

**MID-ATLANTIC**  
FISHERY MANAGEMENT COUNCIL

## PRESS RELEASE

FOR IMMEDIATE RELEASE  
August 5, 2013

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### **Public Listening Session: Offshore Wind Power and Mid-Atlantic Fisheries**

***Guest Speaker: Dr. Jeremy Firestone***

*University of Delaware Professor of Marine Policy and Legal Studies*

Mid-Atlantic Fishery Management Council Meeting ([view full agenda](#))

Tuesday August 13, 2013 - 5:00 pm to 6:00 pm

Double Tree by Hilton Wilmington, 4727 Concord Pike, Wilmington, DE 19803

And via the internet at <http://mafmc.adobeconnect.com/august2013>

The topic of the Council's next public listening session will be Offshore Wind Power and Mid-Atlantic Fisheries. Guest speaker at the listening session will be Dr. Jeremy Firestone, Professor of Marine Policy and Legal Studies at the University of Delaware. Dr. Firestone's current research focuses on the public preferences, economic costs, and legal frameworks associated with wind power development in Delaware and Cape Cod. During the listening session, Dr. Firestone will discuss recent developments in wind power siting and construction and how they may affect fisheries and fishing communities.

The University of Delaware is a leader in ocean wind research through their [Center for Carbon-free Power Integration](#). Their wind research efforts have included preliminary analysis of potential conflicts between ocean wind power development and commercial and recreational fishing.

#### ***Background***

Interest in the mid-Atlantic region for offshore wind energy development has progressed steadily since late 2010 when Secretary of the Interior Ken Salazar launched a 'Smart from the Start' wind energy initiative to facilitate siting, leasing, and construction of new projects on the Atlantic Outer Continental Shelf. A major milestone in this effort occurred last week when the Bureau of Ocean Energy Management (BOEM) auctioned two leases for an area of nearly 165,000 acres off the coast of Rhode Island and Massachusetts during the nation's first-ever competitive lease sale for renewable energy in federal waters. A second lease sale for an area off the coast of Virginia is scheduled for September 4.

While offshore wind development holds the potential to create jobs and produce a cleaner and more sustainable energy supply, it could also have adverse impacts on commercial and recreational fisheries and other marine user groups. The Council is working to enhance communication with BOEM and other state and regional agencies involved in planning and leasing decisions and the fishing community.

#### ***About Listening Sessions***

Listening sessions are held during each Council meeting as an open and informal opportunity for the public to interact with Council members and leadership, as well as with experts in a range of relevant fields. Most listening sessions focus on a specific topic of current interest. Listening sessions are always accessible via the internet at <http://mafmc.adobeconnect.com/august2013/>. If there is a particular topic that you would like us to consider for a future listening session, please contact Mary Clark at [mclark@mafmc.org](mailto:mclark@mafmc.org).



## Mid-Atlantic Fishery Management Council

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# MEMORANDUM

**Date:** Aug 2, 2013  
**To:** Council  
**From:** Jason Didden *JD*  
**Subject:** Listening Session - Ocean Wind

Given continued regional interest in wind energy and concerns about impacts on fishing from wind energy and other potentially competing uses of ocean space, Council staff invited Dr. Jeremy Firestone of the University of Delaware's College of Earth, Ocean, and Environment to discuss current and expected future wind developments and potential fishery interactions. The following links contain background information on wind power and/or fisheries interactions.

<http://carbonfree.udel.edu/resources/CCPI-DE-MSP-OSW-Context-2012.pdf>.

A 2012 report on the offshore wind context of marine spatial planning from the MD/VA border to southern NJ. It contains some discussion of fishing issues on pages 66-73. The introduction and those pages follow this memo.

