Bureau of Ocean Energy Management (BOEM)
Fishermen Workshops: Providing Input into BOEM's Identification of an Offshore Wind Energy Area Offshore New York

November 4, 5, and 6, 2015
Point Pleasant, New Jersey; Long Beach, New York; and Riverhead, New York

Background

On September 8, 2011, BOEM received an unsolicited request for a commercial lease from the New York Power Authority (NYPA).

On Jan. 4 2013, BOEM issued a Request for Interest in the *Federal Register* under Docket ID: BOEM-2012-0083 to assess competitive interest in developing commercial wind facilities in the area proposed by NYPA. BOEM also sought public comment on the NYPA proposal, its potential environmental consequences, and the use of the area in which the proposed project would be located.

Subsequently, on May 28, 2014, BOEM published a "Call for Information and Nominations" (Call) to seek additional nominations from companies interested in commercial wind energy leases within the Call area offshore New York. BOEM also sought public input on the potential for wind development in the Call Area, including comments on site conditions, resources, and existing uses of the area that would be relevant to BOEM's wind energy development authorization process. BOEM is now in the Area Identification stage of the leasing process, during which BOEM will identify areas for environmental analysis and consideration for leasing.

As part of the area identification process, BOEM convened three public workshops, targeted at the fishing community, to provide information about prospective leasing for wind energy development in the New York Call Area and to solicit input from the fishing industry about potential impacts. The New York Call Area, shown in blue in the map above, is a planning area for potential wind energy leasing and development offshore New York and New Jersey. The workshops were held on three successive evenings on November 4-6 in the towns of Point Pleasant, NJ; Long Beach, NY; and Riverhead, NY. The workshops provided BOEM an opportunity to better understand how the New York Call Area is currently used for commercial fishing before the bureau determines which areas, if any, should be made available for leasing consideration.

This summary reflects the primary comments and responses provided during the workshops. Some of the comments were made during plenary discussions; others were provided in smaller topic-specific breakout sessions between attendees and BOEM staff.

Welcome and Introductions

Bennett Brooks, meeting facilitator from the Consensus Building Institute (CBI), opened each of the three meetings by introducing himself and his colleagues from CBI. He thanked participants for attending the workshops and for providing their input and feedback to BOEM. Mr. Brooks provided general background about BOEM and its role in the offshore wind energy leasing process, including its responsibility to consider and balance multiple uses. Mr. Brian Hooker, BOEM, introduced the BOEM staff. Mr. Brooks recognized the other federal, state, and local government representatives present. Members of the public introduced themselves. Finally, Mr. Brooks reviewed the workshop agenda and highlighted that attendees could provide input to BOEM via oral and/or written comments and that CBI would be creating a meeting summary of the workshops.

BOEM Leasing Process

Dr. Andrew Krueger, BOEM, explained BOEM's leasing process and updated participants on the status for the New York Call Area. He explained BOEM's three main program areas, the bureau's area of jurisdiction, and its role in planning, leasing, and development of offshore wind power projects. Dr. Krueger noted that BOEM's leasing process is organized into four phases (i.e., planning and analysis, leasing, site assessment, construction and operations). He explained the purpose of each phase and described the activities that occur. He stated that the New York Call Area is currently at the Area Identification stage. This is part of the first regulatory step that BOEM uses to determine whether an area is viable for wind power leasing and development and to gather information about the area. Dr. Krueger noted that the New York Call Area was not developed by BOEM through the Intergovernmental Renewable Energy State Task Force process, as is the case for most planning areas; rather, the proposed area was identified by the New York Power Authority (NYPA), Long Island Power Authority (LIPA), and Consolidated Edison (ConEd) in an unsolicited lease request submitted in September 2011. Dr. Krueger closed his presentation with an update about BOEM's offshore renewable energy leasing activities along the Atlantic coast. Additional information can be found in the presentation slides, available at: www.boem.gov/New-York.

