Industries and Fishermen – Virginia Beach Stakeholder Workshop



ATTENDEES

Name	Agency
Jeff Deem	Mid-Atlantic Fisheries Management Council
Claudette Twichell	Virginia Beach Bluewater Fishing Club
Michelle Hollowell	Kelly Drye & Warren LLP
Kris Ohleth	Atlantic Wind Connection
Laura McKay	Virginia Department of Environmental Quality
Guy Chapman	Dominion Power
Kim Lanterman	Dominion Power
Carolyn Heeps	RES America Development Inc.
Kevin Lindquist	RES America Development Inc.
Roger Mann	Virginia Institute of Marine Science
Lyle Varnell	Virginia Institute of Marine Science
Ronald Rapp	SubCom
Rhonda Jackson	Fishermens Energy
Daniel Cohen	Fishermens Energy
Ben Riker	Fishermens Energy
Todd Janeski	Virginia Commonwealth University
David O'Brien	National Marine Fisheries Service
George Hagerman	Virginia Coastal Energy Research Consortium
Brian Hooker	Bureau of Ocean Energy Management
Bob LaBelle	Bureau of Ocean Energy Management
Darryl Francois	Bureau of Ocean Energy Management
Peggy Farrell	Ecology and Environment, Inc.
David Trimm	Ecology and Environment, Inc.

Name	Agency
William Daughdrill	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Cindy Shurling	Ecology and Environment, Inc.
Jamie Budzynkiewicz	Ecology and Environment, Inc.
Patrick Field	Consensus Building Institute

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in BOEM NEPA analyses. The outreach workshops do not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from the Virginia Beach stakeholder workshop.



MEETING SUMMARY

Workshop attendees signed-in and collected handouts at the welcome table. Attendees were directed to tables so that different industries and agencies were represented at each table for the breakout sessions. Several visual displays were placed around the room for attendees to browse.

The meeting started at 1:15 pm. Pat Field, the meeting facilitator, welcomed attendees to the meeting. He had attendees introduce themselves and state the industry or agency they represent. This was followed by an introduction of Bob LaBelle, Science Advisor to the Director, BOEM. Mr. LaBelle opened the meeting with a brief description of the purpose of the workshops and gave a Power Point presentation that included:

- A description of the Wind Energy Areas for New Jersey, Delaware, Maryland, and Virginia.
- Current Best Management Practices required by BOEM.
- Opportunities for input.
- A description of BOEM's Environmental Studies Program.



Pat Field then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was followed by a short informational wind video that showed an example wind farm installation of an offshore wind turbine.

After the wind video, breakout groups were to work on identifying issues of concern from their perspective. At the request of one attendee, a group discussion was held instead. Pat Field moderated this portion of the meeting as an open discussion but guided topics for discussion. The first session was devoted to identifying potential impacts and concerns from the group. A 15-minute break was held after identifying concerns. The next session focused on formulating reasonable mitigation measures that could be employed during offshore wind energy development to reduce impacts. The group identified potential management strategies to alleviate those concerns.

POTENTIAL CONCERNS AND IMPACTS

Workshop participants identified concerns related to offshore wind energy development, and also provided some suggestions for mitigation measures to address those impacts. For example, as part of the permitting process, many participants agreed that wind developers should prove they reached out to the fishing community and that they took into consideration their concerns and suggestions. In order to get permit approval, the developer should demonstrate that they have abided by the BMPs set forth by BOEM. Please note that the participants gave suggestions for the workshop format and are listed further below. Table 1 lists concerns and suggestions regarding offshore wind development identified at the Virginia Beach Workshop.

Table 1: Virginia Beach Meeting Concerns and Suggestions

Safety	<ul style="list-style-type: none"> • What is the actual distance from sea level to blade tip? • What happens if parts of the turbine or other equipment break off and hurt somebody or another emergency happens at sea?
Health	<ul style="list-style-type: none"> • What are the short- and long-term health effects of fishing near wind turbines and cables producing EMFs to people with pacemakers or other medical conditions?
Exclusion Zones/Access	<ul style="list-style-type: none"> • Who will be excluded from the wind farm itself and around transmission cables? • Can vessels transit through or would they have to go around? • What types of gear or fishing sector would be excluded, or will every fishing activity be allowed within wind farm borders? • How close can vessels approach turbines? • Will the entire area be a closed exclusion zone or will it be just a small exclusion circle around individual turbines? • Tie-ups and trespassing issues – who enforces the rules? Would it be the state or a federal agency, or a combination of both? • Should anchoring be allowed so fishermen can access the reefs, or is that too risky? • The entire area would have to be closed during initial construction, and monitoring can be done to ensure no impact on fisheries.
EMF	<ul style="list-style-type: none"> • What are the effects of EMF on fish and people?

Table 1: Virginia Beach Meeting Concerns and Suggestions

Regulations	<ul style="list-style-type: none"> • How will offshore wind rules overlay and interfere with all the other fisheries management measures that exist? • There is a general feeling that fishermen don't have the opportunity to comment on issues for fisheries impacts in the current NEPA structure because the current EA being discussed may only be covering the site assessment activities to be undertaken, for example.
Communication	<ul style="list-style-type: none"> • Often there is a communication breakdown especially with vessels that are home-ported elsewhere. • Can the Harbor Masters and Dock Masters play a role in information dissemination? • How can fisherman be notified that an area is closed for inspection or maintenance? • USCG Notice to Mariners can be used but are not sufficient. Can a new communication process be created with the Coast Guard? • What happens if there is an emergency at sea due to wind turbine equipment?
Siting Process	<ul style="list-style-type: none"> • Some fishermen may not feel like they are included in the process and wonder if it is too late to have any real input. • Some feel that this process should have happened during creation of the WEAs and not now after they are already developed. • How can they be sure that NGOs who would like to close large areas of the ocean to fishing don't jump on board and have significant input? • Turbines can be spaced so nets can be pulled around them and so transit can be done through it, but the spatial orientation sometimes depends on sediment.
Radar Interference	<ul style="list-style-type: none"> • Will there be any radar interference from turbines?
Maintenance	<ul style="list-style-type: none"> • How often, who does it, and what does it involve? • Will underground cables be inspected or replaced?
Fish	<ul style="list-style-type: none"> • Will wind turbines, cables, EMF, and/or noise affect fish migration? • Will fish decide to avoid the entire area and go around? • Will fish actually be attracted to the scour and other areas? • Can wind turbines be installed in areas already closed off to fisheries?
Liability	<ul style="list-style-type: none"> • Fishermen have vessel insurance and gear insurance concerns. Who pays when there is a loss of gear or that got caught on cables or turbines? • Are there innovative ways that developers can make wind structures and farms more fishing friendly so that gear doesn't get snagged? This would involve exchange of ideas and information between fishermen and wind industry. • How to ensure cables stay buried with natural changing topography and storms.
Enforcement	<ul style="list-style-type: none"> • If exclusion zones will exist, who will monitor the area and enforce penalties?

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the meeting in Virginia Beach. With the addition of BMPs from Europe and other studies, a handout for future workshops could look similar to this outline.

Table 2: Best Management Practices and Mitigation Measures

<p>Baseline requirements and basic guiding principles</p>	<ul style="list-style-type: none"> • Specifications for siting (e.g., outside of heavily used fishing areas) • Minimum spacing distance between turbines • Monitoring effects on fisheries • Creation of new usable fish habitat
<p>Construction and maintenance guidelines</p>	<ul style="list-style-type: none"> • Size of scour protection • Use a jacket foundation so scour protection is not needed • Maintenance schedule and frequency • Creation of usable fish habitat
<p>Access, transit rules, and enforcement</p>	<ul style="list-style-type: none"> • Maximize access by commercial and recreational fisheries in the wind farm • Anchoring guidelines (e.g., scour protection or turbines areas) • Transit allowed through the wind farm • Exclusion zone only around individual turbines for safety
<p>Communication</p>	<ul style="list-style-type: none"> • Engage fisherman in siting process (e.g., fisheries liaison) • Procedure for emergencies at sea • Notice to Mariners plus other notification procedures • Method to notify vessels homeported elsewhere

It was suggested that some sort of draft BMP framework or straw man be created, just as an example, so that future workshop participants can go through and either agree or disagree. The theory is that this type of format will work better in generating BMP ideas instead of having nothing concrete to provide and requesting that attendees come up with them on their own from scratch. This draft framework should then be sent out before meeting and be available at the meeting as a handout.

Examples can be taken directly from wind farms currently operating in Europe, which has many examples of lessons learned, current BMPs, and mitigation measures. According to an attendee from the UK, there was a complete exclusion during the construction process but once operation commenced, smaller exclusion safety zones were implemented around each individual turbine and there is NOT a complete exclusion from the wind farm as a whole. Wind farms in Europe do not exclude fishing activities within wind farm borders, and the wind industry met with fishermen early on to discuss their concerns. Fisheries liaisons were used in Europe to facilitate communication. Initially the developers have a very large area and then they talked to the fishing community to help decide exactly where in the larger area the wind farm should go to reduce fishing impacts.

SUGGESTIONS FOR FUTURE WORKSHOPS

The meeting ended with suggestions from the attendees for the remaining workshops. Attendees were given a Comment Form and email address so that they could provide feedback. One comment sheet was handed in at the meeting.

Attendees gave suggestions on the workshop format including: 1) why limited attendance by fishermen; 2) use of information on both concerns and BMPs developed over the last several years, so as not to start from scratch; 3) more coordination with the regional Fisheries Council. In summary, attendees suggested that this workshop can be used as an example to learn from and make future workshops better. The concerns, mitigation ideas, and suggestions developed from the Virginia Beach meeting should be provided at future workshops and have those future participants agree or disagree on each.



- Change the format of the meeting and reframe the questions to get more concrete answers. Present examples of what has already been determined in the US for permits from other agencies like US Army Corps of Engineers – for example, is there already a legal precedent set for submarine cables (telecommunications industry)? What is the standard already used? Also look to oil and gas industry in the Gulf of Mexico for examples of BMPs. What can we learn from Europe’s experience?
- Change the meeting schedule – this is too many meetings for fishermen and no commercial fisherman in attendance in Virginia Beach. Arrange meetings around fisheries and council meetings so people are already in the area. It was noted that the next meeting in RI is in conjunction with the NEFMC meeting.
- Don’t show the video or show only parts of it. Show more examples of wind structures and scour, especially what it looks like underwater.
- Provide a handout depicting the layout of Cape Wind as an example.
- For a presentation, go through a more detailed review of the construction process. Use UK as an example.
- For a fact sheet, cover what are current BMPs from the most recent BOEM 2012 report (Identification of Outer Continental Shelf Renewable Energy Space-Use Conflicts and Analysis of Potential Mitigation Measures).
- Several participants requested an opportunity to comment on the draft report from this workshop to make sure their ideas were captured correctly.

**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

NARRAGANSETT WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: November 16, 2012 (4:00 P.M. - 8:00 P.M.)

Location: University of Rhode Island
Graduate School of Oceanography
Narragansett, RI

RE: Development of Mitigation Measures to
Reduce Conflicts between Wind Industries
and Fishermen – Narragansett Rhode Island
Stakeholder Workshop



ATTENDEES

Name	Agency
Drew Carey	Coastal Vision LLC
Grover Fugate	RI Coastal Resources Management Council
Michelle Hallowell	Kelly Drye & Warren LLP
Sarah Smith	Environmental Defense Fund
Sarah Schumann	Not specified
Aileen Kenney	Deepwater Wind
Bill Sosnicki	Not specified
Dave Beutel	RI Coastal Resources Management Council
James Monroe	Blue Water Dynamos/SMD
Justin Kirkpatrick	National Oceanic and Atmospheric Administration
Matthew McPherson	National Oceanic and Atmospheric Administration
Lanny Dellinger	Rhode Island Lobstermen's Association
Ken Court	Not specified
Rhonda Jackson	Fishermens Energy
Bill McElroy	RI Lobstermen's Association
Azure Cygler	URI Coastal Resources Center
Dave Monti	RI Saltwater Anglers Association, Charter Operator
Peg Parker	Commercial Fisheries Research Foundation
Rich Hittinger	RISAA
Edward LeBlanc	U.S. Coast Guard, Sector Southeastern New England
Dave Preble	New England Fishery Management Council
Brian Hooker	Bureau of Ocean Energy Management
Darryl Francois	Bureau of Ocean Energy Management

Name	Agency
Peggy Farrell	Ecology and Environment, Inc.
David Trimm	Ecology and Environment, Inc.
William Daughdrill	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Stephanie Moura	SeaPlan
Patrick Field	Consensus Building Institute

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in future BOEM NEPA analyses. The outreach workshops do not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from the Rhode Island stakeholder workshop.



MEETING SUMMARY

Workshop attendees signed-in at the welcome table. Attendees were directed to four different tables so that different industries and agencies were represented at each table for the breakout sessions. Several visual displays were placed around the room for attendees to browse. The meeting started at 4:00 pm when Pat Field, the meeting facilitator, welcomed everybody to the meeting and asked each participant to introduce themselves and state the industry or agency they represent. He then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was followed by an introduction of Brian Hooker, BOEM Biologist, who opened the meeting with a PowerPoint presentation that included:

- Various stages of offshore wind facility development.
- Purpose of the workshops.
- Vessel Trip Report and Vessel Monitoring System data for the New England Wind Energy Areas.
- Known fishing and wind energy questions and concerns.
- Current Best Management Practices required by BOEM.
- Various opportunities for input under NEPA.
- A description of BOEM's Environmental Studies Program.



Most time during the meeting was spent in discussion during two breakout sessions. Breakout Session #1 began directly after the presentation. Each of the four discussion tables represented a breakout group. Groups worked on identifying issues of concern from their perspective, utilizing the list of issues identified at the Virginia Beach workshop as a guideline. At 5:45 pm, the facilitator asked each table to report out their major topics of discussion. A 15-minute break was held at 6:00 pm.

Breakout Session #2 followed the break and focused on formulating potential mitigation measures that could be employed during

offshore wind energy development to reduce impacts. Utilizing the handout as a guide, each group identified potential management strategies that would alleviate some of their concerns. At 6:30 pm the facilitator once again asked each table facilitator to identify the key points that were discussed. Before closing the meeting, Mr. Field requested feedback and comments from the participants on the workshop format and content which are listed further below. The meeting adjourned at 8:00 pm.

IDENTIFICATION OF CONCERNS

Table 1 lists issues and concerns regarding offshore wind development identified at the Rhode Island Workshop.

Table 1: Rhode Island Meeting Issues and Concerns

<p>Exclusion Zones and Access</p>	<ul style="list-style-type: none"> • Would there be a transit lane if an exclusion zone is created? • Exclusion zones would need to clearly be defined – who is excluded, and where? • Tie-ups and trespassing issues – who enforces the rules? Would it be the state or federal agency or a combination of both? This is an issue that needs clarification. The states won't have the money to do this. • The preference is for fishermen to have total access to the area. Fishermen are wary of large areas of the ocean being closed off to them. • What are the typical construction durations (turbines and cables)? • How will closures be marked? • Recreational fishers want access to pelagic species. • Will there be exclusion zones for maintenance and decommissioning activities? What will be their magnitude and timeframe? • What are the lessees' rights and responsibilities? They need to maintain certainty and consistency. If a lessee will control the exclusion zones, then BMPs and regulations should be laid out in a framework in consultation with impacted users. • Important not to forget the informal arrangements between gear types that are not written down; i.e. lobstermen agree not to place traps during certain times of year for mobile gear fishermen to be able to fish. • The style of the array could affect the size of the exclusion zone. For example, the Statoil project is a floating-with-cables design which has a larger footprint and a potentially larger exclusion zone. • For smaller vessels, safety zones are impractical in rough seas because they are
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Table 1: Rhode Island Meeting Issues and Concerns

	<p>already limited in where they can safely transit.</p> <ul style="list-style-type: none"> • How much security is needed? If we have another 9/11, will the whole area be shut off to everybody?
Regulations	<ul style="list-style-type: none"> • How will offshore wind rules overlay and interfere with all the other fisheries management measures that exist? • Overall concern about getting squeezed out of use in general due to the conflicting uses such as whales and protected marine mammals, council closures, sand & gravel mining, cable laying, shipping & freight activities, visual/aesthetic stakeholders, DoD, Native Americans, etc. Fishermen feel they are being forced to fish on a postage stamp. • Who will impose regulatory restrictions? NMFS, State, USCG, Fisheries Mgmt Council? • How to balance regional priorities for food, energy, national security? • Displacement of fish and fishermen is a primary concern. As fish and fishermen are displaced from wind energy areas, this could concentrate effort in other areas, increasing conflict there.
Communication	<ul style="list-style-type: none"> • USCG Notice to Mariners can be used but are not sufficient. Can a new communication process be created with the Coast Guard? More time is needed for notifications. NOAA weather channel may be better for energy information. • How can fishermen be notified that an area is closed for inspection or maintenance? Email notifications with maps showing state projects. • What are the effects/likelihood of catastrophic failure, such as from lightning strikes, bird strikes, etc.? • BOEM website needs to be more comprehensive and include state projects since fishermen don't think in terms of state vs. federal. • A fishery liaison should be established at the execution of the lease period. • Most pleasure boaters can't read a NOAA nautical chart. How do all the rules and information get uploaded to and updated in electronic charts and be made available to the general public?
Siting Process	<ul style="list-style-type: none"> • Fishermen want to be more involved in the siting process. There is currently no requirement in RI for a funded fisheries liaison to be involved in the siting process. Therefore fishermen feel they are involved in the process too late. There should be lots of opportunities for the public to comment throughout the process. • The Fisheries Advisory Board (FAB) has a good process of communication that could be useful for the WEA siting and revision process. It may be helpful to use this process to engage local fishermen earlier on in the siting process • When can the fishing industry know when to pay attention to actual development proposals, turbine configurations, etc.? When does it get "real"? • Expert draggers can drag exactly where they want to and know exactly where their doors are. They sweep to turn around and will set their points so as to avoid turbines. The proposed spacing distance between turbines seems to be large enough and shouldn't be an issue.
Safety	<ul style="list-style-type: none"> • Can there be improved safety by having VHF repeaters required on wind turbine structures? • Will EPIRBs work within wind arrays? • Could there be collisions of vessels within an array? Concerns about safety after the array is complete (i.e. multiple collisions in one year). • What about a vessel mechanical breakdown inside a wind facility? They could be drifting without power and need a lot of room to restore steering. • It would be safer if radars are located or adjusted to reduce clutter to a

Table 1: Rhode Island Meeting Issues and Concerns

	<p>fisherman’s radar.</p> <ul style="list-style-type: none"> • The floating foundation type needs more clarification and brings with it a lot of new safety concerns. • Once exclusion zones are put in post-construction, the industry will have no means/leverage to reopen concerns or mitigation. For example, the Maine LNG exclusion area expanded post 9/11, but there are no means to reopen the settlement agreement now. • Display exactly where the cables exit out of the foundation types. Boats may be able to be near the actual turbine, but exposed cables from the turbine to the seafloor could be a problem. • Where is the “fire escape” ladder located on the turbine? • It would probably be ok to not allow tie-ups, but there could be an incentive because of fish habitat to fish directly next to the turbine which could be dangerous. Turbines would need to be marked as “No Trespassing” because technically they are private property. • Wind companies might want to allow tie-ups as an incentive for fishermen to make the area more economically available to them. • Fishermen could anchor and drift and fish directly upstream of the turbine instead of tying up to it. • Potential problems where pots/nets get wrapped around turbine.
EMF	<ul style="list-style-type: none"> • Attraction vs. repellant effects on fish, eggs, larvae. • Second trophic level effects - will fish be attracted to the structures/reef effect?
Maintenance	<ul style="list-style-type: none"> • How long do maintenance operations take? • Will there be exclusion zones during maintenance?
Marine Wildlife	<ul style="list-style-type: none"> • Will wind turbines, cables, EMF, and/or noise affect fish migration? It could create an obstacle and restrict migratory and pelagic patterns. • What assurance is there to collect data or establish a baseline characterization, then monitor the resource? • Concerns about severity, intensity, and duration of blasting, pounding, and other noise factors associated with construction. The potential for multiple seasons of construction are likely to alter substantially the distribution of fish. • Concerns for both recreational and commercial fisheries. • Concerns that unwritten areas where fishermen prefer to fish and find productive may become affected, and if fish are displaced from these areas, conflicts among fishermen may increase as well. • Concerns about wind energy projects in Cox’s Ledge, a prime fishing ground. • Seasonality is important; for example, it is likely that the best time for construction may also be the same time as lobster season. • In Europe, commercial fishermen have already been pushed out of use in many cases and their resource is not near as rich as here in the US. • Concerns for multiple wind projects. Having several at once or close together is likely to cause major impacts and disruption. • How can a wind company actually ensure no fisheries disturbance? Construction is going to be a big disturbance. The key is to minimize it and use the best technology. • Should a whale be seen offshore, who should be contacted (NMFS, the developer) and how?