<http://www.mafmc.org/briefing-books/> (Click to August 2013 and look under Listening Session)

1. Sheridan et al 2012. *Calculating the offshore wind power resource: Robust assessment methods applied to the U.S. Atlantic Coast.*
2. Bergstrom et al 2013. *Effects of an offshore wind farm on temporal and spatial patterns in the demersal fish community.*



# DELAWARE MARINE SPATIAL PLANNING

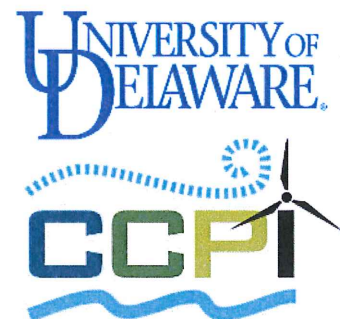
## Offshore Wind Context

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*FINAL REPORT*



Authored by:



Revised April 9, 2012

## INTRODUCTION

Mid-Atlantic ocean waters host countless recreational, commercial, scientific, and security-related activities that often occur near the areas determined as and managed for resource protection and conservation goals (The White House Council on Environmental Quality, 2010). Today, human activities - fishing, commercial shipping, cable crossings, pipelines, and recreational activities - require a considerable amount of ocean space and place stress on marine ecosystems (MARCO, 2010). Developers of proposed offshore renewable energy developments and existing users of the ocean space will have to work to accommodate each other's needs. Marine Spatial Planning (MSP), which considers the interaction among various uses of the ocean in spatial and temporal scales, has recently gained support in Europe and is gaining momentum in the United States. MSP represents a powerful method for reconciling diverse and often seemingly overlapping needs of ocean users. It aspires to be future-oriented rather than reactionary, making it an effective means for implementing ecosystem-based management that provides guidance in determining appropriate sites for future uses. Particularly when supplemented with stakeholder input, MSP can satisfy the goals of offshore wind developers, the commercial shipping industry, the fishing community, the conservation community, and local recreational users by facilitating a transparent, engaging and empowering approach to ocean planning.

In the United States, Coastal and Marine Spatial Planning is an important priority objective under the National Ocean Policy, and efforts to implement the new initiative in the mid-Atlantic are underway. Although these efforts focus on eliminating conflicts and reconciling tensions among a vast variety of users in specific regions, it is important to recognize the limited scope of the present study, which focuses on offshore wind development off the coast of Delaware. In this initial one-year, limited budget project, existing uses and features were mapped to the extent feasible and as geo-referenced data were available. This research collected data from disparate sources, which varied in spatial extent, scale, and quality. Data sources included GIS files, paper maps, written descriptions, and published coordinates that were subsequently digitized, geo-referenced, analyzed, and layered using ESRI ArcMap 10.0. All maps are shown in Geographic Coordinate System and the data is unprojected. Areas in which offshore wind development is likely to highly conflict with existing uses are described, although areas that are specifically recommended for development are not identified. This is due to the early stage of this endeavor, the variety of complex factors that must be considered, and the need for more stakeholder insight and input prior to identifying the best sites for development. The resulting product provides policy-makers with a starting point for a more complete MSP effort in the mid-Atlantic region, including Delaware, and will help to identify where data gaps remain. A follow-up MSP effort at the state or regional level will benefit from this collected data and analysis; it should also consider additional activities, features, users, and offshore wind energy development locations, and engage and more formally consult the public.