Questions and comments from workshop participants regarding BOEM's leasing process are summarized below. *Responses from BOEM are indicated in italics.*

- How far is the Call Area from shore? How far is the furthest point? Call Area maps should reference latitude/longitude in minutes. *The closest point is 11 nautical miles (nmi) from Long Beach, NY.*
- How far is it from one end of the Call Area to the other? *From its western edge, the area extends approximately 26 nmi southeast at its longest portion.*
- Why is the New York Call Area called the "New York Area" if it is just as close to New Jersey? *The names do not always reflect the actual geography of the area being studied.*

BOEM is holding meetings in both New Jersey and New York for the New York Call Area because the area is used by fishermen home-ported in each state.

- Several participants expressed frustration that the area has been defined by an unsolicited lease request seemingly without regard to fishing interests. *When BOEM receives an unsolicited proposal, it is obligated to process the request in accordance with the renewable energy regulations at 30 C.F.R. 585. BOEM is now conducting Area Identification to better understand conflicting uses and environmental resources, and to use that information in its decision on whether the area, or a portion of the area, should be offered for commercial wind leasing and development.*
- Since the New York Call Area was developed in response to NYPA's unsolicited lease request submitted to BOEM in 2011, is NYPA the only possible lessee? *BOEM is required to offer an area for competitive leasing if other parties have expressed competing interest. In this case, other parties have submitted competing nominations for the New York Call Area, so should BOEM proceed with leasing, the area or part of the area would be offered to the highest bidder in a future competitive lease auction.*
- Once a company leases an area, can they do whatever they want? *No, there are a number of regulatory requirements and lease stipulations that lessees must follow. Obtaining a lease does not guarantee that a wind energy project will be proposed, approved, or constructed. A BOEM lease does not give the lessee the right to build a project, only to undertake site characterization activities and submit a plan for BOEM's review and approval. During the site assessment period, which is typically 5 years, the lessee would discuss with fishermen any potential conflicting uses and work out potential issues cooperatively. The lessee would then be required to submit a Construction and Operations Plan (COP) that BOEM would review. The COP would need to be approved or approved with conditions by BOEM before construction of the project is officially authorized.*
- How long will development take? When will turbines actually be constructed? *Although the length of time varies for each specific project, from start to finish it can take about 10 years to complete the planning, leasing, and site assessment phases, and to conduct the required environmental consultations and environmental review of the COP. Turbines would only be constructed after the necessary regulatory and review steps are completed, and if a COP is approved by BOEM.*
- Some stakeholders thought it would be highly unlikely for BOEM to issue a lease and then not allow construction if major issues were identified later in the process, mostly because at that point there would have been so much investment in the project and the process. *BOEM has a responsibility to conduct full environmental and engineering reviews after it receives a COP from a lessee. BOEM can approve, approve with conditions, or disapprove a COP based upon findings of those review, including outcomes of the environmental consultations.*
- Some stakeholders expressed a concern that there is no presence from the State of New Jersey on the New York Task Force. Stakeholders feel that this is a structural deficiency that underpins fishermen frustrations. Earlier consultation could have avoided targeting possible wind energy development at an area of great importance to fishermen. *The*

New York Call Area was developed in response to an unsolicited application and not through the Intergovernmental Renewable Energy Task Force process.