Table 1: Rhode Island Meeting Issues and Concerns

<p>Liability</p>	<ul style="list-style-type: none"> • Who pays when there is a loss of gear or gear that got caught on cables and turbine foundations? • There is a possibility for entrapment of lobster gear on lattice and other turbine foundation types. • What additional insurance might fishermen need relative to access and transits? • Even if regulators do not limit navigation, insurance companies for either wind industry or vessels may simply underwrite policies with requirements to stay out of arrays (i.e. if sail within wind array, they won't provide insurance). • If one problem occurs, then all insurance companies may stop insuring fishermen that fish near or in the wind arrays, as occurred in Europe. • Concerns that any payments or compensation may not recapitalize the industry. • There should be a contingency plan if a wind lessee goes under or walks away – what is the assurance for responsible operations or decommissioning?
<p>New Issues</p>	<ul style="list-style-type: none"> • What about the potential use of offshore wind facilities to also be used as areas for aquaculture or for tidal energy operations? • There will be impacts on the energy grid as a whole if an entire shut-down of the facility is needed in an emergency. Can the rest of the grid react in time to respond adequately? How will this affect fishermen?

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the meeting in Rhode Island.

Table 2: Rhode Island Meeting Best Management Practices and Mitigation Measures

<p>Project Design , Navigation, and Access</p>	
<p>Studies and Analysis</p>	<ul style="list-style-type: none"> • Navigational risk assessments are a good idea in considering traffic patterns and in minimizing conflicts with existing users. This is already required by BOEM. • An intergenerational study on fish is needed for acoustics and acoustic thresholds. • Start with no permanent exclusion zones. They should be established after a project is complete. • Fishing interests should be involved early enough in the siting process to balance wind business decisions and fisheries impact issues. • A skilled and dedicated fisheries liaison (commercial & recreational) (paid or compensated) should be actively involved in the siting and design process. The liaison should represent interests across fishing subsectors. • Stagger projects so they are constructed over longer periods of time to minimize simultaneous impacts. • Consider the size of the lease so that with a larger lease area the wind developer has more flexibility where they site the final array.
<p>Spacing of Turbines</p>	<ul style="list-style-type: none"> • Spacing wind turbines closer together to minimize the overall footprint and affected area would not work for the wind industry. • If exclusion zones around turbines are determined necessary to promote safety, should they be kept small in size or include exemptions for small vessels that would not be endangered by the turbine blade sweep? No, vessels would be large enough. • Developers must work closely with different vessel types to consider adequate spacing between turbines since vessels and space needs vary widely by gear type.
<p>Navigational Safety</p>	<ul style="list-style-type: none"> • Specific navigational precautions should be implemented regarding radar, collisions, emergency response plans, and trial mock emergency responses. • Navigational rules need consistent framework and criteria. The “rule book” for wind

Table 2: Rhode Island Meeting Best Management Practices and Mitigation Measures

	<p>farms should be known before leasing process: the lessee has to know the mitigation framework up front.</p> <ul style="list-style-type: none"> • Must consider vessel-related limitations to navigational ability. • Weather conditions will significantly affect safety inside wind facilities. • Important to underscore the 2-way responsibilities of boat owners & USCG/ NOAA to put out and get the most updated charts. • Consider exclusion zones for non-commercial vessels. • If you want to minimize collisions in a wind array, you might restrict recreational vessels while still allowing commercial fishing since it is their livelihood. • Don't treat navigational and shipping channels as sacrosanct. If you can later even them out slightly (by 100s of meters, not miles) for construction or operations, and avoid other conflicts as well, this would be good. • Fishermen need clear means of input from Coast Guard, the developer, or anyone else to restrict or limit access to the wind arrays. • Upgrade navigational radar for fishermen. • Possibly use radar reflectors and specialized markings. • Localized AIS could include radar electronic warning. • BOEM should require charts to be updated on a regular basis, and for notification of those updates to be sent to stakeholders and the public. • BOEM should have a website dedicated to information dissemination. • Use an "invisible dog collar" idea: when a vessel crosses a safety zone next to a turbine, a device on the vessel would beep or flash and tell the fishermen the details about the area they are in such as boundaries, cable locations, tie up rules, etc.
Cabling	<ul style="list-style-type: none"> • The current 6-foot and 1-3 meters for cable burial depth is good. Methods to ensure that they stay buried should be implemented. A standard burial depth should be instituted at which, even with storms, cables would remain buried. • A standard needs to be created at which a cable that was once buried 6 feet deep is now only 1 or 2 feet deep due to storms or sand movement – when does it need to be reburied? How will this constantly be monitored? • Telecommunications cable protocol for fishing gear replacement should be used. • In-situ studies are needed to ground truth the model predictions of EMF for inter-array and transmission. • Look to other cable rules for guidance – what are the requirements for the telecommunications cable industry? • Site-specific, temporal considerations are needed to minimize impact. • Include cable locations in charts and Notice to Mariners. • There needs to be an on-going surveillance and inspection process for when storms and other events might have uncovered cables. It would be desirable if fishermen could prompt an inspection even if the developer doesn't think it is necessary.
Safety, Liability, and Insurance during Operations	
Safety Procedures	<ul style="list-style-type: none"> • If fishers know up front there is a fund to compensate for verified loss/damaged gear, it will be an incentive to make safe decisions at sea. • Encourage insurance companies to not drop policies. • BOEM should work to figure out how to underwrite insurance for any other ocean obstructions. • Developers should offer classes and training sessions to fishermen and others so they have all the information they need to operate safely.
Gear	<ul style="list-style-type: none"> • Can gear be modified? Adding mooring balls is a possibility. • Different turbine foundations may need different gear modifications.

Table 2: Rhode Island Meeting Best Management Practices and Mitigation Measures

Natural Resources	
Impacts to Fisheries	<ul style="list-style-type: none"> • Make sure cables have EMF shields to further mitigate risk to the fishery, especially juveniles and breeding stock. • Developers should share any detailed seabed maps that they have. Fishermen should have an opportunity to identify areas of importance to them during early design and in a confidential way to avoid trade secret, so, to the extent possible, the developer can avoid building in these microsites. • Construction can be done in a phased process instead of closing off the entire area all at the same time, which would minimize impacts. • BOEM should require the latest and most environmentally friendly construction methodologies to reduce impacts such as no use of jack-up barges and less intrusive cable burial techniques. They should require annual reports from industry of the newest and best techniques. • Lay cables alongside existing communication cables to reduce bottom disturbance. • Developers need to be educated about fish eggs and seasonality so construction is done at a time when impacts would be minimized. They need to avoid important times of year for fisheries and stick to windows when impacts to fish and eggs would be small, paying particular attention to juvenile recruitment. • Maximize onshore construction rather than spending more time in the water. • Many times a marine area that is not used by fishermen is because it's closed for important habitat protection. But if construction techniques were good enough to have very little impact, or if it's a floating foundation, then maybe those areas are a good place to build an offshore facility. Fishermen won't be going there anyway and these areas would receive further protection. • BOEM needs to list out what the top 5 most environmentally damaging techniques are, and then ask industry to make them better/less destructive. Perhaps offer grants to find ways to make the technologies better. The goal is to make the better technologies cheaper for industry to use.
Stakeholder Engagement	
Communication	<ul style="list-style-type: none"> • Use a dedicated very high frequency (VHF) channel for the transmission of any warnings related to local renewable energy projects – maybe utilize the National Weather Service VHF channel for this purpose. • Direct mailings, letters, emails, and announcements in fisheries trade publications. • Full Public Relations campaign to educate fishers and all boaters of new chart icons/legend, traffic alerts, and construction alerts. • There will be the need for on-going consultation throughout the life of a project, not just at the design and construction stage. Each project should consider establishing a long-term committee of stakeholders and for them to meet regularly to address on-going issues and concerns. • Information about phases such as siting, leasing, construction, operation and shut-downs should be provided as early as possible. • Tiered notifications that are more location specific would be helpful. • Communication via a fisheries liaison. • Strong relationships with fishermen of all gear types within an area is very important. Developers must help fund the participation of liaisons and representatives of commercial fishing given the expense of such engagement. Preferably, fisheries liaisons would be hired by fishermen but funded by industry. Industry input is essential for validity and should be part of the selection committee. • A <i>Communication Plan</i> should be developed for gear entanglement issues. Clear communication channels are needed for gear loss during fishing operations.

Table 2: Rhode Island Meeting Best Management Practices and Mitigation Measures

	<ul style="list-style-type: none"> • Need to move away from the state-centric focus. Other communication options: BOEM website, National Fisherman’s Magazine, Quarterly Wrap Up, Fishing organizations, RI FMC, RIDEM, or a listserv to inform about closures. • There are so many rules by lots of different agencies. There are so many that the average person won’t know them all. All the rules for a particular offshore facility need to be put into one book so everybody can easily find out what they are. Nobody wants to go to jail for breaking a rule they didn’t know about.
Liability	
Contingency Funds	<ul style="list-style-type: none"> • BOEM does not currently have the authority to establish or manage fishing mitigation or compensatory funds related to offshore wind energy facilities. Should such an approach be considered in the U.S.? There is strong interest in creation of a contingency fund with money from developers to be allocated among impacted user groups in a fair and transparent method. Can be administered by the state (i.e. Cape Wind). Administration of it should be effective and efficient, not overly cumbersome but have a sufficient check and balances system. • Look at existing models for examples. • Create a bond for closures (already in regulations for decommissioning plans). • Potential mitigation would be fisheries capacity reduction. In other words, pay people to stop fishing and get out of the industry.

SUGGESTIONS FOR FUTURE WORKSHOPS

Suggestions from the Virginia Beach meeting were taken into account for the Rhode Island meeting. The Rhode Island participants had a list of ideas with which they could agree, disagree, or add to. The workshop was timed to occur directly after conclusion of the New England Fishery Management Council meeting in Newport, RI. Attendees appreciated the food and drinks that were provided because the meeting occurred over dinnertime and the refreshments provided a much needed energy boost.



Some participants felt that the breakout sessions blended together too much and it wasn’t clear how they were different. For future meetings, each table facilitator should take a minute at the beginning of each breakout session to explain its purpose so that the distinction between the two is clear. It was also suggested that issues and concerns could be organized by phase of construction so that it is clearer



where each one fits into the overall process. And, similar to the VA Beach workshop, attendees requested that meeting minutes be sent out to the group. Everybody felt that future meetings will keep improving and we should continue to provide the concerns and BMPs from previous workshops as examples. Participants that attended both the VA Beach and Rhode Island meetings commented that the Rhode Island workshop format was well received, and that results from this meeting be sent to the VA Beach participants so that they could see the progress made.

**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

OSTERVILLE WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: December 4th, 2012 (4:00 P.M. - 8:00 P.M.)

Location: Osterville Village Library
Osterville, MA

RE: Development of Mitigation Measures to Reduce Conflicts between Wind Industries and Fishermen – Osterville Massachusetts Stakeholder Workshop



ATTENDEES

Name	Agency
Jim Kendall	New Bedford Seafood Consulting
Verna Kendall	Fishing Industry
Bruce Carlisle	MA Coastal Zone Management Program
Beth Casoni	MA Lobstermen’s Association
Pat Hughes	Provincetown Center for Coastal Studies
Justin Kirkpatrick	NOAA
David Pierce	Deputy Director, MA Division of Marine Fisheries
Eric Brazer	Cape Cod Commercial Hook Fishermen’s Association
David Dow	Sierra Club
Chris McGuire	The Nature Conservancy
Stuart Tolley	Cape Cod Commercial Hook Fishermen’s Association
Brian Hooker	Bureau of Ocean Energy Management
Peggy Farrell	Ecology and Environment, Inc.
David Trimm	Ecology and Environment, Inc.
William Daughdrill	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Jennifer Harris	Ecology and Environment, Inc.
Stephanie Moura	SeaPlan

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental

Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in BOEM NEPA analyses. The outreach workshops do not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from the Osterville stakeholder workshop.

MEETING SUMMARY

This workshop was scheduled for late-November early-December in order to attract a higher attendance by fishermen because it is not a peak fishing period throughout the southern New England region. This workshop occurred one day before the New Bedford, MA stakeholder workshop due to their proximity.

Workshop attendees signed-in at the welcome table. Attendees were directed to tables so that different industries and agencies were represented at each table for the breakout sessions. Several visual displays were placed around the room for attendees to browse.



The meeting started at 4:00 pm when Stephanie Moura, the meeting facilitator, welcomed attendees to the meeting. She asked each participant to introduce themselves and state the industry or agency they represent. She then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was followed by an introduction of Brian Hooker, BOEM Biologist, who opened the meeting with a PowerPoint presentation that included:

- Different stages of offshore wind facility development.
- Purpose of the workshops.
- Vessel Trip Report and Vessel Monitoring System data for the New England Wind Energy Areas.
- Known fishing and wind energy questions and concerns.
- Current Best Management Practices required by BOEM.
- A description of BOEM's Environmental Studies Program.
- Various opportunities for input.

The majority of the meeting was spent in discussion during two breakout sessions. Breakout Session #1 began directly after the presentation. Each of the discussion tables represented a distinct breakout group. Groups worked on identifying issues of concern from their perspective, utilizing the list of issues identified from the previous two workshops as a guideline. A 15-minute break was held at 6:00 pm.



Breakout Session #2 followed the break and focused on formulating mitigation measures that could be employed during offshore wind energy development to reduce impacts. Utilizing the handout as a guide, each group identified potential management strategies that would alleviate some of their concerns. At 7:30 pm, Ms. Moura asked each table facilitator to identify the key points that were discussed in each group and, after the final report out, requested feedback and comments from the participants on the workshop format and content (listed further below). The meeting adjourned at 8:00 pm.

IDENTIFICATION OF CONCERNS

Table 1 lists issues and concerns regarding offshore wind development identified at the Osterville Workshop.

Table 1: Osterville Meeting Issues and Concerns

<p>Exclusion Zones and Access</p>	<ul style="list-style-type: none"> • Potential to exacerbate user conflicts among different commercial and recreational fishing sectors if certain gear/vessel types are allowed access to wind farms and others are not. • What if the wind farm becomes an attractant for all kinds of users such as commercial fishing of all gear types, recreational fishing, sightseeing trips, etc.? There might be too many vessels trying to utilize the area which might push other users out. • How long does construction of a wind farm take? If the construction period is prolonged, closed areas will affect fishing operations and locations. • Will fixed gear and/or dragging be allowed within wind farms? • Who monitors and enforces the exclusion zones? LNG industry has a black boat that constantly circles and enforces closed areas. • If mandatory cable burial depth is only 1 m deep, developer may want to close areas to fishing because this shallow depth could lead to exposure of cables.
<p>Regulations</p>	<ul style="list-style-type: none"> • How can BOEM's WEA siting process be better integrated and coordinated with the Fishery Councils' management process beyond what's already currently done such as interagency EFH consultation? How does it fit within the development of Fishery Management Plans? Will removing exploitable biomass by limiting access to wind farms be considered when setting the fishery Total Allowable Catch? • Who is responsible for analyzing the cumulative impacts of all wind farms along the entire Atlantic offshore grid? Is it helpful to have something like the AWC serve as a backbone to minimize connections to shore?
<p>Communication</p>	<ul style="list-style-type: none"> • Who pays for the Boatracs communication?
<p>Siting Process</p>	<ul style="list-style-type: none"> • What is known about the effects in general of concentrated inter-array cabling vs. existing linear telecom cables? • The Vessel Traffic Report doesn't show all the vessel traffic. Once a fisherman is finished fishing, maps need to show the routes they take home.

Table 1: Osterville Meeting Issues and Concerns

<p>Safety</p>	<ul style="list-style-type: none"> • Will each turbine have a unique identifier for accurate response/reporting, such as if fishing gear gets hung up, etc.? • How will construction debris from wind farms be managed and cleaned up, and how will debris fields be designated? How can impacts to fishing gear be minimized? • Is there cell phone service within a wind farm? • How often are nautical maps updated?
<p>EMF</p>	<ul style="list-style-type: none"> • Fishermen would like access to the “cliff notes” for ongoing studies about EMF impacts – don’t have time to read full scientific reports but want to stay informed. • Are lobsters and sea turtles sensitive to EMF? Need a study. • How will turbines and wind farms change larval flow and currents?
<p>Maintenance</p>	<ul style="list-style-type: none"> • Beyond routine maintenance of turbines and cables, what would trigger an extraordinary inspection? Super storm? Earthquake? • When and how will cables be inspected? Can fishermen help in the inspection process if it saves time and shortens temporary closures? • How and when will cables be reburied if they become exposed? • How will fishermen be immediately notified of an exposed cable?
<p>Marine Wildlife</p>	<ul style="list-style-type: none"> • What is the actual footprint for each turbine, and what are the underwater measurements of each foundation? Hopefully this will become lobster habitat. • What are the effects of seismic studies and other acoustical impacts to marine mammals? • Do European studies show that the fish come back to the area after construction?
<p>Liability</p>	<ul style="list-style-type: none"> • Will fishing vessel insurance premiums increase due to additional hazards from wind farms? • How will insurers assign fault in the event of a “negative interaction” between fish and wind? What happens now with existing telecom cables? • Can BOEM impose fines for a developer not complying with a BMP? • The MA Fishermen’s Partnership has a database with all the rod and reel leaseholders and fishermen that are insured. This could be a route of communication.

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the meeting in Osterville.

