

**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. |

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| 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

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| <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 traffic or result in longer trips to go around the wind farm to fishing spots. |
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| | <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? |
| Marine Wildlife | <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 |

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| | <p>fisheries.</p> <ul style="list-style-type: none"> • 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.? |
| Liability | <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 Measures

| Project Design, Navigation, and Access | |
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| Studies and Analysis | <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. • 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. |

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| | <ul style="list-style-type: none"> • 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. |
| Siting | <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. |
| Navigational Safety | <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. |
| Cabling | <ul style="list-style-type: none"> • BOEM should require developers to cable over sand and not hard bottom. |
| 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 |

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| | 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. • Work with scientists to conduct studies, turbines or platforms could be used to mount equipment. |

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.