- How much weight does BOEM give to the fishing community in the planning process? *The fishing community's input is heavily considered by the bureau. BOEM has previously removed areas from consideration in other planning areas because of fishing activity (e.g., Massachusetts [Nantucket Lightship], Rhode Island/Massachusetts [Cox Ledge]). There is no absolute threshold around the level of fishermen concern that would tip the scale one way or the other in regards to areas identified for leasing. Through the Area Identification process, BOEM will consider all information regarding the proposed area when determining what areas, if any, should be offered for leasing.*
- If there are competing uses of the entire New York Call Area, could the full area be re-sited or taken off the table? *The proposed New York Call Area could be modified or be eliminated entirely; the end-result is not yet known. In terms of the process, BOEM gathers information, looks at the range of activities and conflicts, and then determines what areas, if any, should be offered for leasing. BOEM conducts outreach to the public and directly with stakeholders, including the fishing community, and uses the information it obtains to inform the decision-making process.*
- Who gets the money from the lease sale and how is it used? *Developers who participate in a lease sale, bid for the right to obtain the lease. Once the winning bid is paid and a lease is executed, the lessee is required to pay annual rent based upon total acreage of the lease area. Once a project is commercially operational, rental fees no longer apply, and instead the lessee pays an operating fee based upon the amount of electricity produced each year. The revenue goes to the United States Treasury. In cases where projects are close enough to coastal states' coastlines to qualify for revenue sharing pursuant to 30 C.F.R § 585.542, then 27% of the revenues collected would be distributed to the eligible coastal States.*
- Can a lease be renewed? *Yes, BOEM has the discretion to renew a lease at the end of the lease term, should the lessee request a renewal.*
- How are cultural resources considered as part of BOEM's process? *There are requirements under the National Environmental Protection Act (NEPA) and Section 106 of the National Historic Preservation Act to consider the impact of site characterization, site assessment, and development activity on cultural resources and historic properties.*
- During the decommissioning stage, what portion of the tower is removed? *The renewable energy regulations require removal of all structures, cables, scour protection, ancillary facilities, and equipment. Structures like towers and piles are required to be removed down to 15 feet below the mud line.*
- Can BOEM stop the leasing process for the New York Call Area and collect information from all of the different users to identify an area with fewer conflicts? Can interested parties request information under the Freedom of Information Act to understand how the decisions are made? Does BOEM have an appeals process regarding its decision? *BOEM is obligated to respond to the unsolicited application and complete its assessment of the area. The bureau will consider the input provided at these workshops as part of that assessment. Should BOEM proceed with offering the area, or a portion of the area,*

for leasing, there are additional opportunities to provide public comment prior to a lease being issued, such as when BOEM publishes an Environmental Assessment and a Proposed Sale Notice. There is, however, no public appeals procedure in BOEM's Area Identification process. In addition, all projects proposed for construction will go through a separate, extensive environmental review pursuant to NEPA. This NEPA process includes additional public comment periods, input from which BOEM considers when making its decision to approve the COP, disapprove the COP, or approve the COP with conditions.

Offshore Wind Facility Technology

Brian Hooker, BOEM, presented offshore wind facility technology that could be used if development were to occur. He provided a basic overview of the layout of an offshore wind energy development site and information about the different types of technologies in use today. This information included different types of foundations and the technology used for scour protection. In addition, Mr. Hooker reviewed various dimensions of offshore structures, including the size of today's turbines, the average height of turbine blades above sea level, and the spacing between adjacent turbines. He noted that the U.S. Coast Guard does not intend to establish exclusion areas around turbines and closed by highlighting an example of an underwater, tidal energy project in Cobscook Bay, Maine, around which the Coast Guard has established a caution area, but not an exclusion area.

Additional information can be found in Mr. Hooker's presentation slides, available at: www.boem.gov/New-York.

Questions and comments from workshop participants regarding offshore wind facility technology and its impact on existing uses are summarized below. *BOEM responses are indicated in italics.*

- Where will the cables be laid? Where will the cables come ashore? How will that impact recreational fishing activity? *The lessee would ultimately make decisions about cable-siting, with BOEM approval. This would likely occur 6 or 7 years from a lease sale during the review of a COP.*
- Some participants felt that an environmental review of a wind energy project should occur now, instead of in 6 or 7 years.
- Could a cable be disrupted by a major storm event? *Near the shore, this could be an issue, but likely would not be a concern further from shore. Lessee plans would include regular monitoring, including after major storm events.*
- How is the cable buried? *A jet plow would be used that creates slurry and a trough within which the cable is inserted. The target burial depth is about 6 feet deep for most projects depending on bottom substrate.*
- How many megawatts of energy could be built in the entire New York Call Area? *If the entire New York Call Area was leased, it could accommodate approximately 130 turbines, each of 5 or 6 megawatts; thus about 650 megawatts.*