## BACKGROUND

### Offshore Wind Energy Potential in the US and the mid-Atlantic

Development of offshore energy, particularly offshore wind energy, is a major driver of current MSP efforts in the mid-Atlantic (Eastern Research Group, 2010). Along the US Atlantic coast, offshore winds contain an estimated 1,000 GW of energy, which, if fully developed, is equivalent to the country's current generation capacity (U.S. DOE, 2011). The resource is close to large, densely populated areas where electricity rates are high, demand for power is growing steadily, and where land-based wind development is constrained (NREL, 2010). Even though no offshore wind projects have been built in the U.S. to date, approximately 20 projects totaling 2,000 MW of capacity are in the planning and permitting stages, four of which totaling 1500 MW of capacity are planned off the coast of New Jersey and Delaware (NREL 2010). Bluewater Wind was preparing to build a commercial scale offshore wind project off the coast of Delaware, but at the end of 2011, it announced that the development is on hold for the near term and opted out of the 200-MW power purchase agreement (PPA) with the Delmarva Power and Light Company (NRG Bluewater Wind, 2011). Bluewater Wind stated that the termination was the result of Congress' decision to eliminate funding for the U.S. Department of Energy's (DOE) loan guarantee program that was beneficial to offshore wind and the potential expiration of the Federal Investment and Production Tax Credits at the end of 2012 (NRG Bluewater Wind, 2011). However, Bluewater Wind is still working with federal agencies to maintain its development rights and obtain a federal lease for the site. It also continues to seek equity investors and development partners. Thus, it is feasible that a project will be built off Delaware sometime in the future.

### Offshore Wind Development Goals

In the *National Offshore Wind Strategy: Creating an Offshore Wind Energy Industry in the United States*, announced in February 2011, the DOE stated that "Offshore wind energy can help the nation reduce its greenhouse gas emissions, diversify its energy supply, provide cost competitive electricity to key coastal regions, and stimulate revitalization of key sectors of the economy" (U.S.DOE, 2011, p.11). However, the report also stated that numerous challenges, including high costs, challenges surrounding transmission and grid interconnections, and permitting barriers need to be overcome. Overcoming these challenges will take considerable effort, but the report ultimately emphasized the objectives to develop 10GW of offshore wind energy by 2020 and 54GW by 2030 (U.S. DOE, 2011). Even with the commendable objective to develop large amounts of offshore wind infrastructure, large-scale deployment off the U.S. Atlantic Coast and in the mid-Atlantic will need to be balanced with the current uses of the ocean. Employing the MSP framework for this task will help to mitigate potential user conflicts, establish a practice of responsible and future-oriented

planning, and, through analysis of geospatial data, advise on best suited sites for rapid and least confrontational development of offshore wind industry.

## Marine Spatial Planning

Marine Spatial Planning (MSP) was started as a management approach for nature conservation in the Great Barrier Reef Marine Park (Australia) over 30 years ago, but recently it has been used to reconcile uses in the more crowded European seas (UNESCO, 2009). Several Asian countries, including China and Vietnam, are using MSP to achieve both environmental and economic objectives (UNESCO, 2009). MSP offers nations an operational framework to preserve the value of their marine biodiversity while also allowing sustainable and well-planned use of the economic potential of their ocean space (Ehler & Douvère, 2009). By definition, MSP is a public process of allocating and analyzing the spatial and temporal distribution of human activities in marine areas to fulfill economic, social and ecological objectives that are commonly specified through political process (UNESCO, 2010). MSP has six major characteristics: it is adaptive, ecosystem-based, place or area-based, strategic and anticipatory, integrated, and participatory (Ehler & Douvère, 2009). Developing a governing framework is also critical and needs to be accomplished before an MSP project can be executed. This includes determining a set of priorities, goals, and standards; establishing a legal basis for authority and funding; defining the planning process, the lifetime and extent of the plan; and ensuring public and stakeholder participation at all project levels (Ehler & Douvère, 2009; Madsen et al., 2011).

Executing MSP initiatives also requires a substantial data-compilation effort (Madsen et al., 2011). Information requirements must be identified and data gathered from disparate sources and later checked for quality and synthesized into a common platform where they can be analyzed. Further, data gaps must be identified and results processed and presented in a user-friendly format (Ehler & Douvère, 2009). For effective MSP implementation, the majority of data must be spatial in nature, meaning that the data used for analysis consists of data points in which information is a function of its geographic location vertically and horizontally (Madsen et al., 2011). The data is commonly manipulated and represented with Geographic Information Systems (GIS) software that allows users to view, analyze and interpret data in a variety of ways to reveal patterns, relationships, and conflicts in various formats including maps (Ehler & Douvère, 2009). Thoughtfully designed, these outputs allow for efficient visualization of complex and overlapping uses of the marine environment.