Table 2: Osterville Meeting Best Management Practices and Mitigation Measures

<p>Project Design , Navigation, and Access</p>	
<p>Studies and Analysis</p>	<ul style="list-style-type: none"> • Study current Vessel Monitoring System data to see existing vessel traffic patterns and plan wind farms accordingly (like walkways that don’t get used because they make no sense, the well-worn tracks show where people really go to get from point to point). • Also conduct another vessel traffic study several years after a wind farm is established to see how vessels are really traveling through and around the turbines. • BOEM should consult with radar industry to ground-truth assumptions about how turbines will affect radar operability. • Require developers to utilize fishermen when conducting surveys, cable maintenance, and other operations; for example, fixed gear fishermen work with Division of Marine Fisheries on surveys. Fishermen are out there anyway.

Table 2: Osterville Meeting Best Management Practices and Mitigation Measures

	<ul style="list-style-type: none"> • Encourage developers to conduct a “Fishermen’s Exchange” – take US fishermen to Ireland or other countries for in-person information exchange with fishermen and developers that are working well together and already have plans in place. • Utilize the academic community and their funding to assist in surveys and research, many of which already have good relationships with the fishing industry such as SMAST out of New Bedford.
Spacing of Turbines	<ul style="list-style-type: none"> • Require larger spacing between turbines with increasing water depth. • Require developers to prove they worked with the fishing industry when siting where turbines will be placed. They might be spaced closer together in one part of a wind farm, and then farther apart in another area in order to allow fishing practices to continue in specific areas (such as where scalloping grounds are important).
Construction	<ul style="list-style-type: none"> • Require developers to use a rotating and shifting construction process, so that closed areas would change in size and location as the farm is built. • As wind farm is built, allow fishing as much as possible. For example, draggers might not be able to safely operate in closed areas during construction, but lobster pots could safely maneuver and might have a separate smaller closed area.
Navigational Safety	<ul style="list-style-type: none"> • Developer needs to clearly differentiate between what lanes are appropriate for transiting vessels vs. areas for those actively fishing. This might include separate travel plans for foggy conditions or night travel. • Require a designated “alley way” with suggested traffic routes through the wind farm. Most wind farms won’t have turbines aligned in perfectly straight lines, so fishermen shouldn’t rely on line of sight for navigation. • Require effective marking of turbines and foundations. • All turbines should be downloaded on to fishermen’s plotters and updated regularly. This is especially important for travel at night or in foggy conditions. • Consider use of RACON (i.e., a repeating signal transmitter with a unique identifier). Some part of an array should have RACON.
Cabling	<ul style="list-style-type: none"> • Require developers to have a plan for inspection, maintenance, and reburial of cables especially after a storm event, including temporary closure zones. Involve fishermen in the process whenever possible. • Require a minimum cable burial depth of at least 6 feet below mud line. • Develop a technology such as a sensor to ping or issue a warning when cables are uncovered or exposed.
Safety, Liability, and Insurance during Operations	
Safety Procedures	<ul style="list-style-type: none"> • Require a plan for how a developer will deal with construction debris left behind, or require a no-debris-left-behind BMP in order to approve the lease. • Require a cell tower within the wind farm, such as on the helipad.
Gear	<ul style="list-style-type: none"> • Require developer to demonstrate their knowledge of all the different gear types in the WEA. For each gear type, explain any unique areas in the site that are important to that gear, any navigational safety issues, or obstacles that make that gear susceptible to snagging. Detail how each gear type will be allowed to operate within the wind farm. For example, allow dragging in the wind farm but require turns outside of its boundaries.
Natural Resources	
Impacts to Fisheries	<ul style="list-style-type: none"> • Require a “no net loss” principle/policy for fishery habitat in the WEA siting/development process; for example, trade a WEA for a previously closed fishing area.
Stakeholder Engagement	

Table 2: Osterville Meeting Best Management Practices and Mitigation Measures

<p>Communication</p>	<ul style="list-style-type: none"> • Concise and often communication to accommodate fishermen’s limited time. Utilize fishing newsletters, they are read. • Engage known fishery leaders as key nodes of communication, these respected fishermen have greater penetration into fishing communities. • Require an ongoing outreach plan after siting is complete so the developer can provide updates and answer questions. Require regular in-person visits to fisheries association meetings. • Fishery Management Councils should create a separate sub-committee made up of fishermen whose sole charge is to act as a liaison with wind developers. • VMS is one way to communicate and reach vessels in real-time, but it should be used sparingly. • Require a developer to outline a social media plan in order to disseminate updates throughout the process on siting, construction, closed areas, maintenance, gear hazards, request for help on research, etc. Different methods include group texts to cell phones, smart phone app, and a Facebook and Twitter account dedicated to a single wind development project that provide real-time updates. • Require the developer to prove their due diligence in outreach to the fishermen and research of the fisheries that would be affected by their wind farm. List all fishery-related associations, meetings, councils, newsletters, names of key fishery leaders, and all gear types for the area. Detail all the meetings and outreach conducted so far, and identify specific people and associations on each side as the designated points of contact moving forward. • Develop a long-term committee comprised of key fishermen that meets with developers on a regular basis to discuss issues. • Utilize the best local means of communication; for example, in MA it is helpful to use settlement offices, and channels 13, 16, and 22 would be good to use. Need to include both electronic and non-technical means of communication so as to include as many as possible.
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SUGGESTIONS FOR FUTURE WORKSHOPS

Suggestions from previous workshops were taken into account for the Osterville meeting. Some participants at previous workshops felt that the breakout sessions blended together and the purpose of each session wasn’t clear. Participants were again provided with a list of examples for discussion during each breakout session, but for the Osterville workshop each table facilitator took a moment at the beginning of each breakout session to explain its purpose so that the distinction between the two was



clear. Facilitators also devoted special attention in leading the groups during the second breakout session in trying to formulate usable, concrete mitigation measures. And similar to previous workshops, attendees were appreciative of the refreshments provided during the break because the meeting occurred over dinnertime.

One participant would like to see more fishermen attending these workshops, and that better outreach into the fishing community is

needed. Another participant would like to see the informational displays around the room contain data that are more local to the area the workshop is being held in (such as each gear type), and specific to the offshore WEAs being discussed at each workshop. It was also suggested that the WEAs should be displayed as outlines instead of blocked-out areas so that data underneath can be clearly viewed. As discussion progressed at this workshop, it became evident that developer's responses to BOEM's future BMPs would need to be project specific. Fishermen need access to fishing grounds, and wind developers need the ability to build a facility that is cost-effective and successful. Fishing and wind will need to work together throughout development of each wind farm on a localized basis to make sure the right people are involved. What works in Massachusetts might not work in Virginia for fishermen or developers.

**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

NEW BEDFORD WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: December 5th, 2012 (4:00 P.M. - 8:00 P.M.)

Location: Fairfield Inn and Suites
Waypoint Event Center
New Bedford, MA

RE: Development of Mitigation Measures to
Reduce Conflicts between Wind Industries
and Fishermen – New Bedford
Massachusetts Stakeholder Workshop



ATTENDEES

Name	Agency
Jim Kendall	New Bedford Seafood Consulting
Verna Kendall	Fishing Industry
Joe Battaglia	Normandeau
Chip Ryther	CR Environmental
Chuck Digate	Neptune Wind
Anne Hawkins	NOAA
Kathryn Ford	MA Division of Marine Fisheries
Michelle Bachman	New England Fishery Management Council
John Williamson	Seakeeper
Sarah Schumann	ecoRI
Arthur DeCosta	MA Lobstermen's Association
Stephen O-Malley	Fishermen's Energy
Mark Rodgers	Cape Wind
Bryan Sanderson	Anbaric Power
Maddeline Hall-Arber	MIT Sea Grant
Peter Moore	MARACOOS
Kris Ohleth	Atlantic Wind Connection
Ed Washburn	52 Fisherman's Wharf
Tom Gebhard	BlueRock Energy, Inc.
Sue Tuxbury	NOAA Habitat Conservation District
Mike Pol	MA Division of Marine Fisheries
Daniel Cohen	Fishermen's Energy
John Haran	NE Fisheries Sector 13

Name	Agency
Brian Hooker	Bureau of Ocean Energy Management
Peggy Farrell	Ecology and Environment, Inc.
David Trimm	Ecology and Environment, Inc.
William Daughdrill	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Jennifer Harris	Ecology and Environment, Inc.
Pat Field	CBI Institute
Stephanie Moura	SeaPlan

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in BOEM NEPA analyses. The outreach workshops do not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from the New Bedford stakeholder workshop.



MEETING SUMMARY



New Bedford is an active fishery port for both commercial and recreational fishing and is in proximity to an offshore WEA. During BOEM's initial stakeholder consultations, New Bedford, MA was suggested as a good meeting location for potentially interested commercial and recreational fisherman in Massachusetts. This workshop occurred one day after the Osterville, MA stakeholder workshop.

Workshop attendees were greeted upon arrival and asked to sign in. Participants were directed to tables so that different industries and agencies were represented at each table for the breakout sessions.

Several visual displays were placed around the room for attendees to browse. The meeting started at 4:15 pm when Pat Field, the meeting facilitator, welcomed everybody to the meeting and asked each

participant to introduce themselves and state the industry or agency they represent. He then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was followed by an introduction of Brian Hooker, BOEM Biologist, who opened the meeting with a PowerPoint presentation that included:

- Different stages of offshore wind facility development.
- Purpose of the workshops.
- Vessel Trip Report and Vessel Monitoring System data for the New England Wind Energy Areas.
- Known fishing and wind energy questions and concerns.
- Current Best Management Practices required by BOEM.
- A description of BOEM’s Environmental Studies Program.
- Various opportunities for input.

The majority of the meeting was spent in discussion during two breakout sessions. Breakout Session #1 began directly after the presentation. Each of the discussion tables represented a distinct breakout group. Groups worked on identifying issues of concern from their perspective, utilizing the list of issues identified from the previous three workshops as a guideline. A 15-minute break was held at 6:00 pm.

Breakout Session #2 followed the break and focused on formulating mitigation measures that could be employed during offshore wind energy development to reduce impacts. Utilizing the handout as a guide, each group identified potential management strategies that would alleviate some of their concerns. At 7:30 pm Mr. Field asked each table facilitator to identify the key points that were discussed in each group and after the final report out, requested feedback and comments from the participants on the workshop format and content (listed further below). The meeting adjourned at 8:00 pm.



IDENTIFICATION OF CONCERNS

Table 1 lists issues and concerns regarding offshore wind development identified at the New Bedford Workshop.

Table 1: New Bedford Meeting Issues and Concerns

<p>Exclusion Zones and Access</p>	<ul style="list-style-type: none"> • Concern on gear types and whether they could continue to operate. For example, sea clammers who “blow” out 8 to 10 inches of bottom sand in front of an 8-foot rake or pair trawls with two vessels and a wide berth. • Will exclusion zones be bigger for floating foundation types due to cables that come from the foundation? • What are the different exclusion zones in Europe? • Are cruise ships too tall to safely transit through a wind farm?
<p>Regulations</p>	<ul style="list-style-type: none"> • Having at least three regulators in the same space, Coast Guard, BOEM, and NOAA

Table 1: New Bedford Meeting Issues and Concerns

	<p>will be confusing.</p> <ul style="list-style-type: none"> • Which agencies will have authority to enact which BMPs/mitigation measures? • Who will be responsible for looking at the “big picture” of cumulative impacts of multiple wind farms offshore, including economic impact? • What agency is responsible for enforcing exclusion zones, if established? What tools/mechanisms will be used? How does this compare with fisheries regulation enforcement, such as on-board observers, etc.? • What is the life cycle of a wind farms? 20 years? 50 years? What will the regulations say about decommissioning? • BOEM should conduct a study of European wind farm mitigation and summarize in a report to see if these measures would be applicable to wind development in the U.S.
Communication	<ul style="list-style-type: none"> • Notice to mariners isn’t that effective due to limits on fishing (e.g., as few as 40 days a year for scallopers). How do you inform them when they are not at sea? • Outreach should include more than the Council. They need to communicate with associations and actually visit the docks. Associations can then reach out to their members. • Fishery Council meetings are important for communication but other methods are needed since many fishermen don’t go to the council meetings. • If different wind farms have different rules, how will that be communicated?
Siting Process	<ul style="list-style-type: none"> • One WEA might have multiple offshore developments. If each has different rules it can become very confusing. • Should wind farms be encouraged in areas that are permanently closed to fishing? In New England, some areas that have been closed are planned to be re-opened. • Pair trawls need room to maneuver so a 1 mile spacing distance might not be enough. If it is not enough room, discuss with those fishermen how the wind farm could be designed to accommodate this type of fishing.
Safety	<ul style="list-style-type: none"> • Ocean debris after a catastrophic event is a concern. Who will clean it up, how fast, and how will obstructions be marked before cleanup? • Do cables as well as turbines have to be removed at decommissioning? An old cable will eventually become exposed and could be a serious hazard years later. • How often will electronic charts be updated? • Transiting through the wind farm will be difficult at night and in fog. • Cables coming off of floating foundations may need a different safety zone because of the potential dangers. Where are they attached to the structure? • Ice “throw” from turbine blades in icy weather could be a safety hazard.
EMF	<ul style="list-style-type: none"> • How are lobster affected by EMF? • Summarize all the data on effects of EMF from studies of European wind farms.
Marine Wildlife	<ul style="list-style-type: none"> • Need studies to identify the effects of wind development on both fishing effort and fish? Monitoring and data collection should be part of the BMPs. • What are the effects on currents from a wind farm?
Liability	<ul style="list-style-type: none"> • How will bankruptcy be handled so that fishing isn’t adversely affected just because a company suddenly is unable to manage its asset? • Who pays for any gear modifications that are needed in order to fish in the farm? • What are the impacts of wind farms on fishing insurance? • Cable breaks might be the biggest source of insurance claims. If a fisherman hits a cable, it should not be his/her fault. The developer should be responsible for burial, maintenance, and re-burial. • What gear modifications might be required or even desirable and who will pay for them to allow fishermen to fish more easily in arrays?

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the meeting in New Bedford.

Table 2: New Bedford Meeting Best Management Practices and Mitigation Measures

Project Design, Navigation, and Access	
Studies and Analysis	<ul style="list-style-type: none"> Engage fishing vessels in site assessment surveys and other cooperative research (like Deepwater Wind at Block Island). Developer should state which organizations they plan to utilize for research and other activities. If utilizing the fishing industry is not possible, state why. Conduct a review of the West Coast cable committee in the telecommunications industry for examples of mitigation measures and how they are working. Developer should be required to do a full space conflict use study of all gear types used in the area, and include other users such as tourism. Developer should do a baseline study of fish resources and habitat in the area before the farm is built, then re-visit and do the same study every several years (with fishermen's help) to see if turbines are/aren't a fish attractant and if the habitat now supports more fish. Developer should state from the beginning if it is their intention to allow aquaculture in the wind farm. Future modifications for aquaculture would mean larger closed areas.
Spacing of Turbines	<ul style="list-style-type: none"> Require a big-picture map that shows a combination of recommended routes, traffic lanes, and fishing areas through, in, and near wind farms to help mitigate liability issues. With fisherman help, micro-site each turbine in particular spots so as to impact fishing practices as little as possible and avoid important habitat. Work with fishermen from each gear type and discuss turbine spacing issues they might encounter.
Navigational Safety	<ul style="list-style-type: none"> Locations for wind farms, cables, and substations should be available in a timely manner as a downloadable data layer for vessel navigation instruments. Atlantic Wind Connection and Fishermen's Energy both indicated willingness to help fishermen with the cost of navigation software upgrades and other wind developers should do the same. On turbines themselves and for turbines visible on plotters and charts and other technology, display a unique identifier, a contact name, and phone number. Include AIS or a radar transponder on wind turbine foundations, especially on the outer corner turbines or along the outer edge of the wind farm so when a vessel enters the farm, fisherman would know for sure they are in the boundary (will help at night and in fog). Designated traffic lanes and fishing areas should be clearly identified.
Cabling	<ul style="list-style-type: none"> Require a decommission plan that includes a description of cable extraction and removal, scour removal, and how deep below mud line turbine removal will go. Require a 6-foot burial depth for cables. All wind farm plans need to include cable monitoring and re-burial requirements. Developers should identify early in the process which cable areas, because of bottom sediment type or depth, are particularly prone to coming unburied. Monitoring should occur once every year for 5 years to get an understanding of where each cable segment is likely to shift. Then once no more movement is demonstrated, once every 5 years. Look to the rules for communications cables. BOEM should not approve a wind farm application if they do not clearly lay out a cable monitoring and re-burial plan. And BOEM should keep tabs to make sure the

Table 2: New Bedford Meeting Best Management Practices and Mitigation Measures

	<p>developer is actually re-burying exposed cables and should have a penalty for not following the requirements.</p>
<p>Safety, Liability, and Insurance during Operations</p>	
Safety Procedures	<ul style="list-style-type: none"> • Install cell signal boosters on turbines to improve at-sea communications capabilities. • Developers will not allow tie-ups to turbines; however, they should offer some way for vessels to fish near turbines, perhaps tie-up buoys.
Gear	<ul style="list-style-type: none"> • With fishermen’s help, site the location of each turbine with bottom contours and regular traffic lanes in mind. Fishermen like to hug bottom contours when fishing and do not normally go in a straight line.
<p>Natural Resources</p>	
Impacts to Fisheries	<ul style="list-style-type: none"> • Locate wind farms in areas that are already closed to fishing and most conflict between developers and wind industry disappear. • Require a habitat enhancement plan that includes components such as making the footprint under each turbine attractive habitat and foundation design with scour and other filters that retain sand, etc. • Require developer to examine the cumulative impacts of multiple wind farms offshore, including an economic assessment. • Developer needs to clearly state, by gear type, where fishing is and is not allowed. • Coordinate wind farm development with other longer term closures, such as for fisheries. If you are going to close a large area to fishing for long periods of time, then at least use that period of time for construction in that location rather than in another area still open to fishing.
<p>Stakeholder Engagement</p>	
Communication	<ul style="list-style-type: none"> • Developer should create a matrix of key audiences, messages, or activities needed for each stage of development. • Engage gear and species associations to reach deep into the community. For Massachusetts, Massachusetts Fishermen’s Partnership (MFP) includes most of the individual associations. • Sector managers, settlement houses, the MA DMF, and trade publications with articles, ads, and notices are all ways to get information out and back. • The fishery liaison is a great idea but the liaison should be from the fishing community and hired through an existing trusted association, not directly by a wind developer or the federal government. • Having a one stop regulatory shop for all issues on and around one wind farm (an agency permitting coordinator for instance) would be helpful. • Require an over-arching BOEM website that lists and maps each offshore development with links to the rules for each wind farm and the exact location of each turbine. • Utilize the Fishery Management Councils to communicate with fishermen. Give regular in-person presentations and updates.
<p>Liability</p>	
Mitigation	<ul style="list-style-type: none"> • Developers should be required to reveal the different mitigation programs they have discussed with fishermen affected by their wind farm. For example, clearly state which gear types might be pushed out of the area, and developers can opt to pay these fishermen not to fish in the area anymore. • Developers can require fishermen to leave gear behind if caught on cables or other offshore structures, and then developers will reimburse or replace lost gear. Use Europe as an example.