- Do the different machine sizes have to do with the depth of the water? *Not directly; that decision is based on economic viability.*
- How big are Block Island turbines and how many are there? *There will be five turbines, each of six megawatts.*
- Are there floating turbines? *Likely not in this New York Call Area, but there is interest in exploring floating turbines elsewhere where water depths are beyond the limits of current fixed foundations (e.g., Pacific coast).*
- What is the width of the scour protection area? *It depends on sediment type, oceanographic conditions, and determinations made by project engineers.*
- How long does the pile driving take? What level of sound is involved? *It is very project specific, based on the diameter of the piles, and the substrate composition.*
- What do they do about noise involved? What happens with the whales? *For the Deepwater Wind project near Block Island, observers were required to monitor for whales, and the developer was prohibited from driving piles if there were any sightings within the monitoring zone.*

Identifying Key Fishing Areas in the New York Call Area

Amy Stillings, BOEM, presented data that BOEM has on fishing activity in the New York Call Area and requested that workshop participants provide additional information and data about fishing activity. She explained that BOEM funded the Northeast Fisheries Science Center to analyze vessel trip report (VTR) data from federally managed permits, supplemented by fisheries observer data and seafood dealer reports. Ms. Stillings expanded on the findings of this data, including the high value of the scallop fishery between 2007 and 2012 and other species harvested (e.g., squid, mackerel, butterfish fisheries) from the Call Area. The data is also provided by gear type and port of landing.

BOEM is aware of VTR data limitations, so Ms. Stillings requested that participants provide the bureau with additional data about fishing activity in and around the New York Call Area, if not adequately captured in the data presented.

Additional information can be found in Ms. Stillings' presentation slides, available at: www.boem.gov/New-York and Attachment 1 of this meeting summary is a fact sheet about the study.

Questions and comments from workshop participants regarding fishing activity in and around the New York Call Area. *Responses from BOEM personnel are indicated in italics, with responses from other agencies noted.*

Data and Data Sources:

- The commercial fishing industry has concerns about VTR data. Vessel monitoring system (VMS) data is considered a better information source as it shows where vessels are actively fishing. Fishermen often do not complete VTR data in a comprehensive manner, so that data is incomplete. Additionally, they only report one geographic point during

the trip, not the entire area that they trawled. As a result, VTR fishing location data is skewed and does not accurately portray important fishing areas.[1]

- Some stakeholders recommended that BOEM present harvest volume data along with revenue. There are low value species that provide a lot of food. Whiting is one of those fisheries that is not very valuable in dollar terms, but fishermen still fish it.
- The electronic VTRs that the NMFS Northeast Cooperative Research Program is helping fishermen implement are much more accurate than the paper VTRs, but only a small set of vessels is using it. Similarly, automatic identification system (AIS) tracking will begin in March 2016, but only a small set of vessels will be using it.
- The fishing data is only for 2007 to 2012. Target species are highly mobile, and areas that are hot in some years are cool in others. In addition, fishermen will switch from one species to another depending on what they can catch and market pricing. Fishermen are also limited by annual catch quotas in some years. It would be better to take into account the five *highest* catch years since 2000.
- BOEM should look at detailed economic data that is fishery-specific for longer time periods and broken down to the block-specific level.
- The "Avg. Annual New York Call Area Sourced Revenue (2007 to 2012)" column [on slide #4 of Amy Stillings' presentation] appears to be highly inaccurate; actual revenues should be much higher for squid.
- The menhaden fishery and catch are not included in BOEM's data.

<u>Fishermen's Concerns:</u>

- Some fishermen expressed concern that the BOEM process results in giving longtime fishing grounds away to the highest bidder and undermines what fishermen's rights and ability to earn a living. *BOEM convened these meetings to get fishermen input regarding areas that are fished. It is important to share this insight, so BOEM leadership can consider this data when assessing the viability of the New York Call Area.*
- Several speakers noted that Rhode Island fishermen are almost entirely dependent on squid. If that area is taken out of production, many people are going to be put out of business. Point Judith, RI will probably be the most impacted port, but the VTR data does not show any impact on Rhode Island ports. *Only the 10 highest impacted ports from the New York Call Area are shown on the slide, indicating that the data shows less than 1% of total commercial fishing revenue is from this area. BOEM will conduct additional analysis, particularly in examining the variability between high and low years.*
- Fishermen are concerned about safety near the turbines, especially during bad weather.
- Several participants voiced surprise and concern to see that the Call Area is proposed between the Traffic Separation Scheme (TSS) lanes. This area is already extremely busy, and the squid trawl fishery typically move in an out of the New York Call Area to avoid traffic. (As one speaker said: "tonnage rules" and communication is difficult since many