## European Experiences with Marine Spatial Planning

Examples of Marine Spatial Planning can be derived from European processes, where early examples of MSP have been initiated. Several European counties have implemented MSP as a



in the way this data was initially converted and represented, but do not suggest that the data is flawed.

### *Traffic Separation Schemes*

As a part of the shipping data layer, shapefiles for the TSS at the mouth of the Delaware Bay were added, and then extended by approximately 12 nautical miles to account for the fact that ships have to disperse into the Maryland waters, and adjusted for width with 0.5 nautical mile buffers on each side. Where buffering via GIS tool was not possible, the 0.5 nm buffer was drawn manually. The Maryland Energy Administration suggested this buffer width for the MD WEA to address concerns that had been expressed over navigational safety of ships entering and exiting the Delaware Bay (Wolff, 2011). Though not yet finalized, the 0.5 nm buffer was used in this analysis as a likely minimum buffer that BOEM and USCG will require (Wolff, 2011; DOI, 2011). Additionally, circles are shown to represent the most likely dissipation area after vessels exit/enter the TSS. TSSs and buffer areas around TSS's should be considered exclusion areas at this time.

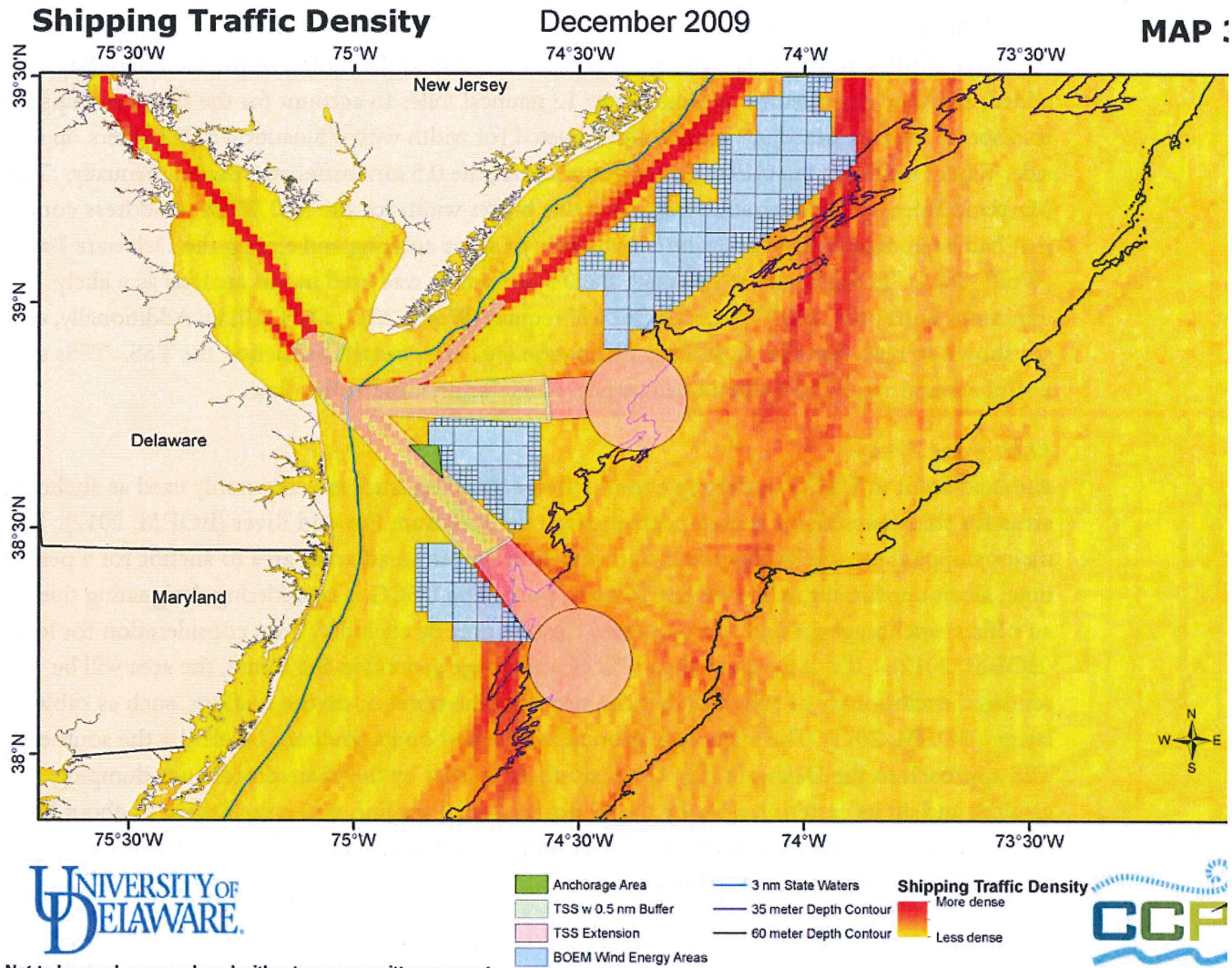
### *Anchorage Area*

Areas adjacent to USCG traffic separation scheme shipping lanes are commonly used as anchorage areas for ships entering or exiting ports through the Delaware Bay and River (BOEM, 2012). This major shipping passage is congested, and vessels often use an adjacent area to anchor for a period of time, albeit unofficially, while waiting to go to port. The