Table 2: New Bedford Meeting Best Management Practices and Mitigation Measures

	<ul style="list-style-type: none">• Developers could be required to purchase and distribute updated nautical chart chips every year to all users.
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SUGGESTIONS FOR FUTURE WORKSHOPS



Suggestions from previous workshops were taken into account for the New Bedford meeting. For this workshop, each table facilitator explained its purpose so that the distinction between the two sessions was clear. Facilitators continued to devote special attention in leading the groups during the second breakout session in trying to formulate usable, concrete mitigation measures.

Most comments were similar to those suggested at the Osterville workshop. One participant requested better outreach to fishermen and better timing with other fishery-related meetings so that more fishermen would attend these workshops. Participants at this workshop would also like to see the informational displays around the room contain data that are more local to the area the workshop is being held in. For example, the vessel transit routes from New Bedford south of Martha’s Vineyard in Nantucket sound are not represented on the current slide in BOEM’s presentation.

Many participants, including fishermen and developers, expressed curiosity at what the offshore policies and fishermen interaction is like in other countries such as Ireland and Germany. It was suggested that BOEM synthesize available information from European offshore wind farms in a condensed and useful report. Fishermen are particularly looking for guidance on science and research, exclusion zones, best management practices, insurance policies, cable breaks, and fishing gear conflicts, and would like to learn what mitigation measures were implemented and successful in these wind farms.

**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

OCEAN CITY WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: January 11, 2013 (2:00 P.M. - 6:00 P.M.)

Location: Ocean Pines Library
11107 Cathell Road
Ocean Pines, MD

RE: Development of Mitigation Measures to
Reduce Conflicts between Wind
Industries and Fishermen – Ocean City
Maryland Stakeholder Workshop



ATTENDEES

Name	Agency
Ward Slacum	Versar
Jeff Eustler	Commercial Fishing Industry
Alison Bates	University of Delaware
Ron Smith	MD Saltwater Sportsman’s Association
Buddy Seigel	Recreational Fishing Industry
Richard Nieman	Recreational Fishing Industry
Mark Monaco	National Oceanographic and Atmospheric Administration
Walt Boge	Ocean Pines Anglers Club
John Martin	Martin Fish Company
Roman Jesien	Coastal Fisheries Advisory Committee, MD Coastal Bays Program
Arlo Hemphill	MD Coastal Bays Program
James Armstrong	Mid Atlantic Fisheries Management Council
Andrew Minkiewicz	Kelley Drye, LLP
Steve Doctor	MD Department of Natural Resources
Brad Stevens	Not specified
Charles Choate	Recreational Fishing Industry
Gwynne Schultz	MD Department of Natural Resources
Rhonda Jackson	Fishermen’s Energy
Andrew Gohn	MD Energy
Finn McCabe	Recreational Fishing Industry
Jeremy Firestone	University of Delaware
Michael Luisi	MD Department of Natural Resources
Monty Hawkins	Recreational Fishing Industry, Headboat Captain
Catherine McCall	MD DNR

Name	Agency
Brian Hooker	Bureau of Ocean Energy Management
Sean Meegan	Ecology and Environment, Inc.
William Daughdrill	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Jennifer Harris	Ecology and Environment, Inc.
Pat Field	Consensus Building Institute

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in BOEM NEPA analyses. The outreach workshops do not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from the Ocean City, Maryland stakeholder workshop.



MEETING SUMMARY



Located on the Atlantic coast of Maryland, Ocean City is a major port of call for a large diversity of fisheries and is in proximity to the Maryland offshore Wind Energy Area (WEA). The workshop was scheduled in the winter, to encourage attendance by fishermen during non-peak fishing periods in Maryland. The Ocean Pines Library was suggested as an appropriate meeting location through stakeholder consultations.

Workshop attendees were greeted upon arrival and asked to sign in. Participants were directed to tables and/or visual displays placed around the room. The meeting started at 2:15 pm when Pat Field, the meeting facilitator, welcomed everybody to the meeting and asked each participant to introduce themselves and state the industry or agency they represent. He then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was

followed by an introduction of Brian Hooker, BOEM Biologist, who opened the meeting with a PowerPoint presentation that included:

- Different stages of offshore wind facility development.
- Purpose of the workshops.
- Regional Vessel Trip Report and Vessel Monitoring System data.
- Known fishing and wind energy questions and concerns.
- Current Best Management Practices required by BOEM.
- A description of BOEM’s Environmental Studies Program.
- Various opportunities for input.



The majority of the meeting was spent in discussion during two breakout sessions. Breakout Session #1 began directly after the presentation. Each table represented a breakout group. Groups worked on identifying issues of concern from their perspective, utilizing the list of issues identified from the previous workshops as a guideline. A 15-minute break was held at 4:00 pm.

Breakout Session #2 followed the break and focused on formulating mitigation measures that could be employed during offshore wind energy development to reduce impacts. Utilizing the handout as a guide, each group identified potential management strategies that would address some of their concerns. At 5:15 pm Mr. Field asked each table facilitator to identify the key points that were discussed in each group and after the final report out, requested feedback and comments from the participants on the workshop format and content (listed further below). The meeting adjourned at 5:45 pm.

IDENTIFICATION OF CONCERNS

Table 1 lists issues and concerns regarding offshore wind development identified at the Ocean City Workshop.

Table 1: Ocean City, Maryland Workshop Issues and Concerns

<p>Exclusion Zones and Access</p>	<ul style="list-style-type: none"> • Maryland has a limited amount of direct oceanfront coastline – concerned about competing uses for slips and dock space during construction and maintenance operations. • Will fishing be allowed inside the wind farm? There is a lot of uncertainty about the effects of offshore wind on the fishing industry. • How long does the construction process take? • What is known about the effects of off-shore turbines on tourism such as charter boat captains and recreational fishing? • Wind farms could cause boats leaving from Ocean City in the White Marlin Open to be delayed if they have to travel longer distances or around certain areas. • Concerned about the impacts of the arrays on competing fisheries and the health of these fisheries. Species include flounder, rockfish, tuna, mahi mahi, swordfish, clams, and scallops.
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Table 1: Ocean City, Maryland Workshop Issues and Concerns

	<ul style="list-style-type: none"> • Fishermen are concerned about the feasibility of operating a scallop boat within an offshore wind farm. Turbines will be a boon for lobster and sea bass fishermen and a problem for draggers. • Once the turbines are in the water would the major navigation channel off Ocean City to be modified to accommodate the extra construction vessel traffic? If so, ships currently using this channel could be forced to use other routes. How would this impact the areas currently used by the fishing community? What would happen as boat traffic is increased in other areas (e.g. what if there were 50 barges/day in an area where before there were none)? • How long is the construction and cable burial period when there would be no access for fishing? • How close will fishermen actually be able to get to the wind farm? The Coast Guard should state exactly what will be allowed. • Who has authority to limit access to the area? The USCG can limit access if there is a security or safety issue. The developer can only request that their private property be left alone. • If a cable becomes unburied, this could close off a large area to fishing.
<p>Regulations</p>	<ul style="list-style-type: none"> • How does the height of turbines impact air navigation? What are FAA restrictions or requirements? • How will security be handled? What are the protocols for search and rescue operations? • Federal agencies need to be the ones telling the developers what to do. • How is BOEM considering studies from Europe? Are these studies only highlighting the positive impacts of development? • Does the U.S. Army Corps of Engineers have regulations for checking on buried cables?
<p>Communication</p>	<ul style="list-style-type: none"> • There is a problem with how the fishing community is currently being asked to participate in the offshore energy discussion, which is frustrating. • How is the diving community responding to wind turbines? • Do wind turbines affect VHF radio transmission?
<p>Siting Process</p>	<ul style="list-style-type: none"> • Where do transmission lines come on shore? • Wind energy areas offshore should be identified through marine spatial planning as suitable for energy use. There are concerns that offshore wind areas are being designated outside of the marine spatial planning process. • Where will the turbines connect onshore? Right now there are no good proposals for this. There is no space for an onshore staging area in an already crowded shoreline primarily used for recreation and tourism. Costs for dock space will increase as a result. How is BOEM going to address this? Will the offshore wind industry displace other industries in the area?
<p>Safety</p>	<ul style="list-style-type: none"> • Want to know more about failure rates, kinds of failures, and what are the procedures should a failure occur. • What are the noise levels during both construction and during normal operation? • What is the Doppler affect, if any, of the moving turbine blades? • There are numerous submerged, disposed and unexploded ordnance that must be handled with care and caution. • Will the array cause silting over time? • Visibility is a concern. Lighting at night needs to be bright enough. Daytime fog is a problem. The backwash on newer radars is a problem and you have to turn the sensitivity down. The same reflective tape used on highways would work well. • What about ice throw from the blades? • How will fishermen get updated charts that show bottom structures and the

Table 1: Ocean City, Maryland Workshop Issues and Concerns

	location of cables on a regular basis?
EMF	<ul style="list-style-type: none"> • What are the effects of EMF on marine mammals?
Marine Wildlife	<ul style="list-style-type: none"> • Is there an opportunity for artificial reef creation? • If some areas will be off-limits to fishing activities, fishing pirates will still take advantage. Enforcement will be needed. • Dredging has an impact on fisheries because of turbidity. Dredging should not occur at a time when fishing resources are elevated. • What are the cumulative impacts of offshore wind? • Birds and bats typically migrate at night. What will happen to the migratory shorebirds (knots, Carolina wrens, etc.) if turbines are constructed offshore? • Significant communities will have developed on the turbines after 30 years and removing the turbines will impact them. Can Ocean City approach BOEM and say they don't want the turbines removed? • Is temperature an issue with the cables? Will this help or hurt animals in the area? • Will the underwater seascape change when the wind farms are operational? How will the wind farms affect sand movement? Some species will be sensitive to changes. • There are limited studies on the effects of wind development on fish. Will the foundations attract or deter fisheries. The distribution of different species might change.
Liability	<ul style="list-style-type: none"> • There is concern about the government allowing access to these areas and insurance companies prohibiting fishermen to access the same areas. • Trawlers will have gear issues. Construction industries tend to toss things overboard and these items get caught in trawling gear. • How liable will developers be after decommissioning if not all equipment and parts are removed? • Depth of cables and the potential for gear snag is a concern.

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the workshop in Ocean City.

Table 2: Ocean City, Maryland Workshop Best Management Practices and Mitigation Measures

Project Design, Navigation, and Access	
Studies and Analysis	<ul style="list-style-type: none"> • Developer should be required to conduct a study that involves reaching out to, and creating a map of, the different stakeholders and uses in the proposed wind farm area. The Coastal Atlas is imperfect but has useful data. • Artificial reefs should be discussed in any development plan. The plan should discuss what is possible (or not) and the effects that arrays may have on fish density, recruitment, nurseries, etc. • BOEM should do a better job of letting people know what peer-reviewed information is available. • Use the turbines to collect offshore data such as water quality, flood surge data, etc. BOEM can promote the uses of the turbines to collect scientific data.
Siting	<ul style="list-style-type: none"> • Areas designated as Marine Protected Areas should also be designated for offshore wind development. In other words, develop wind in areas that are already closed. • Site turbines close to hard bottom communities. • Fishermen need 1,200 feet buffer from existing corals to lay a trap. If you are not

	<p>near coral then there is no fish. BOEM should space everything (turbines, marine mammal zones, etc.) at a minimum of 1,200 feet from corals. This way fishermen can still fish and the turbines won't affect their activities.</p> <ul style="list-style-type: none"> • Orientation and configuration of the arrays are important, i.e., longer lanes, and along bottom contours. BOEM should require proof that developers met with fishermen, discussed fishing areas and micro-siting of turbines, and took their needs into account.
Navigational Safety	<ul style="list-style-type: none"> • BOEM should require developers to post information on the turbines telling fishermen which frequency they should tune into for information on the wind farm. There should be a recording with information that comes from the wind farm that you can only hear when you are nearby. • BOEM should post information on SIRIUS radio, integrated with GIS software, for navigation. • Signage on turbines should explain what type of foundation it is and if there is rock scour underneath. • There should be a VHF and/or cell phone repeater station located within the wind farm to enhance safety.
Cabling	<ul style="list-style-type: none"> • A cable monitoring program should be required. Monitoring could be required once a year, every year, for the first 5 years. Then, once it is shown how sediment moves and if the bottom is stable, monitoring could occur once every 5 years or after a storm event. • Bury cables a minimum of 2 meters, or 6.5 feet. If the industry has the ability to go deeper, they should (e.g., Fishermen's Energy) depending on cost effectiveness. This would show good faith by the wind energy industry.
Safety, Liability, and Insurance during Operations	
Gear	<ul style="list-style-type: none"> • Developers should consider an exclusion zone for commercial fishing efforts, but not recreational ones. • Insurance underwriters should meet with developers and fishermen to discuss fishing around turbines before they are built. Turbine insurers should also insure fishermen against liability. • There should be no liability for fishermen if gear gets snagged on equipment. Fishermen will cooperate more if they know they won't be charged for damage from snagged gear.
Natural Resources	
Impacts to Fisheries	<ul style="list-style-type: none"> • Fishermen may want developers to leave the monopole foundations in place after decommissioning. BOEM may want to consider this option during scoping.
Stakeholder Engagement	
Communication	<ul style="list-style-type: none"> • Utilize local and actively-read publications such as the Coastal Fishermen magazine <i>Tidelines</i>. • Developers should work with fishermen to choose the optimal times of year to communicate with fishermen in a particular area. For the area surrounding Ocean City, the best time to reach out to fishermen is April to June and September to October. Seasonal fishermen are gone in the winter months and are busy fishing in the summer months. • Developers should identify all of the local fishing and marine habitat organizations and chapters such as the Ocean Pines Anglers, the Assateague Coastal Trust, the DNR Coastal Fisheries Advisory Committee, and the MD Saltwater Sportfishing Association (MSSA). There are 16 chapters of the MSSA; the Ocean City chapter is key to engagement because these members are the primary users of the ocean (most others focus on the Bay). • BOEM should target local fishing newspapers, fish houses, and sport fishing marinas

	<p>in MD. Each coastal community has their own fishing magazine and BOEM should post information in these.</p> <ul style="list-style-type: none"> • BOEM should post information on savingseafood.org because the commercial fisherman post information there. • Use Facebook, Twitter, and texts to send information to fishermen. • Communication in general should be frequent and developers should stay in constant contact. • Use the VMS system to communicate directly with fishermen. Communicate “bursts of information” similar to a Notice-to-Mariners, something you would want the fleet to know about. • A dedicated VHF channel should be used and this way the USCG could announce any emergencies. • An email listserv is the best way to get information out. Anyone should be able to sign up. Put an ad in a magazine or newspaper telling fishermen to sign up for the listserv. Require fishermen to sign up for the listserv when they get their license. • Do not use regular postal mail to send out notices. • Have a designated webpage to announce closings and planned maintenance. Use maps and coordinates. • Designate a fishing representative that travels to the meetings and sees the presentations from the developers, and have that person report back to their constituents who will then spread the word. • There should be one designated person within BOEM for fishermen to call to report gear snags on equipment and other problems. BOEM would know the coordinates of what is there and who owns the equipment. There needs to be a central location for communication going both ways.
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SUGGESTIONS FOR FUTURE WORKSHOPS

Suggestions from previous workshops were taken into account for the Ocean City meeting. Each table facilitator clearly explained the purpose of each breakout session so that the distinction between the two sessions was clear. Facilitators continued to devote special attention in leading the groups during the second breakout session in trying to formulate usable, concrete mitigation measures. Table facilitators also focused on leading the dialogue and speaking less themselves, in order to get better conversation amongst table members.

Participants at previous workshops requested to see information that is more local and applicable to their immediate area. Therefore, updated and more local information was included in the BOEM PowerPoint presentation. For example, Vessel Monitoring System data, current through 2010, was presented for the immediate areas offshore Ocean City, Delaware, and southern New Jersey.

Several participants inquired where they can obtain more information online. The BOEM website was given to participants, and Mr. Hooker distributed his business cards for those who would like to submit comments or to ask questions. Additionally, email invitations to the remaining meetings will contain a link to the website.



**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

MOREHEAD CITY WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: January 22, 2013 (1:00 P.M. - 5:00 P.M.)

Location: Morehead City Train Depot
1001 Arendell St.
Morehead City, NC

RE: Development of Mitigation Measures to
Reduce Conflicts between Wind Industries
and Fishermen – Morehead City North
Carolina Stakeholder Workshop



ATTENDEES

Name	Agency
Justin Kirkpatrick	National Oceanographic and Atmospheric Administration
Jessi Baker	North Carolina Division of Marine Fisheries
Michelle Duval	North Carolina Division of Marine Fisheries
Aleta Hohn	NOAA Fisheries
Fritz Rhode	National Oceanographic and Atmospheric Administration
Capt. Dave Tilley	Headboat Captain
Chris Voss	University of North Carolina
Jennifer Banks	NC State Solar Center
Barbara Cleveland	Recreational Fishing
Kenny Fex	South Atlantic Fishery Management Council
Pat Weston	Recreational Fishing – Greater Kinnakeet Shores
Chris Taylor	National Oceanographic and Atmospheric Administration
Sue Glass	Recreational Fishing
Charles “Pete” Peterson	University of North Carolina – Chapel Hill
Terry Johnson	Ocean Isle Fishing Center
Todd Kellison	National Oceanographic and Atmospheric Administration
Denise Gruccio	National Oceanographic and Atmospheric Administration
Terrell Gould	South Atlantic Fishery Management Council
Christine Jensen	North Carolina Division of Marine Fisheries
Brian Hooker	Bureau of Ocean Energy Management
Jaime Budzynkiewicz	Ecology and Environment, Inc.
David Trimm	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Peggy Farrell	Ecology and Environment, Inc.

Name	Agency
Jennifer Harris	Ecology and Environment, Inc.
Pat Field	Consensus Building Institute

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in future BOEM NEPA analyses. The outreach workshops do



not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from the Morehead City, North Carolina stakeholder workshop.

MEETING SUMMARY

Located within Carteret County along the Outer Banks in coastal North Carolina, Morehead City encompasses several active fishery ports and is located in between the areas currently identified as North Carolina offshore Wind Energy Areas (WEAs). Located on the mainland approximately at the mid-point along the length of the state’s coastline, Morehead City is easily accessible for stakeholders from both the northern and southern Outer Banks. The train depot is located in downtown Morehead City near commercial and recreational fish docks and seafood restaurants. To encourage attendance from South Atlantic Fishery Management Council (SAFMC) representatives, this meeting was scheduled to not conflict with the winter 2012 SAFMC meeting (early December).



Workshop attendees were greeted upon arrival and asked to sign in. Participants were directed to sit at two different tables and to browse the visual displays placed around the room. The meeting started at 1:15 pm when Pat Field, the meeting facilitator, welcomed attendees and asked each participant to introduce themselves. He then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was followed by an introduction of Brian Hooker, BOEM Biologist, who opened the meeting with a PowerPoint presentation that included:

- Different stages of offshore wind facility development.
- Purpose of the workshops.
- Southeast Fisheries Science Center (SEFSC) Logbook data.
- Known fishing and wind energy questions and concerns.
- Current Best Management Practices required by BOEM.
- A description of BOEM’s Environmental Studies Program.
- Various opportunities for input.