[1] *A presentation made by Justin Kirkpatrick as part of the Fishing/Offshore Wind Mitigation Measures Development Workshops goes into greater detail about the Northeast Fisheries Science Center's methodology [available at: http://www.boem.gov/Renewable-Energy-Program/Fishing--Offshore-Wind-Mitigation-Measures-Development-Workshops.aspx]*

of the tanker pilots operating outside of the New York and New Jersey pilotage area do not speak English). Several speakers voiced concern that the development of turbines in the New York Call Area will exacerbate an already difficult situation and limit vessels' ability to safely avoid vessel traffic. It takes 30 minutes to haul in the trawling gear, which is worth $30,000 to $50,000. Some stakeholders also voiced concern that wind turbines interference with radar, which will make it difficult for fishing boats to know tankers are in the area.

- Some stakeholders said it will be impossible for commercial squid trawlers to navigate between the turbines. The boats are trailing a quarter-of-a-mile of gear behind their boats, and it is not necessarily directly behind the boat –it could be off to the side. The fishermen already have to navigate around "hangs" (junk, anchors, etc.) and having to additionally navigate around the turbines will make fishing in the area impossible.
- One stakeholder sought clarification as to whether the developer, as a condition of the lease, could be required to clear out all hangs that exist in the area in order as a way to mitigate for lost fishing grounds. *That sort of request could be negotiated between the fishing community and a lessee.*
- Some stakeholders voiced concern that the U.S. Coast Guard or other agency within the Department of Homeland Security, and/or insurance companies could, at some point in the future limit fishery access in and around the offshore wind facility (e.g., following the first accident). *Response from U.S. Coast Guard representative: The Coast Guard's intent is not to restrict maritime activity around the turbines. Rather, its job is to protect the safety of the mariner and the property of the wind developer. The Coast Guard does not see any reason to restrict the activity of fishermen. There may be some restrictions for large freighters. Further, the Coast Guard anticipates that mariners may be able to tie up to the turbines in emergencies and there are currently discussions with BOEM about lighting and marking guidelines for the offshore wind facilities.*
- The current location of the New York Call Area raises concerns regarding:
    - Increased cost and time associated with transiting around wind energy area.
    - Potential impacts to catch if vessels unable/unwilling to fish within and around arrays.
    - Potential impacts to species abundance due to damage to habitat, increase in predator species (dogfish, skate) due to electromagnetic field effects.
- There are also concerns about impacts on fish migration. For example, sharks and some tuna are migratory. Some participants called for an impact study on effects on highly migratory species such as mahi mahi, which are known to come into the Cholera Banks. Summer flounder are also migratory, and there should be an impact study on whether the activity (construction and/or operations) will impact those species. Most of the recreational species migrate offshore. Striped bass are migrating further offshore as the water warms up. *Information about past and current BOEM studies is available at http://www.boem.gov/Renewable-Energy-Environmental-Studies. For example, BOEM has ongoing studies about habitat and electromagnetic fields. While sharks and rays can sense electromagnetic fields, underwater cables are buried and shielded. BOEM is studying the Cross Sound Cable (in Long Island Sound) to measure the electromagnetic fields from the cable. Most of the studies to date seem to indicate that animals can*

sense the electromagnetism and they may investigate it, but they do not change their overall behavior.

- Some speakers asked whether there have been any studies conducted on the impact on squid from the development activity. This is seen as particularly important given squid's sensitivity to predators and the potential for turbines to attract skates, dogfish, and other predators that will eat squid eggs and may drive off the squid. Introduction of turbines, some speakers said, could eliminate squid habitat. *It is correct that sharks and rays can detect electromagnetic fields, and BOEM is conducting studies to understand the impact of electromagnetic fields on species' behavior. The results of studies looking at the impact of sound to squid are included in http://www.data.boem.gov/PI/PDFImages/ESPIS/5/5360.pdf*
- NMFS has implemented numerous closures and restricted areas, due to habitat and fishery conservation. Creation of the currently defined New York Call Area, several speakers said, will further limit fishermen and reduce access to productive fishing areas –critical issues given that valuable fishing grounds are in limited areas.