USCG is considering designating this area an official anchorage ground and requested that the area be excluded from consideration for leasing (BOEM, 2012). If it is designated an official anchorage ground in the future, the area will be rendered exclusionary of activities that can occur on the water or on the seafloor, such as cable-laying (BOEM, 2011). The anchorage ground is bounded on its southern border by the southeast TSS approach to the Delaware Bay, on its northern border by the charted ordnance dumping ground, and on its eastern border by the 12 nm territorial sea line, and is equivalent to about half of an OCS block in size (see Map 38 and 39). A polygon was drawn in ArcGIS to delineate an approximate location of the anchorage ground.

### *Commercial Fishing*

Commercial fishing in the mid-Atlantic has a long history, actively managed by both the Mid-Atlantic Fisheries Management Council (MAFMC) and coordination of selected stocks with the Atlantic States Marine Fisheries Commission. Species managed include Atlantic mackerel, long-finned squid, short-finned squid, butterfish, bluefish, spiny dogfish, surfclam, ocean quahog, summer flounder, scup, black sea bass, tilefish, and monkfish (MAFMC, 2011). With planning authority delegated by the MSFCMA, the MAFMC prepares fishery management plans to be implemented by the Secretary of Commerce (MAFMC, 2011). Accordingly, the MAFMC receives input from state representatives, federal representatives, and the general public. The MAFMC also serves as an important venue for stakeholder engagement (MAFMC, 2008). Meetings are open to the public, allowing for comment (written and spoken) regarding fisheries policy.

Map 38: Shipping Traffic Density (December 2009)