The majority of the meeting was spent in discussion during two breakout sessions. Breakout Session #1 began directly after the presentation from BOEM. Each table represented a breakout group. Groups worked on identifying issues of concern from their perspective, utilizing the list of issues identified from the previous workshops as a guideline. A 15-minute break was held at 3:00 pm.

Breakout Session #2 followed the break and focused on formulating mitigation measures that could be employed during offshore wind energy development to reduce impacts. Utilizing the handout as a guide, each group identified potential management strategies that would alleviate some of their concerns. At 4:15 pm Mr. Field asked each table facilitator to identify the key points that were discussed in each group and after the final report out, requested feedback and comments from the participants on the workshop format and content. The meeting adjourned at 4:45 pm.



IDENTIFICATION OF CONCERNS

Table 1 lists issues and concerns regarding offshore wind development identified at the Morehead City Workshop.

Table 1: Morehead City, North Carolina Workshop Issues and Concerns

<p>Exclusion Zones and Access</p>	<ul style="list-style-type: none"> • Will fishermen be able to fish in these areas once the wind farms are built? If so, can they use the structures to moor up to? • If BOEM restricts the two southern NC wind areas from fishing, this will be a problem for fishermen. However, if fishing is still allowed similar to fishing access near oil rigs in the Gulf, fishermen will be supportive of the industry. • BOEM should not allow mooring buoys in the wind farms. They will just be something else fishermen have to avoid. Who will regulate anchoring around these areas? • Need to provide a transportation corridor through the wind farm. • Shrimp trawling takes place in Wilmington 1 and 2. Concerns about impacts of cables on shrimping. • Some think that there should be tie-ups available near or on turbine foundations, or have hitching posts. But others feel that this isn’t needed, it’s just one more thing to run into and would be hard to see in high seas. • Maximize multiple uses in the wind farm, and minimize exclusion zones. • Need corridor distance and width for Oregon Inlet so WEA does not impact boat
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Table 1: Morehead City, North Carolina Workshop Issues and Concerns

	<p>traffic or result in longer trips to go around the wind farm to fishing spots.</p> <ul style="list-style-type: none"> • Need to have cooperative effort between the wind industry and fishermen. It will be a big problem if entire WEAs are closed to fishing.
Regulations	<ul style="list-style-type: none"> • Who would be in charge of a post-construction monitoring program? How long would monitoring occur after construction and during operation and maintenance?
Communication	<ul style="list-style-type: none"> • Would a chip be made available to update computerized navigational charts so that fishermen know where the structures are? • Who is the point of contact for fishermen at BOEM and with the developers? Who would they contact if there is an accident or something happened near an offshore wind farm? • Not a lot of fishermen even know about the potential for offshore wind farms. BOEM needs to do more outreach to make them aware.
Siting Process	<ul style="list-style-type: none"> • Is there a conflict between offshore wind turbines and the Naval Air Station Oceana flight path? • Will people have a problem if they can see the wind farms from the shore? Some of the wind turbines will be visible from shore. • There are a lot of shipwrecks offshore of NC. Developers should avoid laying cable or developing wind farms near these areas and buffer zones should exist around shipwrecks. • There is concern about how much space the wind turbines would take up within the WEA. • There are concerns about the potential interference that large numbers of offshore wind turbines could create on deep sea swells that are generated off the continental shelf. Potential long-term impacts could occur. • NOAA is currently conducting surveys, such as the multi-beam sonar assessments. Will that data be shared with fishermen? • BOEM should put the vessel trip report data on top of NOAA charts so they can see the areas better.
Safety	<ul style="list-style-type: none"> • There are hard-bottom ledges offshore of NC. How will cables be buried and remain buried under these features? • Can turbines withstand hurricane force winds? What are the requirements for hurricane wind and wave durability? • Putting turbines offshore will push other commercial vessels (i.e., tug/shipping) inshore creating new navigational and passage issues during inclement weather. • There are large amounts of un-exploded ordnance on the NC/VA border. This could present an issue for the northern NC WEA. However, it could present an opportunity to develop an interstate consortium to address this issue prior to any wind turbines being permitted for that area. • Concerns about the veneer of the sediment and whether the foundations would sink or collapse as the sediment settles. • Navigation issues are a concern especially in bad weather. • Outreach and education is needed for safety. • Accident concerns with north-south traffic that is not controlled (e.g., no traffic signals out there). • Added risk for vessel collision through Oregon Inlet considering the construction equipment, commercial and recreational vessel use, as well as dredging equipment in the area continuously. • 6 foot burial depth for cables might not be deep enough.
EMF	<ul style="list-style-type: none"> • How will EMF affect the migration of sea turtles and marine mammals?

Table 1: Morehead City, North Carolina Workshop Issues and Concerns

<p>Marine Wildlife</p>	<ul style="list-style-type: none"> • Wind structures will most likely become fish habitat, but how will the turbines impact current habitat that affects fishing? • There is concern about developers laying cable around the hard bottom communities. Placing turbines on natural hard bottom/live bottom could impact fisheries. • Would construction or maintenance create underwater noise that could impact fish? • Would underwater noise cause fish to be attracted to the area, and could that then impact marine mammals that feed on fish species by drawing them closer to the wind farms? • Avoid fish spawning areas. • Need monitoring to understand the long-term potential change in fish populations and sediment dispersal. • Concern that adding more vertical habitat in the water will increase fouling. • Have there been any studies on EMF effects to sea turtles, whales, and other marine mammals? • Concern about the lighting requirements for offshore facilities. Lighting should be regulated so that it does not affect offshore species sensitive to light. • Would cooperation between developers and scientist be possible? Wind turbines could be used to deploy other oceanographic equipment. • What is the width of disturbance when burying cable? • What are the impacts associated with different turbine foundation designs? • What is the impact on the shoreline? • Can the Gulfstream be a no-go area for development due to fishery resources, marine mammals, sea birds, etc.?
<p>Liability</p>	<ul style="list-style-type: none"> • There is concern about the decommissioning process and if turbine structures will be left in the water. • Concern that 6 feet cable burial is not a deep enough. Some fishing equipment picks up several feet of sediment. • Will areas be closed due to insurance requirements (e.g., no fishing in wind area)? A policy statement is needed from Coast Guard and insurers.

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the workshop in Morehead City.

Table 2: Morehead City, North Carolina Workshop Best Management Practices and Mitigation Measure

<p>Project Design, Navigation, and Access</p>	
<p>Studies and Analysis</p>	<ul style="list-style-type: none"> • BOEM needs to develop an environmental baseline before a wind farm is constructed to understand potential impacts. • BOEM should use the turbines to monitor conditions offshore. Add cameras, acoustic recorders and receivers, CO₂ sensors (to monitor acidification), biochemical monitors, etc. • BOEM could implement tagging or passive acoustics programs utilizing the turbines. BOEM may want to coordinate with NOAA on the monitoring and could use the NC offshore wind farms to monitor the Gulfstream and protected species. • More studies are needed to address the dynamic nature of currents in the Oregon Inlet area and how wind farms within the area might affect that region. • Conduct EMF studies on the east coast, similar to those done on the west coast. Studies are needed to evaluate the potential long term impacts on large scale seasonal fish migrations associated with EMF interference.

Table 2: Morehead City, North Carolina Workshop Best Management Practices and Mitigation Measure

	<ul style="list-style-type: none"> • Need cost-benefit analysis (cost of power and impact to fisheries). • Evaluate if migratory patterns will be altered. Assess if large scale changes to seasonal migration will take place. • Studies needed on cables with a shield versus cables without a shield to compare impacts of EMF. • Need to have visual simulations. • Fishermen would like to see a map of the WEAs and proposed wind farm locations over-laid with past hurricane tracks.
<p>Siting</p>	<ul style="list-style-type: none"> • The northern NC WEA crosses in front of Oregon Inlet which is a major fishing center and access point for fishermen from Pamlico Sound. Charter boats use this corridor too. There are two currents in the Oregon Inlet area: the Gulfstream and Labrador. This inlet leads to the most productive fisheries in NC. The Gulfstream is so close and fish stay in the warmer water. Conditions are constantly changing and are dynamic. • There is the potential for leverage from the state to negotiate with wind developers. States can promote wind development in offshore waters if wind developers contribute to costs of maintenance of areas such as Oregon Inlet. Wind developers can aid in dredging and maintenance of Oregon Inlet to reduce the risk of using that inlet, which would then offset the risk of increased risk from offshore traffic within and around a wind farm. Other ideas include funding for beach renourishment and maintaining Highway 12.
<p>Navigational Safety</p>	<ul style="list-style-type: none"> • Suggestion from fishers and divers: it would be useful for safety corridors through a wind farm to be set up that allows fishers and divers to access hotspots that are visited frequently for their livelihoods. • Helipads at the center of wind farm arrays could be used during search and rescue operations. Cooperation should be established between wind farms and Coast Guard, etc. • Put radar beacons on the turbines around the edge of the wind farm; therefore, during inclement weather, if a fisherman could not visually identify the wind farm or their GPS may not function properly, it would be visible on the radar and they could steer around the wind farm or through a safety corridor within it also outlined with radar beacons. • Have a full time crew at the helipads. The crew could monitor radar of any vessels that come within or near exclusion zones. • Have flashing lights, sirens, and a radar beacon on the outer perimeter of the wind farm (helpful during bad weather). • AIS could be used but only larger boats have this, not recreational boats. • Need to understand north-south corridor for trawlers and netters so routes are not impacted. • Cooperate with fisherman. This is very successful in Virginia Beach near the Chesapeake Bay. • Weather tools should be installed on turbines to help fishermen – such as wind speed and direction. The turbines should report weather information to a specific channel for fishermen to tune into – this would be beneficial to the fishing community. • Developers should purchase and provide updated navigational chips for maps and radars for fishermen’s computers. Most average fishermen won’t buy a new chip just for a new update. This would reduce liability for developers because it costs less than repairing damage.
<p>Cabling</p>	<ul style="list-style-type: none"> • BOEM should require developers to cable over sand and not hard bottom.

Table 2: Morehead City, North Carolina Workshop Best Management Practices and Mitigation Measure

Safety, Liability, and Insurance during Operations	
Gear	<ul style="list-style-type: none"> • BOEM should warn fishermen not to fish with heavy line around the wind farm cables in case they snag. • If no tie-ups will be allowed to the actual turbine, and anchoring may be too unsafe due to the transmission lines, then additional tie ups near the turbines could be installed to allow fishermen to utilize the benefits of potential reef situations attracting fish around the turbines. • If gear gets snagged on turbines or cables, fishermen should cut it loose. The developer can recover the gear and fix it and return it, or reimburse the fishermen for the lost gear. The process needs to be laid out in advance.
Natural Resources	
Impacts to Fisheries	<ul style="list-style-type: none"> • BOEM should add the GIS shape files from the NC call areas to a navigational chart so fishermen can evaluate the fish in that area. • BOEM should ensure the turbines are painted a color that is not attractive to birds and bats. Turbines could also produce a sound to deflect birds away. • Offshore area closures associated with wind turbine construction and maintenance should be coordinated with other spawning and fishing closures so that fishermen are not excluded from more areas for longer periods of time; i.e., seasonal closures for sharks are currently scheduled with multiple other overlapping closures. • Developers should have to show proof, using maps and other surveys, that they are avoiding hard bottom areas for turbines and cables.
Stakeholder Engagement	
Communication	<ul style="list-style-type: none"> • BOEM should maintain an avenue of communication with fishermen through local websites (i.e., fryingpantower.com, etc.). BOEM should distribute links to these website developers in the form of an RSS feed that will automatically update with any new information. Fishermen check these websites regularly so this would be a good vehicle to communicate with them. BOEM could also provide an open source code or Application Programming Interface (API) to website developers. • BOEM should also use phone texts or Channel 16 to communicate with fishermen. They could also require developers to broadcast messages directly from a wind farm. • Fishermen could tune into a specific radio signal when they are near the facility to hear information related to that wind farm. Signs around the wind farm would need to be posted for this that tells the fishermen what signal to tune to. • BOEM should talk to the National Weather Service and communicate to fishermen through NOAA weather radio. • BOEM needs to communicate the maintenance schedule to fishermen. Tell them how long people will be out there, how many boats, and what they are doing. • Reach out to fishermen through various sources - NOAA weather radio (add a regular warning or update on the regular weather message about construction), regional fishing websites along the coast, the South Atlantic Fishery Management Council, announcements at boat ramps and marinas, and fishing listservs (such as through Division of Marine Fisheries). • Target the NMFS liaison that already exists within fishing communities in NC to reach out to fishermen when an issue arises concerning wind construction, operation, or maintenance. • Create a phone number that fishermen can call with a recorded message with information about the wind farms in the area. Post the number at all marinas and ports as the majority of fishermen will be associated with at least one marina. • A fishing liaison would be helpful, someone that fishermen can talk to and through whom information can flow both ways. Just have one person that everybody knows is the point of contact.

Table 2: Morehead City, North Carolina Workshop Best Management Practices and Mitigation Measure

	<ul style="list-style-type: none">• Work with scientists to conduct studies, turbines or platforms could be used to mount equipment.
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SUGGESTIONS FOR FUTURE WORKSHOPS

Suggestions from all previous workshops were taken into account for the Morehead City meeting. Each table facilitator continued to clearly explain the purpose of each breakout session so that the distinction between the two sessions was clear. Facilitators devoted special attention when leading the groups during the second breakout session in trying to formulate usable, concrete mitigation measures. Participants at previous workshops requested to see information that is more local and applicable to their immediate area. Therefore, updated and more local information was included in the BOEM PowerPoint presentation. For example, logbook data from the SEFSC was presented for the immediate areas offshore Morehead City and within the North Carolina WEAs. Additionally, the BOEM website link was given to participants at this workshop, and Mr. Hooker invited additional submission of comments or questions. None of the attendees provided any comments on ways to improve the remaining workshops, and several expressed their thanks that BOEM was holding these meetings and reaching out to fishermen.



**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

OCEAN CITY WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: February 6, 2013 (4:00 P.M. - 8:00 P.M.)

Location: Ocean City Free Public Library
1735 Simpson Ave.
Ocean City, NJ

RE: Development of Mitigation Measures to
Reduce Conflicts between Wind
Industries and Fishermen – Ocean City
New Jersey Stakeholder Workshop



ATTENDEES

Name	Agency
Glenn Arthur	New Jersey Council of Diving Clubs
Joe Bilinski	NJ Department of Environmental Protection
Peter Clarke	NJ Marine Fisheries Administration
Ed Cairns	Diving/Charter Industry
Kris Ohleth	Atlantic Wind Connection
John DePersenaire	Recreational Fishing Alliance
Dan Renshaw	SeaBreeze Energy
Stephen Geiger	Arcadia Wind
Jeff Normant	NJ Marine Fisheries Administration
Rhonda Jackson	Fishermen's Energy
Ben Riker	Fishermen's Energy
Joe Skutlin	U.S. Coast Guard Auxiliary
Brian Hooker	Bureau of Ocean Energy Management
Bill Daughdrill	Ecology and Environment, Inc.
David Trimm	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Peggy Farrell	Ecology and Environment, Inc.
Jennifer Harris	Ecology and Environment, Inc.
Stephanie Moura	SeaPlan

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental

Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in future BOEM NEPA analyses. The outreach workshops do not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from Ocean City, New Jersey stakeholder workshop.



MEETING SUMMARY

The seventh stakeholder workshop occurred in Ocean City, NJ on Tuesday February 6, 2013 at 4:00 p.m. at the Ocean City Free Public Library. The Atlantic coast of southern New Jersey contains several ports of call for a large diversity of fisheries, and is close to an offshore WEA. Located on the coast, Ocean City New Jersey was identified as a good location for a stakeholder meeting being located between Atlantic City and Cape May.



Workshop attendees were greeted upon arrival and asked to sign in. Participants were directed to browse the visual displays placed around the room and sit in the stadium seating for the initial presentation from BOEM. The meeting started at 4:15 pm when Stephanie Moura, the meeting facilitator, welcomed attendees and asked each participant to introduce themselves. She then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was followed by an introduction of Brian Hooker, BOEM Biologist, who opened the meeting with a PowerPoint presentation that included:

- Different stages of offshore wind facility development.
- Purpose of the workshops.
- Vessel Trip Report and local Vessel Monitoring System data.
- Known fishing and wind energy questions and concerns.
- Current Best Management Practices required by BOEM.
- A description of BOEM's Environmental Studies Program.
- Various opportunities for input.

Following the presentation, Ms. Moura requested that participants come down to the front of the room and sit at two different tables for the remainder of the meeting, the majority of which was spent in discussion during two breakout sessions. Breakout Session #1 began directly after the presentation from BOEM. Each table represented a breakout group. Groups worked on identifying issues of concern from their perspective, utilizing the list of issues identified from the previous workshops as a guideline. A 15-minute break was held at 6:00 pm.

Breakout Session #2 followed the break and focused on formulating mitigation measures that could be employed during offshore wind energy development to reduce impacts. Utilizing the handout as a guide, each group identified potential management strategies that would alleviate some of their concerns. At 7:15 pm Ms. Moura asked each table facilitator to identify the key points that were discussed in each group and after the final report out, requested feedback and comments from the participants on the workshop format and content. The meeting adjourned at 7:45 pm.



IDENTIFICATION OF CONCERNS

Table 1 lists issues and concerns regarding offshore wind development identified at the Ocean City Workshop.

Table 1: Ocean City, New Jersey Workshop Issues and Concerns

<p>Exclusion Zones and Access</p>	<ul style="list-style-type: none"> • Charter boats want to extend their seasons and are concerned about where the base of operations will be for offshore wind developers. • Fishermen are concerned about access through the Barnegat Light area. Skill is required to navigate through the egress there because of the wave formations. Commercial fishermen already experience limited access to this area by the size of their draft, and this would not be an ideal point of access for the offshore wind industry. • How will fishermen maneuver through a wind farm? • What will scour around the turbine towers and the cables be like? • Will BOEM consolidate the corridors of cables going onshore, to and from an offshore wind facility? If so, this will inhibit clam fishing in an area to avoid the cables. A minimum 6 ft. burial requirement is too shallow. • How will BOEM avoid pushing user groups out of these areas? • Recreational diving sector would like not just access to wind farms but also moorings once the foundations have become artificial reefs. • Being excluded in general is a primary concern. Fishermen want to be able to anchor inside the wind farm, not just transit through. • Developers present were fine with fisherman access to a wind farm, but were concerned about burying cables deep enough. • Thought that turbine foundations would become diving sites.
<p>Communication</p>	<ul style="list-style-type: none"> • Developers indicated that they need assistance in knowing how to best reach fishermen and who to contact because the industry is decentralized.