Fishing Areas:

- Fishermen use the entire New York Call Area. The entire area is heavily used by commercial fishermen.
- The entire eastern portion of the New York Call Area triangle is prime scallop grounds.
- Fishermen said the entire New York Call Area is prime squid fishing grounds.
- Increasing water temperature could mean that areas that are not currently producing could be productive in the future.
- Fishermen do not know exactly where the fish are at any given year. Rather, fishermen follow historical routes based on seasonal patterns. Fishermen are concerned that all of a sudden the turbines will be in the area where the fish go and fishermen will not be able to fish there.
- Habitat is crucial and a more meaningful way to assess potential impacts to fisheries than 5-year averages. Species abundance may vary over any number of years, but over time, species will return to good habitat. BOEM needs to make sure that good habitat is not damaged. Disrupting bottoms will have lasting impacts.
- Deeper than 20 fathoms is prime scallop habitat.
- The New York Call Area includes some of the most critical inshore scallop habitat on the East Coast.
- Recreational fishermen see fishing as viable in the New York Call Area if turbines were to be constructed; some hope/expect that the artificial structures would create new habitat for recreational fishers. However, Cholera Bank needs to be protected.
- Trawlers do not tow in straight lines in the New York Call Area. Closer to the beach, they generally run parallel to the beach.

Other:

- The fishing industry wants to better understand how its interests and concerns can be addressed during the development of the COP. There needs to be a credible mechanism

to force wind energy developer-fisheries dialogue, coupled with developer flexibility in array design and layout to accommodate fishing industry needs. At what point in BOEM's process does mitigation efforts begin for losses incurred by fishermen and other conflicting users? *BOEM recently released guidance to lessees (http://www.boem.gov/Social-and-Economic-Conditions-Fishery-Communication-Guidelines/) recommending how to engage with the fishing industry using fishery liaisons and representatives. It is based on an approach used in the United Kingdom to foster communication and reduce conflict between wind energy development and fishermen. The guidance document directs developers to engage with fishermen as early as possible in the development process to identify conflicts and set up a means to resolve any economic losses that occur during construction and operations.*

Other Topics Introduced by Workshop Participants

The workshops generated comments on several other topics. These issues are briefly summarized below. *Responses from BOEM and other agencies are indicated in italics.*

Public Involvement in BOEM Processes:

- There is interest in a more in-depth fisheries workshop (at least one full day) to better identify a potential WEA that will minimize impacts to fisheries. The workshop should start with a blank map, rather than an NYPA-defined area. A separate workshop should be held to address mitigation-related issues.
- BOEM should make greater use of the Council process to make sure industry is aware of these discussions as early as possible and to garner feedback.
- Improved outreach efforts are needed to ensure stronger fisheries participation.

New Jersey Wind Energy Area:

- Many speakers at the New Jersey workshop voiced concerns with the unrelated New Jersey Wind Energy Area and lease sale scheduled for the following week. BOEM staff briefly clarified the process used to identify the NJ Wind Energy Area and added that fishing industry concerns were communicated to bidders in the final sale notice (80 FR 57862, September 25, 2015).[2]

Miscellaneous Questions and Comments:

- How visible would the turbines be 10 miles offshore? *Visibility depends on a number of factors, including weather conditions, the height of the turbines, daytime versus nighttime, curvature of the earth, etc. At night, offshore turbines are visible if lit with Federal Aviation Administration (FAA) regulation lights for aircraft. There are different types of lighting scenarios that are being discussed at present, so it is unclear right now what exactly lighting would look like on installed turbines.*
- If the New York Call Area were to be shifted at all, would the adjacent shipping lanes also be shifted?

[2] *Editor's note: BOEM has since provided the comments made about the NJ Wind Energy Area to the BOEM NJ project lead.*

    - *U.S. Coast Guard representative: The Coast Guard does not currently anticipate shifting any shipping lanes.*
    - *BOEM representative: BOEM is working with the Coast Guard to understand what types of buffer areas will be needed, the navigational risk assessment that will need to be performed, and other steps that will be needed to make sure that this area would remain safe for navigation.*
- BOEM cannot meaningfully assess the relative environmental impacts of different lease blocks without a regional scale analysis.