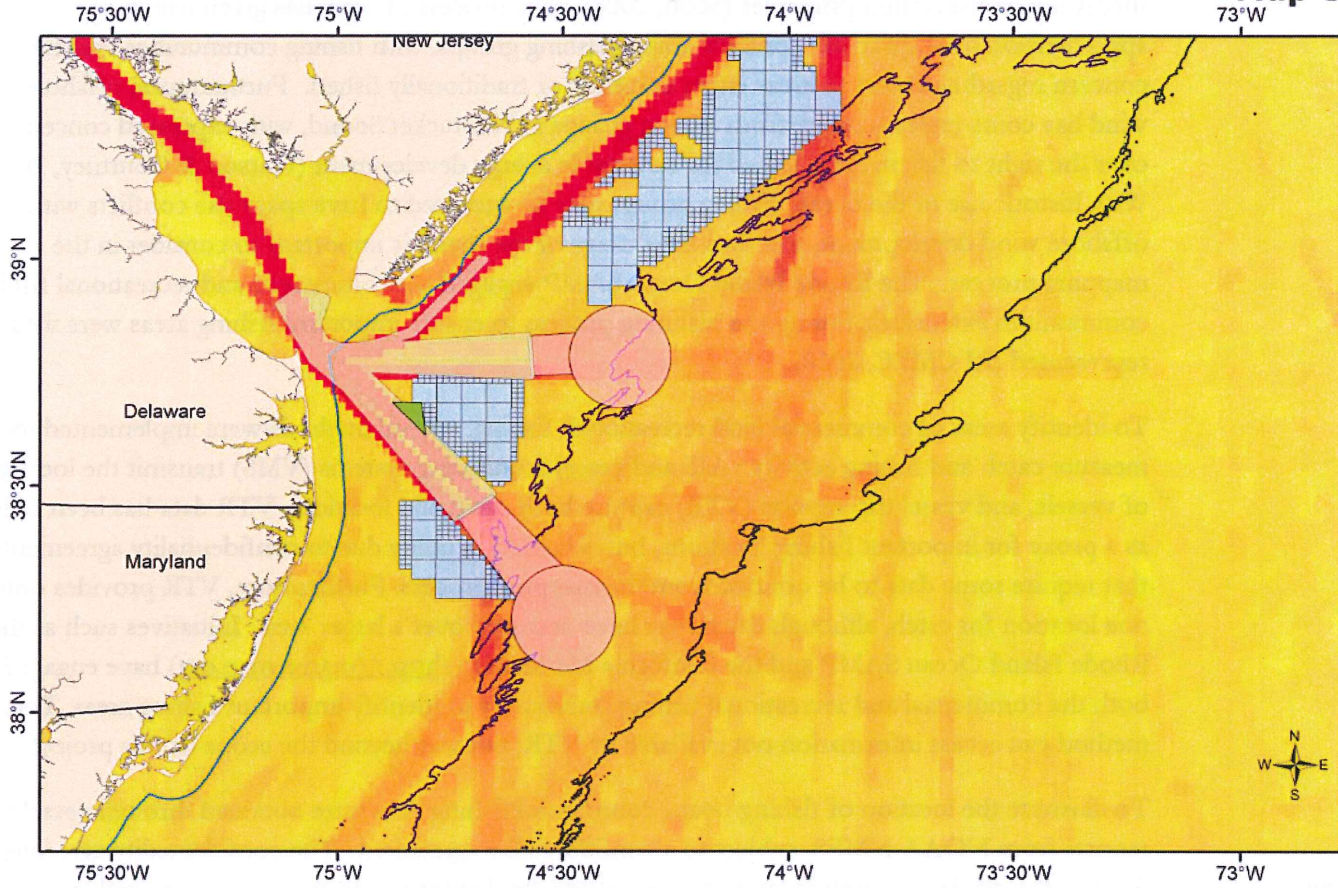


Map 39: Shipping Traffic Density (July 2009)

# Shipping Traffic Density

July 2009

Map 3



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- Anchorage Area
- TSS with 0.5 nm Buffer
- TSS Extension
- BOEM Wind Energy Areas
- 3 nm State Waters
- 35 meter Depth Contour
- 60 meter Depth Contour
- Shipping Traffic Density**
  - More dense
  - Less dense



Commercial fishermen have traditionally had unrestricted access to ocean waters, although the fisheries management regime has been changing since the 1950s due to recognition of economic theory and conservation principles (Scott, 2008). The process of MSP has given rise to apprehension over space use conflicts among fishing groups, with fishing communities voicing concern regarding access to areas either currently or traditionally fished. Furthermore, offshore wind has come under scrutiny from fishing groups in Nantucket Sound, with expressed concern over the right to fish in areas leased for renewable energy development (Watson & Courtney, 2004). With historic use of the ocean, fishing groups may be expected to have space use conflicts with offshore wind development, and thus their usage of the ocean is important to consider in the mapping process. The Rhode Island Ocean SAMP engaged the commercial and recreational fishing communities extensively during the planning process to ensure important fishing areas were well represented (RI CMRC, 2010).