Table 1: Ocean City, New Jersey Workshop Issues and Concerns

Siting Process	<ul style="list-style-type: none"> • Where exactly will the wind turbines be located? • Commercial fishermen are concerned because it appears that access to the port at Cape May would be out of bounds to them if offshore wind is developed there. • What is the size of the vessel that would be used for maintenance of offshore wind facilities? • How will the density of turbines constructed in a wind farm affect ocean currents? • What will the concentration of turbines be offshore NJ? • Developers would like better information about operational needs of different fisheries (e.g., How deep do draggers penetrate the substrate, etc.?) to assist with certain design criteria, such as how deep to bury cables. • A wind developer may not want to share detailed micro-siting data with fishermen because it is a confidential and competitive process.
Safety	<ul style="list-style-type: none"> • Buried cables could be an issue with the clam fishermen potentially uncovering it during their fishing operations. The surf clam diggers have cable jumps and can go through telecom fields. Clam diggers will only impact the first 6 – 12 inches of sediment. • What kind of monitoring will be occurring in the wind farm? What if there is a mechanical failure? • How will turbines be marked and lit?
EMF	<ul style="list-style-type: none"> • How will fish, sharks, and rays be affected by EMF? • What is the EMF AC voltage that would be emitted by an offshore wind cable? If the cable is buried, this perhaps wouldn't be an issue, but it is a concern if they become unburied. • Will potential effects from EMF negate the benefits from the habitat created by the turbine structures? • Marine debris from construction is a concern.
Marine Wildlife	<ul style="list-style-type: none"> • How will increased vessel traffic from offshore wind affect marine mammals, fish, and fish habitat during construction and pile driving? • Fish will want to escape from pile driving activities. • The sand offshore NJ is hard-packed and is good for construction, but it also has a very productive biological area which is good for clam diggers. • What will be the effects on the biological resources offshore? What are the impacts during construction and operation?
Liability	<ul style="list-style-type: none"> • There is concern that if offshore wind cables were damaged by offshore users, there would not be coverage similar to the protection under the Telecommunications Act.

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the workshop in Ocean City.

Table 2: Ocean City, New Jersey Workshop Best Management Practices and Mitigation Measures

Project Design, Navigation, and Access	
Studies and Analysis	<ul style="list-style-type: none"> • Consider developing fish farms (e.g., in the area of the wind farm or even attached to offshore structures) as mitigation for the loss of fisheries in other areas. • Investigate communication protocols within the oil and gas industry in the Gulf as examples. Find out other communication methods used other than Notice to Mariners. • Look into the Port Access Route Study by the USCG, and if it isn't adequately covering the fishing industry, then a new study should be done.

Table 2: Ocean City, New Jersey Workshop Best Management Practices and Mitigation Measures

	<ul style="list-style-type: none"> • Look into the current situation with trawling and communications cables. • Research communication methods with landowners and stakeholders for land-based wind facilities.
Siting	<ul style="list-style-type: none"> • Marine spatial planning should play a part in the siting of WEAs and individual wind farms; this planning effort considered other high value uses such as shipping.
Navigational Safety	<ul style="list-style-type: none"> • Color-code the offshore wind farm structures to create a navigational guide for fishermen (i.e., follow blue turbines to go to Ocean City, follow red turbines to go to Atlantic City). • Require developers to put cell towers within the offshore wind farm. • Require a navigational risk assessment, which will help developers identify and collect data on fishing locations and transit areas.
Cabling	<ul style="list-style-type: none"> • Require developers to monitor post-construction for EMF. • Shielding the cables will mitigate any impacts from EMF. • Minimize areas where cables come onshore so trawlers can continue operations and not be concerned about damaging a cable. • Develop contingency plans to ensure cables won't be spaced too close together. Avoid a "spaghetti" complex of cables within the wind farm. • Require developers to design cable-free pathways through a wind farm. • Create north-south corridors through the wind farm that are cable-free that would follow the typical fishing path for commercial draggers in the region. • Design wind farms with the electrical nodes/converter stations placed landward so that less heavy cable is laid going to shore. This could create less interference with the fishing industry. • Mandate that the turbines be constructed in a grid formation to keep the cable connection plans simple. Locate the nodes strategically so that less cable is used overall. This may be difficult and more expensive for the developer up front, but this will create fewer impacts to users offshore. • Cables may not need to be buried as deeply where there is harder bottom. The hard bottom will cover over the cables and will be hard to remove.
Safety, Liability, and Insurance during Operations	
Gear	<ul style="list-style-type: none"> • Developers should work with clam diggers and deal with the possibility of cables becoming uncovered during their operations. In NJ the hardness of the sediment varies depending on the shoal. The jets from a clam digging operation scoop the sediment about 12 inches below the surface and liquefy it. If a digger goes through an area multiple times, a cable buried 6 feet under the substrate may be uncovered.
Natural Resources	
Impacts to Fisheries	<ul style="list-style-type: none"> • Offshore wind developers should hire fishermen and use their boats for development and/or maintenance. • There should be a common set of expectations as to whether trawling will be allowed. • Consider leaving the scour and foundations in place when decommissioning because they will be artificial reefs.
Stakeholder Engagement	
Communication	<ul style="list-style-type: none"> • Developers that use local resources to source operations and for maintenance would garner local support from the commercial fishing industry. • Require a communication plan to communicate with commercial fishermen. • Hold a public comment period for every offshore wind farm development. • Work with state committees (such as fish and wildlife) to convene fishermen committees so people can be informed of offshore wind development projects as much as possible. Work the state agencies and committees to facilitate communication. The state could be the main point of contact for information

Table 2: Ocean City, New Jersey Workshop Best Management Practices and Mitigation Measures

	<p>because they will be heavily involved anyway.</p> <ul style="list-style-type: none"> • There are 4 main commercial fishing co-ops and 3 main recreational associations in NJ whose leadership can get messages out quickly/broadly to fishermen. • The NJ recreational fishing permit system gives the state the ability to contact individual permit holders with important information. • Appoint one “offshore Point of Contact” from the state to facilitate effective communication and coordination with the fishing industry. • Reactivate the currently defunct committee of fishermen and marine cable interests to serve as a cross-industry node for communicating between and within the fish and wind communities throughout all phases of wind farm construction. • Get all stakeholders involved in the process as early as possible. • Create an ongoing committee of stakeholders, convened by the developers, which meet to discuss issues and updates. • Developers should manage and facilitate periodic project updates and meetings. • Communication tools may vary depending on the different stages of development. • Leverage existing government and non-profit list-servs to provide information. The state has contact information for all registered fishermen, so does the Recreational Fishing Register. • Work with the fishery councils to provide information. • Send out email notifications of closures and current issues. • Social media and texts are a good way to communicate.
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SUGGESTIONS FOR FUTURE WORKSHOPS

Suggestions from all previous workshops were taken into account for the Ocean City, New Jersey meeting. Each table facilitator continued to clearly explain the purpose of each breakout session so that the distinction between the two sessions was clear. Facilitators devoted special attention when leading the groups during the second breakout session in trying to formulate usable, concrete mitigation measures. Participants at previous workshops requested to see information that is more local and applicable to their immediate area. Therefore, updated and more local information was included in the BOEM PowerPoint presentation. For example, local Vessel Trip Report and Vessel Monitoring System data were presented for the immediate areas offshore New Jersey and within the New Jersey WEA. New Jersey commercial and recreational fishing maps were also presented including surf clam, scallop, and quahog grounds. The BOEM website link was given to participants and Mr. Hooker invited additional submission of comments or questions. Several attendees commented that they enjoyed being part of the workshop and that these meetings are a good first step in communicating with the fishing industry. Many expressed thanks in finally knowing who to contact within BOEM with questions and comments.



**OFFSHORE WIND, RECREATIONAL AND COMMERCIAL FISHERMAN
MITIGATION MEASURES DEVELOPMENT**

ROCKPORT MAINE WORKSHOP REPORT

To: Brian Hooker, BOEM

From: Peggy Farrell, Ecology and Environment

Date: February 28, 2013 (8:00 a.m.-12:00 p.m.)

Location: Samoset Resort
220 Warrenton St.
Rockport, ME 04856

RE: Development of Mitigation Measures to
Reduce Conflicts between Wind
Industries and Fishermen – Rockport
Maine Stakeholder Workshop



ATTENDEES

Name	Agency
Ben Martens	Midcoast Fishermen’s Association
James Monroe	Blue Water Dynamos
Richard Nelson	Commercial Lobster Fishing
Ron Huber	Penobscot Bay Watch
Suzanne MacDonald	Island Institute
Vincent Balzuno	New England Fishery Management Council
Robert Eugley	Fishing Industry
Chris Rector	Maine State Senator’s Office
Laura Singer	SAMBAS Consulting
Brooks Winner	Island Institute
Lucy VanHook	Maine Coast Fishermen’s Association
Shelly Tallack Caporossi	Manomet Center for Conservation Sciences
Karin Spitfire	River Herring Advocate
Meredith Mendelson	Maine Department of Natural Resources
Aubrey Kirkpatrick	NOAA Fisheries
Tom Groening	Island Institute
Kathleen Reardon	Maine Department of Marine Resources
Sarah Cotnoir	Maine Department of Marine Resources
Nathan Johnson	Ocean Renewable Power Company
Dana Hammond II	Commercial Fishing
Steve Train	Atlantic State Marine Fisheries Commission
Kevin Harris	Harris Marine Surveyors
Buzz Scott	OceansWide
Wayne Roberts	Fishing Industry

Name	Agency
Kristan Porter	Maine Lobstermen’s Association
Kyle Molton	U.S. House of Representatives Staff
David Cousens	Maine Lobstermen’s Association
Darryl Francois	Bureau of Ocean Energy Management
Brian Hooker	Bureau of Ocean Energy Management
Bill Daughdrill	Ecology and Environment, Inc.
David Trimm	Ecology and Environment, Inc.
Sarah Bowman	Ecology and Environment, Inc.
Peggy Farrell	Ecology and Environment, Inc.
Jennifer Harris	Ecology and Environment, Inc.
Stephanie Moura	SeaPlan

OVERVIEW

The Bureau of Ocean Energy Management (BOEM) is developing best management practices (BMPs) and mitigation measures for reducing use conflicts within portions of the U.S. Atlantic Outer Continental Shelf (OCS) that may be used by the wind energy industry and fishermen. The purpose of the regional stakeholder workshops is to engage fishermen and wind energy developers (plus interested agency representatives) in dialogue that would result in development of BMPs and mitigation measures that would be beneficial to both parties and relevant for inclusion in future BOEM NEPA analyses. The outreach workshops do not discuss any specific wind energy development projects, but rather describe general types of practices or studies that could be implemented as mitigation for wind energy development. As projects are proposed, there will also be opportunities for site-specific mitigation measures. This document constitutes the Outreach Report from the Rockport, Maine stakeholder workshop.

MEETING SUMMARY

The eighth and final stakeholder workshop occurred in Rockport, ME on Thursday February 28, 2013 at 8:00 a.m. at the Samoset Resort. The northern New England area encompasses several active fishery ports and is in proximity to the proposed Statoil offshore wind project site. Maine was suggested as a suitable workshop location during BOEM’s initial stakeholder consultations, and mid-March was recommended as the best time to hold a meeting because attendance by fishermen was expected to be higher during the late-winter period. The Maine Fishermen’s Forum meeting occurred in Rockport from February 28, 2013 through March 2, 2013, also at the Samoset Resort. Therefore, holding the BOEM stakeholder workshop early on February 28 would make the timing and location convenient for workshop participants that may also be also attending the Forum.





Workshop attendees were asked to sign in and find a seat at one of the round tables in the room. The meeting started at 8:30 am to accommodate latecomers due to inclement weather that morning. Stephanie Moura, the meeting facilitator, welcomed attendees and asked each participant to introduce themselves. She then briefly discussed the format for the meeting so that attendees had an understanding of the agenda and meeting rules. This was followed by a welcome from Darryl Francois, BOEM and introduction of Brian Hooker, BOEM Biologist, who opened the meeting with a PowerPoint presentation that included:

- Different stages of offshore wind facility development.
- Purpose of the workshops.
- Vessel Trip Report data.
- Known fishing and wind energy questions and concerns.
- Current Best Management Practices required by BOEM.
- A description of BOEM's Environmental Studies Program.
- Various opportunities for input.

Following the presentation, Ms. Moura requested that participants move to one of three round tables. The majority of the remainder of the meeting was spent in discussion during two breakout sessions. Breakout Session #1 began directly after the presentation from BOEM. Each table represented a breakout group. Groups worked on identifying issues of concern from their perspective, utilizing the list of issues identified from the previous workshops as a guideline. A 15-minute break was held at 10:00 am.

Breakout Session #2 followed the break and focused on formulating potential mitigation measures that could be employed during offshore wind energy development to reduce impacts. Utilizing the handout as a guide, each group identified potential management strategies that would alleviate some of their concerns. At approximately 11:30 am, Ms. Moura asked each table facilitator to identify the key points that were discussed in each group and after the final report out, and requested feedback and comments from the participants on the workshop format and content. The meeting adjourned at 11:45 am.



IDENTIFICATION OF CONCERNS

Table 1 lists issues and concerns regarding offshore wind development identified at the Rockport Workshop.

Table 1: Rockport, ME Workshop Issues and Concerns

<p>Exclusion Zones and Access</p>	<ul style="list-style-type: none"> • Will there be exclusion zones around the turbines? Who will decide where the exclusion zones will be? Is it the state, Coast Guard, or insurance companies? • Lost access to fishing grounds is a real concern. The livelihood of fishermen will be impacted and competition between fishermen will increase. Fishermen are concerned that they won't be able to fish where they have always fished, historically. • How close will fishermen be able to get to the site or the turbines themselves? Will fishing be allowed to occur over the transmission cables? • Fisheries are currently struggling in Maine as it is. Any additional obstacles offshore will only add to this struggle for fishermen. • Will fishermen be allowed to transit through the turbine field/facilities? • Will there be shared use within the turbine field? • Design styles such as monopole vs. floating with anchors need to be differentiated as they will have different issues and different exclusion zones. • Regarding the Statoil project, fishermen are concerned about maintaining access to highly productive fishing grounds. There are greater uncertainties about access for fishing vessels into the proposed wind farm because of the floating turbine technology. It is possible that access would be more restrictive if floating turbines have a bigger footprint because of the multiple anchor lines. • The fishing industry is already sharing fishing grounds. Suggest putting wind farms in closure areas. • If fisherman are displaced, they should be compensated.
<p>Communication</p>	<ul style="list-style-type: none"> • Need communication early in the process and regularly. • How will BOEM address fishermen outside of ME after project outreach is completed? It is easier to talk with local fishermen, but it's difficult to work with people when they reside outside of the region and still fish in ME waters. • BOEM needs to show that they are interacting with the ME state agencies. • BOEM needs to establish different methods for interacting with fishermen and reach out to them so their voice is heard. There needs to be a different way to get to the fishermen at every site. Fishermen need to be reached out to in a way that works for the fishermen. • More details on offshore wind projects need to be made readily available so people can become better informed. • Who do fishermen contact for information regarding offshore wind development? • Fishermen in ME are concerned that 4 turbines, proposed as part of the Statoil project, will turn into 100 and that they will have no say in the process. What is the possibility of this happening? • BOEM needs to talk to fishermen more about the variability of deep water offshore wind development. They should talk about specific issues relevant to different technologies. • Education of fishermen and other offshore users is important. The developer should be responsible for communicating with local fishermen about navigation regarding the turbines, where cables are located, etc. • There is a "crisis management" culture among fishing interests, and planning ahead is contrary to how the sector operates. This presents regulatory agencies and project proponents with another challenge of engaging fishermen early before the "11th hour". • There is considerable dissatisfaction with communication, outreach, and engagement on the proposed Statoil project. There are too many meetings but not enough information. Need a more coordinated process between BOEM and Statoil.

Table 1: Rockport, ME Workshop Issues and Concerns

<p>Siting Process</p>	<ul style="list-style-type: none"> • Offshore wind farm plans need to be locally relevant (e.g., account for local features and fisheries). • The state of ME did not propose a Wind Energy Area (WEA) offshore. This is frustrating to the people of ME because they did not have a chance to provide input on locations for wind farms offshore. People feel the state is responding to the whims of a developer. The people of ME want an opportunity to develop a wind energy plan for the state. They do not want the developers to be in charge of this. • The offshore wind industry is in a difficult position because they have to rely on models, not research, for scientific information. • The data that have been used to develop WEAs do not reflect the historical fishing effort. There are important fishing grounds that need to be acknowledged and protected. • Some areas within the Gulf of Maine are used by only a few people. While only a few fishermen may be impacted by developing a wind farm in this area, those fishermen that use that this particular area may not fish anywhere else. Therefore, while they are a small contingent of the overall fishing industry in Maine, their ability to fish in the Gulf of Maine has now been reduced or removed. Most important to this issue are lobstermen within the highly territorial Maine lobster fishery.
<p>Safety</p>	<ul style="list-style-type: none"> • How will wind turbines hold up to the conditions in the Gulf of Maine? • Fishermen are concerned that their gear will get caught up in the floating wind turbine cables. What happens if a bottom trawler dredges up a cable? Fishermen are concerned about how the cables are buried. • Most fishermen in ME are familiar with their fishing grounds and are reluctant to update their maps because they think they already know where everything is. This could be an issue if an offshore wind facility is marked on a map and the fishermen don't get new maps. • Turbines could create a navigational hazard. Navigating around turbines/exclusion zone during a storm could add to the fishermen's safety risk if they cannot have direct access to shore during a storm and need to navigate around the turbine field. • More vessels in the area associated with construction could create a nuisance for fishermen in the area. • Is ice throw a problem?
<p>EMF</p>	<ul style="list-style-type: none"> • What are the cumulative environmental effects of adding more cables offshore? ME has a lot of islands offshore that are connected by electric and telecom cables. BOEM needs to talk to fishermen about how these cables are currently impacting fisheries. What are the issues concerning EMF?
<p>Marine Wildlife</p>	<ul style="list-style-type: none"> • What are the baseline environmental studies that already exist? • Fisheries are integral to the history and culture of Maine. How will construction of an offshore wind farm affect fishing? How will this compare to historical changes in fisheries? • What are the cumulative effects of multiple wind farms? • BOEM should have the ability to cancel a lease if there is an unforeseen environmental impact. • Wind shadow needs to be considered as a potential impact. • The density of wind turbines could be an issue. • What are the impacts of adding these structures to fish habitat? • How will bio-fouling be dealt with? Paint? Who will be responsible for regulation? • What environmental hazards may occur from the discharge of oil hazards?

Table 1: Rockport, ME Workshop Issues and Concerns

	<ul style="list-style-type: none"> • Bad weather in the Gulf of Maine could damage the turbines. What resulting environmental impacts could occur? • Environmental impacts on marine mammals (and other species) are unknown. • What are the impacts from disturbing benthic habitat while installing cables? • How will wind farms affect fish behavior and population distribution? How can the longer-term planning process for wind farm siting take potential effects into account? • Leases for wind farms are so long, how to address changes in fishing grounds. What is productive today many not be productive in 20 years.
Liability	<ul style="list-style-type: none"> • The floating technology Statoil is proposing to use for the ME offshore wind farm is a big concern in ME. It has not been tested and is different than the other technologies proposed in the U.S. • What happens if a fisherman loses his/her gear due to an accident with an offshore wind facility? • Will there be compensation for reduced access to fishing grounds? • How deep will the cables be buried? There needs to be a better understanding among fishermen of the cable burial techniques and that the cables will be buried effectively. • Will there be an issue with bottom trawlers and the cables? For example, small shrimp boats may run across cables located within the shrimp grounds. • What kind of insurance will fishermen be required to have should they need to transit through a turbine field? Will there be further exclusion from the turbine field due to insurance requirements? • If something goes wrong with the turbine, who is responsible for taking care of it? • If a major storm or hurricane sets a floating turbine adrift and it takes fishing gear, who would be responsible for this?

BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

Table 2 contains potential BMPs suggested at the workshop in Rockport, ME.

Table 2: Rockport, Maine Workshop Best Management Practices and Mitigation Measures

Project Design, Navigation, and Access	
Studies and Analysis	<ul style="list-style-type: none"> • Is there a model for community ownership of an offshore wind farm? A local electric cooperative was formed to manage the wind area offshore Martha’s Vineyard. • BOEM should have a list of required documents developers need to reference for a project. • BOEM should share information regarding how other states are dealing with fishermen and the loss of fishing grounds. • Fishermen should be involved in multiple steps of the process; i.e., ask fishermen to conduct the offshore bird surveys.
Siting	<ul style="list-style-type: none"> • BOEM should develop an MOU between communities and developers, or other relevant entities, that explains where and what type of offshore wind farm they want to develop. • Look at the historical fisheries data within the potential wind energy areas. Make sure to identify the key areas that are needed for fishermen. • The proposed site for the Statoil project is a good start because its location in federal waters impacts relatively few fishermen.

Table 2: Rockport, Maine Workshop Best Management Practices and Mitigation Measures

<p>Navigational Safety</p>	<ul style="list-style-type: none"> • Require a safety orientation for fishermen. • Ensure that anything added to NOAA charts will also be added to GPS software. Need to identify the mechanism that will officially relay the GPS coordinates to the appropriate channels. • Use electronic beacons. • Transiting vessels need to know where turbines are. They will have the most problems with navigational safety. • NOAA nautical charts are the best maps for displaying data at stakeholder meetings. Create a unique marker on NOAA charts to represent a turbine. • Educate fishermen about the potential concerns (safety wise) that may arise for fishermen operating near a turbine. • Place unique and reflective markings on turbines for visibility. • Sound a beacon during foggy conditions. • Look at Norwegian examples from wind farms for visibility and markings. • Create a special radar beacon configuration and integrate it with the Automatic Identification System. • There needs to be a safety/contingency plan if something catastrophic happens. People should be located close enough to respond in reasonable amount of time. • Wind installations should be well maintained to minimize navigational and gear snagging risks. BMPs should include specific inspection protocols for turbines, platforms, and cables, especially after severe weather.
<p>Cabling</p>	<ul style="list-style-type: none"> • Cables should be periodically monitored to ensure they remain buried. • Bury cables at least 2 meters deep. • Fishermen generally agree that the optimal place for cables in Maine is in mud bottom areas, rather than bottom types with high fisheries productivity (e.g., hard complex bottom). It is possible that Maine law prohibits mobile gear fishing over cables. • Use existing cable routes. Stated that fisherman cannot fish over cables per state regulations.
<p>Safety, Liability, and Insurance during Operations</p>	
<p>Gear</p>	<ul style="list-style-type: none"> • Need insurance policy statement.
<p>Natural Resources</p>	
<p>Impacts to Fisheries</p>	<ul style="list-style-type: none"> • BOEM should use an ecosystem perspective to manage areas planned for offshore wind development. • BOEM should allow people in ME to be part-owner of an offshore wind farm and have their own cooperative agreement. This will garner support for the project because this is how things are usually done in ME. • Continue to monitor benthic impacts to the bottom both on and offshore resulting from the cables. • Monitor potential impact to animals from EMF, and assess the long term impacts.
<p>Stakeholder Engagement</p>	
<p>Communication</p>	<ul style="list-style-type: none"> • Communicate with key leaders in the industry and use the ME Lobstermen’s Association newsletter, Commercial Fisheries News, the Downeast Lobstermen’s Association, lobster co-ops, and the buying wharfs. • Announcements on VHF would be useful, but BOEM should use local channels, not just VHF, to communicate with fishermen in ME. • BOEM should put notices of offshore wind development on people’s trucks. • BOEM should update their website more regularly and inform people when they make updates. They should add links to developer’s websites so people can get more information.

Table 2: Rockport, Maine Workshop Best Management Practices and Mitigation Measures

	<ul style="list-style-type: none"> • Email, Facebook, Twitter, and outreach websites should all be used within a communication plan; however, not all fishermen are technically savvy, and therefore this should not be the only means of communication. • Use blast emails and texts to all permit owners. • Use maps at meetings with fisherman including NOAA charts and terms commonly used by fisherman to describe bottom features. • BOEM should plan meetings adjacent to other fishermen’s meetings, similar to how this workshop was planned adjacent to the Fishermen’s Forum. • BOEM should help establish a dedicated NGO, or other entity not related to government or developers, to act as an advisory board and one-stop-shop for fishermen to contact with questions or to get information. • BOEM should require each developer to hire a fishermen’s liaison to engage fishermen early and often. They should start working before it is required by BOEM. This person should be hired by BOEM and not by the industry. • Don’t just tell fishermen everything they can’t do. Also tell them what the upsides will be for having offshore wind in the region. • Word of mouth is the best means of communication in smaller Maine fishing communities. • Fisherman’s wives are a good way to communicate information to fishermen. • The developer and BOEM and relevant state agencies should clarify their respective roles, the engagement process, and schedules to optimize stakeholder participation and minimize confusion. • The developer should create and disseminate a simple overview of the proposed project with basic information about location, schedule, outreach process/opportunities for input, scope, project design, the technology, etc. so stakeholders have a common understanding and can raise informed issues. • Developers should conduct outreach that specifically targets fishing permit holders in the proposed wind farm location to make sure that the fishermen who are most likely to be directly affected are effectively engaged.
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SUGGESTIONS FOR FUTURE WORKSHOPS

Suggestions from all previous workshops were taken into account for the Rockport Maine meeting. Each table facilitator continued to clearly explain the purpose of each breakout session so that the distinction between the two sessions was clear. Facilitators devoted special attention when leading the groups during the second breakout session in trying to formulate usable, concrete mitigation measures.

Workshop attendees were pleased about having the opportunity to talk to BOEM in-person and the ability to discuss the Statoil project proposed offshore Maine with a representative from a federal agency. Many felt that there had not been enough opportunities provided by the state for the public to engage with developers and government, and that this meeting was a good stepping stone in that direction. They were hopeful that this meeting was the first of many in a much larger dialogue between the general public, fishermen, non-governmental organizations, developers, the state, and federal agencies about the future of offshore



wind in Maine. They were also hopeful that BOEM would provide them with more information specific to the offshore technology proposed as part of the Statoil project and would distinguish the environmental effects from this technology compared to a monopole turbine design. Participants appreciated that BOEM will provide them with the opportunity to comment on the draft BMP report.

Appendix D

Compilation of Workshop BMPs by Subject

Appendix D. Categorized Mitigation Measures and Best Management Practices from Workshop Participants

COMMUNICATION PLANNING AND FISHERY LIAISON

- Engage fisherman in siting process (e.g., fisheries liaison).
- Notice to Mariners plus other notification procedures.
- Method to notify vessels homeported elsewhere.
- Require developers to utilize fishermen when conducting surveys, cable maintenance, and other operations, e.g., fixed gear fishermen work with Division of Marine Fisheries on surveys. Fishermen are out there anyway.
- Encourage developers to conduct a “Fishermen’s Exchange.” Take U.S. fishermen to Ireland or other countries for in-person information exchange with fishermen and developers who are working well together and already have plans in place.
- Utilize the academic community and their funding to assist in surveys and research, many of which already have good relationships with the fishing industry such as School of Marine Science and Technology (SMAST) in New Bedford.
- Concise and frequent communication to accommodate fishermen’s limited time. Utilize fishing newsletters; they are read.
- Engage known fishery leaders as key nodes of communication. These respected fishermen have greater penetration into fishing communities.
- Require an ongoing outreach plan after siting is complete so the developer can provide updates and answer questions. Require regular in-person visits to fisheries association meetings.
- Fishery Management Councils (FMCs) should create a separate sub-committee made up of fishermen whose sole charge is to act as a liaison with wind developers.
- Require a developer to outline a social media plan in order to disseminate updates throughout the process on siting, construction, closed areas, maintenance, gear hazards, request for help on research, etc. Different methods include group texts to cell phones, smart phone app, and a Facebook and Twitter account dedicated to a single wind development project that provide real-time updates.
- Require the developer to prove their due diligence in outreach to the fishermen and research of the fisheries that would be affected by their wind farm. List all fishery-related associations, meetings, councils, newsletters, names of key fishery leaders, and all gear types for the area. Detail all the meetings and outreach conducted so far, and identify specific people and associations on each side as the designated points of contact moving forward.
- Develop a long-term committee comprised of key fishermen that meets with developers on a regular basis to discuss issues.

- Locations for wind farms, cables, and substations should be available in a timely manner as a downloadable data layer for vessel navigation instruments. Atlantic Wind Connection and Fishermen's Energy both indicated willingness to help fishermen with the cost of navigation software upgrades and other wind developers should do the same.
- Developer should create a matrix of key audiences, messages, or activities needed for each stage of development.
- Engage gear and species associations to reach deep into the community. In Massachusetts, the Massachusetts Fishermen's Partnership (MFP) includes most of the individual associations.
- Sector managers, settlement houses, the Massachusetts Division of Marine Fisheries (MA DMF), and trade publications with articles, ads, and notices are all ways to get information out and back.
- The fishery liaison is a great idea but the liaison should be from the fishing community and hired through an existing trusted association, not directly by a wind developer or the federal government.
- Having a one-stop regulatory shop for all issues on and around one wind farm (an agency permitting coordinator for instance) would be helpful.
- Utilize the FMCs to communicate with fishermen. Give regular in-person presentations and updates.
- Developers should be required to reveal the different mitigation programs they have discussed with fishermen affected by their wind farm. For example, clearly state which gear types might be pushed out of the area, and developers can opt to pay these fishermen not to fish in the area anymore.
- Developers can require fishermen to leave gear behind if caught on cables or other offshore structures, and then developers will reimburse or replace lost gear. Use Europe as an example.
- Developers could be required to purchase and distribute updated nautical chart chips every year to all users.
- Fishing interests should be involved early enough in the siting process to balance wind business decisions and fisheries impact issues.
- A skilled and dedicated fisheries liaison (commercial and recreational) (paid or compensated) should be actively involved in the siting and design process. The liaison should represent interests across fishing subsectors.
- BOEM should have a website dedicated to information dissemination.
- Developers should share any detailed seabed maps that they have. Fishermen should have an opportunity to identify areas of importance to them during early design and in a confidential way to avoid trade secret, so, to the extent possible, the developer can avoid building in these microsites.
- Direct mailings, letters, emails, and announcements in fisheries trade publications.

- Full public relations campaign to educate fishers and all boaters of new chart icons/legend, traffic alerts, and construction alerts.
- There will be the need for ongoing consultation throughout the life of a project, not just at the design and construction stage. Each project should consider establishing a long-term committee of stakeholders and for them to meet regularly to address ongoing issues and concerns.
- Information about phases such as siting, leasing, construction, operation and shut-downs should be provided as early as possible.
- Tiered notifications that are more location specific would be helpful.
- Communication via a fisheries liaison.
- Strong relationships with fishermen of all gear types within an area are very important. Developers must help fund the participation of liaisons and representatives of commercial fishing given the expense of such engagement. Preferably, fisheries liaisons would be hired by fishermen but funded by industry. Industry input is essential for validity and should be part of the selection committee.
- A *Communication Plan* should be developed for gear entanglement issues. Clear communication channels are needed for gear loss during fishing operations.
- Need to move away from the state-centric focus. Other communication options: BOEM website, National Fisherman's Magazine, Quarterly Wrap Up, fishing organizations, the Rhode Island FMC, Rhode Island Department of Environmental Management, or a listserv to inform about closures.
- There are so many rules by lots of different agencies. There are so many that the average person won't know them all. All the rules for a particular offshore facility need to be put into one book so everybody can easily find out what they are. Nobody wants to go to jail for breaking a rule they didn't know about.
- BOEM should do a better job of letting people know what peer-reviewed information is available.
- Utilize local and actively-read publications such as the Coastal Fishermen magazine *Tidelines*.
- Developers should work with fishermen to choose the optimal times of year to communicate with fishermen in a particular area. For the area surrounding Ocean City, the best time to reach out to fishermen is April to June and September to October. Seasonal fishermen are gone in the winter months and are busy fishing in the summer months.
- Developers should identify all of the local fishing and marine habitat organizations and chapters such as the Ocean Pines Anglers, the Assateague Coastal Trust, the DNR Coastal Fisheries Advisory Committee, and the MD Saltwater Sportfishing Association (MSSA). There are 16 chapters of the MSSA; the Ocean City chapter is key to engagement because these members are the primary users of the ocean (most others focus on the Bay).

- BOEM should target local fishing newspapers, fish houses, and sport fishing marinas in MD. Each coastal community has their own fishing magazine and BOEM should post information in these.
- BOEM should post information on savingseafood.org because the commercial fishermen post information there.
- Use Facebook, Twitter, and texts to send information to fishermen.
- Communication in general should be frequent and developers should stay in constant contact.
- An email listserv is the best way to get information out. Anyone should be able to sign up. Put an ad in a magazine or newspaper telling fishermen to sign up for the listserv. Require fishermen to sign up for the listserv when they get their license.
- Do not use regular postal mail to send out notices.
- Have a designated webpage to announce closings and planned maintenance. Use maps and coordinates.
- Designate a fishing representative that travels to the meetings and sees the presentations from the developers, and have that person report back to their constituents who will then spread the word.
- There should be one designated person within BOEM for fishermen to call to report gear snags on equipment and other problems. BOEM would know the coordinates of what is there and who owns the equipment. There needs to be a central location for communication going both ways.
- Developers should purchase and provide updated navigational chips for maps and radars for fishermen's computers. Most average fishermen won't buy a new chip just for a new update. This would reduce liability for developers because it costs less than repairing damage.
- BOEM should add the GIS shape files from the NC call areas to a navigational chart so fishermen can evaluate the fish in that area.
- BOEM needs to communicate the maintenance schedule to fishermen. Tell them how long people will be out there, how many boats, and what they are doing.
- Reach out to fishermen through various sources - NOAA weather radio (add a regular warning or update on the regular weather message about construction), regional fishing websites along the coast, the South Atlantic Fishery Management Council, announcements at boat ramps and marinas, and fishing listservs (such as through Division of Marine Fisheries).
- Target the NMFS liaison that already exists within fishing communities in NC to reach out to fishermen when an issue arises concerning wind construction, operation, or maintenance.
- Create a phone number that fishermen can call with a recorded message with information about the wind farms in the area. Post the number at all marinas and ports as the majority of fishermen will be associated with at least one marina.
- A fishing liaison would be helpful, someone that fishermen can talk to and through whom information can flow both ways. Just have one person that everybody knows is the point of contact.

- Offshore wind developers should hire fishermen and use their boats for development and/or maintenance.
- Developers that use local resources to source operations and for maintenance would garner local support from the commercial fishing industry.
- Require a communication plan to communicate with commercial fishermen.
- Hold a public comment period for every offshore wind farm development.
- Work with state committees (such as fish and wildlife) to convene fishermen committees so people can be informed of offshore wind development projects as much as possible. Work the state agencies and committees to facilitate communication. The state could be the main point of contact for information because they will be heavily involved anyway.
- There are 4 main commercial fishing co-ops and 3 main recreational associations in NJ whose leadership can get messages out quickly/broadly to fishermen.
- The NJ recreational fishing permit system gives the state the ability to contact individual permit holders with important information.
- Appoint one “offshore Point of Contact” from the state to facilitate effective communication and coordination with the fishing industry.
- Reactivate the currently defunct committee of fishermen and marine cable interests to serve as a cross-industry node for communicating between and within the fish and wind communities throughout all phases of wind farm construction.
- Get all stakeholders involved in the process as early as possible.
- Create an ongoing committee of stakeholders, convened by the developers, which meet to discuss issues and updates.
- Developers should manage and facilitate periodic project updates and meetings.
- Communication tools may vary depending on the different stages of development.
- Leverage existing government and non-profit list-serves to provide information. The state has contact information for all registered fishermen, so does the Recreational Fishing Register.
- Work with the fishery councils to provide information.
- Send out email notifications of closures and current issues.
- Social media and texts are a good way to communicate.
- Procedure for emergencies at sea

WIND FARM SIZE, SPACING AND ACCESS ROUTE PLANNING

- Specifications for siting (e.g., outside of heavily used fishing areas)
- Minimum spacing distance between turbines
- Maximize access by commercial and recreational fisheries in the wind farm

- Transit allowed through the wind farm
- Study current Vessel Monitoring System data to see existing vessel traffic patterns and plan wind farms accordingly (like walkways that don't get used because they make no sense, the well-worn tracks show where people really go to get from point to point).
- Conduct a vessel traffic study several years after a wind farm is established to see how vessels are really traveling through and around the turbines.
- Require larger spacing between turbines with increasing water depth.
- Require developers to prove they worked with the fishing industry when siting where turbines will be placed. They might be spaced closer together in one part of a wind farm, and then farther apart in another area in order to allow fishing practices to continue in specific areas (such as where scalloping grounds are important).
- Developer needs to clearly differentiate between what lanes are appropriate for transiting vessels vs. areas for those actively fishing. This might include separate travel plans for foggy conditions or night travel.
- Require a designated "alley way" with suggested traffic routes through the wind farm. Most wind farms won't have turbines aligned in perfectly straight lines, so fishermen shouldn't rely on line of sight for navigation.
- Require developer to demonstrate their knowledge of all the different gear types in the WEA. For each gear type, explain any unique areas in the site that are important to that gear, any navigational safety issues, or obstacles that make that gear susceptible to snagging. Detail how each gear type will be allowed to operate within the wind farm. For example, allow dragging in the wind farm but require turns outside of its boundaries.
- Engage fishing vessels in site assessment surveys and other cooperative research (like Deepwater Wind at Block Island). Developer should state which organizations they plan to utilize for research and other activities. If utilizing the fishing industry is not possible, state why.
- Developer should be required to do a full space conflict use study of all gear types used in the area, and include other users such as tourism.
- Require a big-picture map that shows a combination of recommended routes, traffic lanes, and fishing areas through, in, and near wind farms to help mitigate liability issues.
- With fisherman help, micro-site each turbine in particular spots so as to impact fishing practices as little as possible and avoid important habitat.
- Work with fishermen from each gear type and discuss turbine spacing issues they might encounter.
- Designated traffic lanes and fishing areas should be clearly identified.
- With fishermen's help, site the location of each turbine with bottom contours and regular traffic lanes in mind. Fishermen like to hug bottom contours when fishing and do not normally go in a straight line.