Closing

Mr. Bennett Brooks and Mr. Brian Hooker thanked participants for attending the meetings and for their input. They reiterated that presentation slides would be posted to BOEM's website along with a summary of the workshops.

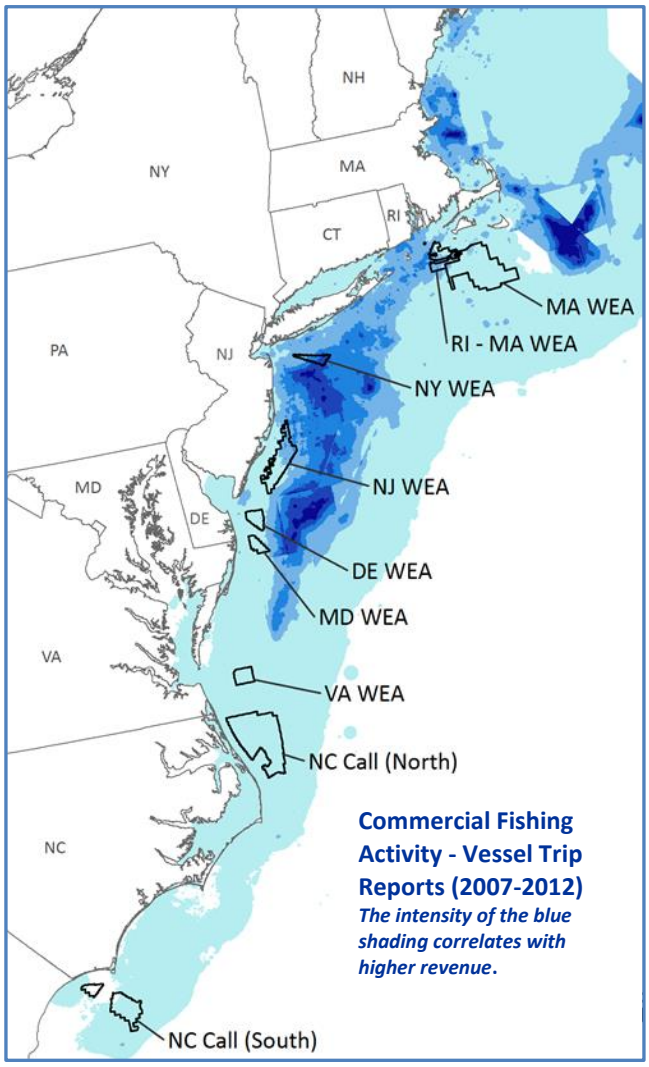
Socio-Economics of Fishing Related to Wind Energy Development

Applied Science for Informed Decisions on Ocean Energy

Purpose

BOEM is required to assess the potential environmental and socioeconomic impacts of its decisions related to offshore renewable energy development. A 2012 BOEM study, *Identification of OCS Renewable Energy Space-Use Conflicts and Analysis of Potential Mitigation Measures*, along with fishing community comments during BOEM's leasing process, raised concerns over the potential for competing uses on the outer continental shelf. To better understand the issue, BOEM funded the National Oceanic Atmospheric Administration's Northeast Fisheries Science Center (NEFSC) to:

- Characterize commercial and recreational fishing from Maine to North Carolina.
- Synthesize European studies related to impacts on fishing from commercial wind energy development.
- Evaluate potential displacement/fishing effort changes from commercial wind energy development.



The results provide insight into revenue generated by federally permitted fishermen during 2007 through 2012. The report also compiled case studies regarding potential economic impacts to selected fisheries under different fishing scenarios. Estimation of the economic impact will require additional analysis given the complex nature of the industry (e.g., fishery management plans, health of fish stocks, changes in sea temperature).

Executive Summary

Recreational and commercial fisheries' target species may be locally displaced during the construction phase due to noise and other disturbances. These impacts will be localized and short-lived. During operation, the offshore structures will likely serve as refuge and hard bottom substrate for fish and prey. Anecdotal evidence suggests that highly mobile fishing gear, such as bottom trawls, may not be able to fully utilize the developed area. NEFSC calculated the value of the fisheries present in areas of potential wind energy development to establish a baseline of economic value.

An annual average of $14.0 million in revenue was sourced from the eight proposed wind energy area (WEAs), representing 1.5 percent of federally permitted commercial fishing revenue generated in 2007 to 2012, along

the U.S. Atlantic Coast. NEFSC found that fish harvest revenue and potentially affected groups of fishermen (e.g., gear type, ports, species) were specific to the location of the development.

Exposure at a Cumulative Level

BOEM and other federal agencies are not contemplating "full closure" of the leased WEAs for fishing activity. Some localized exclusion or limitations on certain gear types is possible and will depend on local circumstances as well as safety, operating, and other considerations at both the discretion of the U.S. Coast Guard and fishermen.

NEFSC found the ports with the largest potential impact, by highest revenue value, are located in Massachusetts, New Jersey, and Rhode Island. Gear types most affected are primarily clam and scallop dredge in the New York and New Jersey WEAs, as well as fixed gear (pot, lobster pot, gillnet), particularly from the south coast of Massachusetts and Rhode Island.

Landing Port	Total Fishing Revenue* (2007-2012) Sourced From WEA	% of Port Fishing Revenue From WEA
New Bedford, MA	$20,756,149	1.2%
Atlantic City, NJ	$18,624,100	11.1%
Narragansett, RI	$7,075,106	3.7%
Cape May, NJ	$6,381,071	1.4%
Newport News, VA	$3,827,717	1.7%
Point Pleasant, NJ	$3,138,223	1.7%
Little Compton, RI	$1,995,487	19.2%
Newport, RI	$1,768,028	3.3%
Montauk, NY	$1,685,501	1.7%
Wanchese, NC	$1,297,896	4.8%
Gloucester, MA	$1,043,138	0.4%
Point Lookout, NY	$1,000,617	6.9%

* Based on landings from federally permitted vessels

Species	Average Annual Fishing Revenue (2007-2012)* From WEA	% of Total Annual Fishing Revenue From WEA
Sea Scallop	$4,313,425	1.0
Surf Clam	$3,080,597	8.7
Ocean Quahog	$1,187,308	4.4
Monkfish	$856,254	4.3
Summer Flounder	$663,795	3.0
Loligo Squid	$514,752	2.1
Silver Hake	$389,003	4.1
Misc. Skates	$346,472	5.7
Black Sea Bass	$283,790	5.2

* Based on landings from federally permitted vessels

Sea scallops represent the single most exposed species by value, with an average of $4.3 million in revenue sourced annually from WEAs between 2007 and 2012. This value is 1.0 percent of the total sea scallop landings over that same time period. Surf clam and ocean quahog, are also relatively highly exposed, in terms of the magnitude and percentage of revenue from WEAs.

Detailed Analysis Forthcoming and Identifying Next Steps

Given the variability of the Atlantic fisheries and the need to identify potential impacts at the site-specific level, BOEM continues to analyze the vast amount of data provided by NEFSC. We anticipate publishing the report by the end of 2015. We also will develop WEA-specific information to discuss with fishing communities to ensure there is a common understanding of available data, assumptions in NEFSC's work, along with working with the fishing industry to identify gap information areas. For example, the reliance on vessel trip reports as the primary data source will mean an underreporting of non-federally permitted fisheries.

Methodology Information

DePiper, Geret. June 2014. "Statistically Assessing the Precision of Self-reported VTR Fishing Locations." NOAA Technical Memorandum NOAA Tech Memo NMFS-NE-229. National Marine Fisheries Service. http://www.nefsc.noaa.gov/publications/tm/tm229/

Kirkpatrick, Justin. April 2014. "Who Fishes There? Establishing a Baseline of Spatial Fishing Revenue along the Atlantic Coast." Presentation to the Mid-Atlantic Fishery Management Council. http://www.mafmc.org/briefing/april-2014

Raster GIS Data

The data from the report is available for download at www.boem.gov/Renewable-Energy-GIS-Data.