- Locate wind farms in areas that are already closed to fishing and most conflict between developers and wind industry disappear.
- Require developer to examine the cumulative impacts of multiple wind farms offshore, including an economic assessment.
- Coordinate wind farm development with other longer term closures, such as for fisheries. If you are going to close a large area to fishing for long periods of time, then at least use that period of time for construction in that location rather than in another area still open to fishing.
- Require an over-arching BOEM website that lists and maps each offshore development with links to the rules for each wind farm and the exact location of each turbine.
- Navigational risk assessments are a good idea in considering traffic patterns and in minimizing conflicts with existing users. This is already required by BOEM.
- Start with no permanent exclusion zones. They should be established after a project is complete.
- Stagger projects so they are constructed over longer periods of time to minimize simultaneous impacts.
- Consider the size of the lease so that with a larger lease area the wind developer has more flexibility where they site the final array.
- Spacing wind turbines closer together to minimize the overall footprint and affected area would not work for the wind industry.
- If exclusion zones around turbines are determined necessary to promote safety, should they be kept small in size or include exemptions for small vessels that would not be endangered by the turbine blade sweep? No, vessels would be large enough.
- Developers must work closely with different vessel types to consider adequate spacing between turbines since vessels and space needs vary widely by gear type.
- Developer should be required to conduct a study that involves reaching out to, and creating a map of, the different stakeholders and uses in the proposed wind farm area. The Coastal Atlas is imperfect but has useful data.
- Areas designated as Marine Protected Areas should also be designated for offshore wind development. In other words, develop wind in areas that are already closed.
- Site turbines close to hard bottom communities.
- Fishermen need 1,200 feet buffer from existing corals to lay a trap. If you are not near coral then there is no fish. BOEM should space everything (turbines, marine mammal zones, etc.) at a minimum of 1,200 feet from corals. This way fishermen can still fish and the turbines won't affect their activities.
- Orientation and configuration of the arrays are important, i.e., longer lanes, and along bottom contours. BOEM should require proof that developers met with fishermen, discussed fishing areas and micro-siting of turbines, and took their needs into account.

- The northern NC WEA crosses in front of Oregon Inlet which is a major fishing center and access point for fishermen from Pamlico Sound. Charter boats use this corridor too. There are two currents in the Oregon Inlet area: the Gulfstream and Labrador. This inlet leads to the most productive fisheries in NC. The Gulfstream is so close and fish stay in the warmer water. Conditions are constantly changing and are dynamic.
- There is the potential for leverage from the state to negotiate with wind developers. States can promote wind development in offshore waters if wind developers contribute to costs of maintenance of areas such as Oregon Inlet. Wind developers can aid in dredging and maintenance of Oregon Inlet to reduce the risk of using that inlet, which would then offset the risk of increased risk from offshore traffic within and around a wind farm. Other ideas include funding for beach renourishment and maintaining Highway 12.
- Suggestion from fishers and divers: it would be useful for safety corridors through a wind farm to be set up that allows fishers and divers to access hotspots that are visited frequently for their livelihoods.
- Developers should have to show proof, using maps and other surveys, that they are avoiding hard bottom areas for turbines and cables.
- Look into the Port Access Route Study by the USCG, and if it isn't adequately covering the fishing industry, then a new study should be done.
- Look into the current situation with trawling and communications cables.
- Marine spatial planning should play a part in the siting of WEAs and individual wind farms, which has looked into other high value uses such as shipping.
- Require a navigational risk assessment, which will help developers identify and collect data on fishing locations and transit areas.

LIGHTING, MARKERS, RADIO & RADAR, AND LOCATION EQUIPMENT

- BOEM should consult with radar industry to ground-truth assumptions about how turbines will affect radar operability.
- Require effective marking of turbines and foundations.
- All turbines should be downloaded on to fishermen's plotters and updated regularly. This is especially important for travel at night or in foggy conditions.
- Consider use of RACON (i.e., a repeating signal transmitter with a unique identifier). Some part of an array should have RACON.
- Require a cell tower within the wind farm, such as on the helipad.
- Use the VMS system to communicate directly with fishermen. Communicate "bursts of information" similar to a Notice-to-Mariners, something you would want the fleet to know about.
- A dedicated VHF channel should be used and this way the USCG could announce any emergencies.

- VMS is one way to communicate and reach vessels in real-time, but it should be used sparingly.
- On turbines themselves and for turbines visible on plotters and charts and other technology, display a unique identifier, a contact name, and phone number.
- Include AIS or a radar transponder on wind turbine foundations, especially on the outer corner turbines or along the outer edge of the wind farm so when a vessel enters the farm, fisherman would know for sure they are in the boundary (will help at night and in fog).
- Install cell signal boosters on turbines to improve at-sea communications capabilities.
- Specific navigational precautions should be implemented regarding radar, collisions, emergency response plans, and trial mock emergency responses.
- Navigational rules need consistent framework and criteria. The “rule book” for wind farms should be known before leasing process: the lessee has to know the mitigation framework up front.
- Must consider vessel-related limitations to navigational ability.
- Weather conditions will significantly affect safety inside wind facilities.
- Important to underscore the 2-way responsibilities of boat owners & USCG/ NOAA to put out and get the most updated charts.
- Consider exclusion zones for non-commercial vessels.
- If you want to minimize collisions in a wind array, you might restrict recreational vessels while still allowing commercial fishing since it is their livelihood.
- Don’t treat navigational and shipping channels as sacrosanct. If you can later even them out slightly (by 100s of meters, not miles) for construction or operations, and avoid other conflicts as well, this would be good.
- Upgrade navigational radar for fishermen.
- Possibly use radar reflectors and specialized markings.
- Localized AIS could include radar electronic warning.
- BOEM should require charts to be updated on a regular basis, and for notification of those updates to be sent to stakeholders and the public.
- Use a dedicated very high frequency (VHF) channel for the transmission of any warnings related to local renewable energy projects – maybe utilize the National Weather Service VHF channel for this purpose.
- BOEM should require developers to post information on the turbines telling fishermen which frequency they should tune into for information on the wind farm. There should be a recording with information that comes from the wind farm that you can only hear when you are nearby.
- BOEM should post information on SIRIUS radio, integrated with GIS software, for navigation.

- Signage on turbines should explain what type of foundation it is and if there is rock scour underneath.
- There should be a VHF and/or cell phone repeater station located within the wind farm to enhance safety.
- Helipads at the center of wind farm arrays could be used during search and rescue operations. Cooperation should be established between wind farms and Coast Guard, etc.
- Put radar beacons on the turbines around the edge of the wind farm; therefore, during inclement weather, if a fisherman could not visually identify the wind farm or their GPS may not function properly, it would be visible on the radar and they could steer around the wind farm or through a safety corridor within it also outlined with radar beacons.
- Have a full time crew at the helipads. The crew could monitor radar of any vessels that come within or near exclusion zones.
- Have flashing lights, sirens, and a radar beacon on the outer perimeter of the wind farm (helpful during bad weather).
- AIS could be used but only larger boats have this, not recreational boats.
- Need to understand north-south corridor for trawlers and netters so routes are not impacted.
- Cooperate with fisherman. This is very successful in Virginia Beach near the Chesapeake Bay.
- Weather tools should be installed on turbines to help fishermen – such as wind speed and direction. The turbines should report weather information to a specific channel for fishermen to tune into – this would be beneficial to the fishing community.
- Look to oil and gas communications in the Gulf to get examples. Find out what they use other than Notice to Mariners.
- Color-code the offshore wind farm structures to create a navigational guide for fishermen (i.e. follow blue turbines to go to Ocean City, follow red turbines to go to Atlantic City).
- Utilize the best local means of communication; for example, in Massachusetts, it is helpful to use settlement offices, and channels 13, 16, and 22 would be good to use. Need to include both electronic and non-technical means of communication so as to include as many as possible.
- BOEM should also use phone texts or Channel 16 to communicate with fishermen. They could also require developers to broadcast messages directly from a wind farm.
- Fishermen could tune into a specific radio signal when they are near the facility to hear information related to that wind farm. Signs around the wind farm would need to be posted for this that tells the fishermen what signal to tune to.
- BOEM should talk to the National Weather Service and communicate to fishermen through NOAA weather radio.

CABLE INSTALLATION & MONITORING

- Require developers to have a plan for inspection, maintenance, and reburial of cables especially after a storm event, including temporary closure zones. Involve fishermen in the process whenever possible.
- Require a minimum cable burial depth of at least 6 feet below mud line.
- Develop a technology such as a sensor to ping or issue a warning when cables are uncovered or exposed.
- Conduct a review of the West Coast cable committee in the telecommunications industry for examples of mitigation measures and how they are working.
- Require a decommission plan that includes a description of cable extraction and removal, scour removal, and how deep below mud line turbine removal will go.
- Require a 6-foot burial depth for cables.
- All wind farm plans need to include cable monitoring and re-burial requirements. Developers should identify early in the process which cable areas, because of bottom sediment type or depth, are particularly prone to coming unburied.
- Monitoring should occur once every year for 5 years to get an understanding of where each cable segment is likely to shift. Then once no more movement is demonstrated, once every 5 years. Look to the rules for communications cables.
- BOEM should not approve a wind farm application if they do not clearly lay out a cable monitoring and re-burial plan. And BOEM should keep tabs to make sure the developer is actually re-burying exposed cables and should have a penalty for not following the requirements.
- The current 6-foot and 1-3 meters for cable burial depth is good. Methods to ensure that they stay buried should be implemented. A standard burial depth should be instituted at which, even with storms, cables would remain buried.
- A standard needs to be created at which a cable that was once buried 6 feet deep is now only 1 or 2 feet deep due to storms or sand movement – when does it need to be reburied? How will this constantly be monitored?
- Telecommunications cable protocol for fishing gear replacement should be used.
- In-situ studies are needed to ground truth the model predictions of EMF for inter-array and transmission.
- Look to other cable rules for guidance – what are the requirements for the telecommunications cable industry?
- Site-specific, temporal considerations are needed to minimize impact.
- Include cable locations in charts and Notice to Mariners.
- There needs to be an ongoing surveillance and inspection process for when storms and other events might have uncovered cables. It would be desirable if fishermen could prompt an inspection even if the developer doesn't think it is necessary.

- Make sure cables have EMF shields to further mitigate risk to the fishery, especially juveniles and breeding stock.
- Lay cables alongside existing communication cables to reduce bottom disturbance.
- A cable monitoring program should be required. Monitoring could be required once a year, every year, for the first 5 years. Then, once it is shown how sediment moves and if the bottom is stable, monitoring could occur once every 5 years or after a storm event.
- Bury cables a minimum of 2 meters, or 6.5 feet. If the industry has the ability to go deeper, they should (e.g., Fishermen’s Energy) depending on cost effectiveness. This would show good faith by the wind energy industry.
- BOEM should require developers to cable over sand and not hard bottom.
- Require developers to monitor post-construction for EMF.
- Shielding the cables will mitigate any impacts from EMF.
- Minimize areas where cables come onshore so trawlers can continue operations and not be concerned about damaging a cable.
- Develop contingency plans to ensure cables won’t be spaced too close together. Avoid a “spaghetti” complex of cables within the wind farm.
- Require developers to design cable-free pathways through a wind farm.
- Create north-south corridors through the wind farm that are cable-free that would follow the typical fishing path for commercial draggers in the region.
- Design wind farms with the electrical nodes/converter stations placed landward so that less heavy cable is laid going to shore. This could create less interference with the fishing industry.
- Mandate that the turbines be constructed in a grid formation to keep the cable connection plans simple. Locate the nodes strategically so that less cable is used overall. This may be difficult and more expensive for the developer up front, but this will create fewer impacts to users offshore.
- Cables may not need to be buried as deeply where it is harder to bury them, because the hard bottom will cover over the cables and will be hard to remove.
- Developers should work with clam diggers and deal with the possibility of cables becoming uncovered during their operations. In NJ the hardness of the sediment varies depending on the shoal. The jets from a clam digging operation scoop the sediment about 12 inches below the surface and liquefy it. If a digger goes through an area multiple times, a cable buried 6 feet under the substrate may be uncovered.

FISHERY / OCEANOGRAPHIC INFORMATION ENHANCEMENT / ANTI-DEGRADATION TECHNIQUES

- Monitoring effects on fisheries
- Creation of new usable fish habitat

- Creation of usable fish habitat
- Require a “no net loss” principle/policy for fishery habitat in the WEA siting/development process; for example, trade a WEA for a previously closed fishing area.
- Developer should do a baseline study of fish resources and habitat in the area before the farm is built, then re-visit and do the same study every several years (with fishermen’s help) to see if turbines are/aren’t a fish attractant and if the habitat now supports more fish.
- Developer should state from the beginning if it is their intention to allow aquaculture in the wind farm. Future modifications for aquaculture would mean larger closed areas.
- Require a habitat enhancement plan that includes components such as making the footprint under each turbine attractive habitat and foundation design with scour and other filters that retain sand, etc.
- An intergenerational study on fish is needed for acoustics and acoustic thresholds.
- Can gear be modified? Adding mooring balls is a possibility.
- Different turbine foundations may need different gear modifications.
- Developers need to be educated about fish eggs and seasonality so construction is done at a time when impacts would be minimized. They need to avoid important times of year for fisheries and stick to windows when impacts to fish and eggs would be small, paying particular attention to juvenile recruitment.
- Artificial reefs should be discussed in any development plan. The plan should discuss what is possible (or not) and the effects that arrays may have on fish density, recruitment, nurseries, etc.
- Use the turbines to collect offshore data such as water quality, flood surge data, etc. BOEM can promote the uses of the turbines to collect scientific data.
- BOEM needs to develop an environmental baseline before a wind farm is constructed to understand potential impacts.
- BOEM should use the turbines to monitor conditions offshore. Add cameras, acoustic recorders and receivers, CO2 sensors (to monitor acidification), biochemical monitors, etc.
- BOEM could implement tagging or passive acoustics programs utilizing the turbines. BOEM may want to coordinate with NOAA on the monitoring and could use the NC offshore wind farms to monitor the Gulfstream and protected species.
- More studies are needed to address the dynamic nature of currents in the Oregon Inlet area and how wind farms within the area might affect that region.
- Conduct EMF studies on the east coast, similar to those done on the west coast. Studies are needed to evaluate the potential long term impacts on large scale seasonal fish migrations associated with EMF interference.
- Need cost-benefit analysis (cost of power and impact to fisheries).
- Evaluate if migratory patterns will be altered. Assess if large scale changes to seasonal migration will take place.

- Studies needed on cables with a shield versus cables without a shield to compare impacts of EMF.
- Need to have visual simulations.
- Offshore area closures associated with wind turbine construction and maintenance should be coordinated with other spawning and fishing closures so that fishermen are not excluded from more areas for longer periods of time; i.e., seasonal closures for sharks are currently scheduled with multiple other overlapping closures.
- BOEM should maintain an avenue of communication with fishermen through local websites (i.e., fryingpantower.com, etc.). BOEM should distribute links to these website developers in the form of an RSS feed that will automatically update with any new information. Fishermen check these websites regularly so this would be a good vehicle to communicate with them. BOEM could also provide an open source code or Application Programming Interface (API) to website developers.
- Work with scientists to conduct studies, turbines or platforms could be used to mount equipment.
- Consider adding fish farms to the offshore wind structures. This could help compensate for the loss of fisheries in other areas.
- Require developers to put cell towers within the offshore wind farm.

NON-FISHERIES ENHANCEMENT / MITIGATION & COMPENSATION MEASURES / OTHER TOPICS

- Fishermen need clear means of input from Coast Guard, the developer, or anyone else to restrict or limit access to the wind arrays.
- Use an “invisible dog collar” idea: when a vessel crosses a safety zone next to a turbine, a device on the vessel would beep or flash and tell the fishermen the details about the area they are in such as boundaries, cable locations, tie up rules, etc.
- If fishers know up front there is a fund to compensate for verified loss/damaged gear, it will be an incentive to make safe decisions at sea.
- Encourage insurance companies to not drop policies.
- BOEM should work to figure out how to underwrite insurance for any other ocean obstructions.
- Fishermen would like to see a map of the WEAs and proposed wind farm locations over-laid with past hurricane tracks.
- Developers should offer classes and training sessions to fishermen and others so they have all the information they need to operate safely.
- BOEM does not currently have the authority to establish or manage fishing mitigation or compensatory funds related to offshore wind energy facilities. Should such an approach be considered in the U.S.? There is strong interest in creation of a contingency fund with money from developers to be allocated among impacted user groups in a fair and transparent

method. Can be administered by the state (i.e. Cape Wind). Administration of it should be effective and efficient, not overly cumbersome but have a sufficient check and balances system.

- Look at existing models for examples.
- Create a bond for closures (already in regulations for decommissioning plans).
- Potential mitigation would be fisheries capacity reduction. In other words, pay people to stop fishing and get out of the industry.
- Insurance underwriters should meet with developers and fishermen to discuss fishing around turbines before they are built. Turbine insurers should also insure fishermen against liability.
- There should be no liability for fishermen if gear gets snagged on equipment. Fishermen will cooperate more if they know they won't be charged for damage from snagged gear.
- BOEM should warn fishermen not to fish with heavy line around the wind farm cables in case they snag.
- If no tie-ups will be allowed to the actual turbine, and anchoring may be too unsafe due to the transmission lines, then additional tie ups near the turbines could be installed to allow fishermen to utilize the benefits of potential reef situations attracting fish around the turbines.
- If gear gets snagged on turbines or cables, fishermen should cut it loose. The developer can recover the gear and fix it and return it, or reimburse the fishermen for the lost gear. The process needs to be laid out in advance.
- BOEM should ensure the turbines are painted a color that is not attractive to birds and bats. Turbines could also produce a sound to deflect birds away.
- Research how land-based wind facilities communicate with landowners and stakeholders.

CONSTRUCTION BMPs

- Size of scour protection
- Use a jacket foundation so scour protection is not needed
- Require developers to use a rotating and shifting construction process, so that closed areas would change in size and location as the farm is built.
- As wind farm is built, allow fishing as much as possible. For example, draggers might not be able to safely operate in closed areas during construction, but lobster pots could safely maneuver and might have a separate smaller closed area.
- Require a plan for how a developer will deal with construction debris left behind, or require a no-debris-left-behind BMP in order to approve the lease.
- Construction can be done in a phased process instead of closing off the entire area all at the same time, which would minimize impacts.
- BOEM should require the latest and most environmentally friendly construction methodologies to reduce impacts such as no use of jack-up barges and less intrusive cable

burial techniques. They should require annual reports from industry of the newest and best techniques.

- Maximize onshore construction rather than spending more time in the water.
- Many times a marine area that is not used by fishermen is because it's closed for important habitat protection. But if construction techniques were good enough to have very little impact, or if it's a floating foundation, then maybe those areas are a good place to build an offshore facility. Fishermen won't be going there anyway and these areas would receive further protection.
- BOEM needs to list out what the top 5 most environmentally damaging techniques are, and then ask industry to make them better/less destructive. Perhaps offer grants to find ways to make the technologies better. The goal is to make the better technologies cheaper for industry to use.

OPERATION BMPs

- Maintenance schedule and frequency
- Anchoring guidelines (e.g., scour protection or turbines areas)
- Exclusion zone only around individual turbines for safety
- Developers will not allow tie-ups to turbines; however, they should offer some way for vessels to fish near turbines, perhaps tie-up buoys.
- Developer needs to clearly state, by gear type, where fishing is and is not allowed.
- Developers should consider an exclusion zone for commercial fishing efforts, but not recreational ones.
- There should be a common set of expectations as to whether trawling will be allowed.

DECOMMISSIONING BMPs

- Fishermen may want developers to leave the monopole foundations in place after decommissioning. BOEM may want to consider this option during scoping.
- Consider leaving the scour and foundations in place when decommissioning because they will be artificial reefs.