To identify areas of commercial (and recreational) fishing, several methods were implemented to measure catch and fishing activity. AIS and vessel monitoring systems (VMS) transmit the locations of vessels, and vessel trip reports (VTR) capture both catch and location. VTR data has been used as a proxy for important fishing locations, but is limited in utility due to confidentiality agreements that require some data to be omitted from the mapping process. Furthermore, VTR provides only one location for catch, although catch may have occurred over a larger area. Initiatives such as the Rhode Island Ocean SAMP and the California MarineMap (<http://marinemap.org>) have engaged both the commercial and recreational fishing community to identify important fishing areas. This method can access information not available by VTR, but was beyond the scope of this project.

To illustrate the location of fishing boats, commercial fishing data were obtained through vessel trip reports from NOAA-NMFS, subject to a confidentiality agreement. The confidentiality agreement dictates the display of catch in landings (in pounds) be depicted in 10-minute squares with a minimum of three unique vessels per square to protect proprietary data of the fishing community. This data compiles all self-reported landings throughout these years. Commercial fisheries in the states of New Jersey, Delaware and Maryland use a variety of gear types, both bottom-contacting and pelagic gear. These gear types include: trawl (benthic and pelagic), gillnet, trap, pot, seine, long line, hand line, rake, and dredge. Catch by gear type was summed over the years 2006-2010 to display the total number of trips to an area that resulted in landings, separated by benthic and pelagic gear types. Data were summarized in this manner to indicate the level of use in a given area rather than the quantity of the catch. The number of vessel trips reporting catch in specific areas offers an indication of intensity of use and where space use conflict may occur. Trips reported without longitude/latitude coordinates were removed from the dataset prior to mapping, comprising a total of 3% of the dataset. The dataset was also modified to display only records of three or more unique vessel identification numbers per 10-minute grid, resulting in 1% removal. One caveat with this data is that it does not factor in fish caught in Delaware, Maryland or New Jersey waters which came to port in another state. Point data were converted to raster in 10-minute grid cells, displayed as a sum of trips to a particular grid cell to portray relative intensity of fishing vessels in a given area.



### *Pelagic Gear*

Pelagic fishing in 10-minute squares is demonstrated as the aggregate number of trips in which landings occurred using pelagic gear. These are displayed in 10-minute squares as a data restriction required by NFMS. Pelagic gear includes longlines (pelagic only), gillnets (drift, run-around), seines (danish, purse), and handlines. This display was chosen in order to display the frequency of fishing vessels in a given area, to determine the spatial conflicts between fishing vessels and wind turbine development. As evident, pelagic commercial fishing occurs most frequently near the coast, generally diminishing with depth. If pelagic fishermen are permitted to enter the wind project area, conflict may occur with towed gear that will be confined to the space between wind turbine foundations. If pelagic fishing is excluded from wind project areas, conflicts may arise if turbines are installed in the commonly fished areas. The reader is reminded that commercial pelagic fishing occurs elsewhere, however, it is not represented due to confidentiality restrictions. Therefore, any area harvested, but not represented spatially, is fished by less than three vessels. Areas displayed in blue should be given careful consideration in spatial planning due to the propensity of fishing vessels in such areas. However, as with recreational fishing and pelagic gear commercial fishing, consultation with fishing communities is recommended prior to selecting areas for siting offshore wind projects. Please refer to Map 40.

### *Benthic Gear*

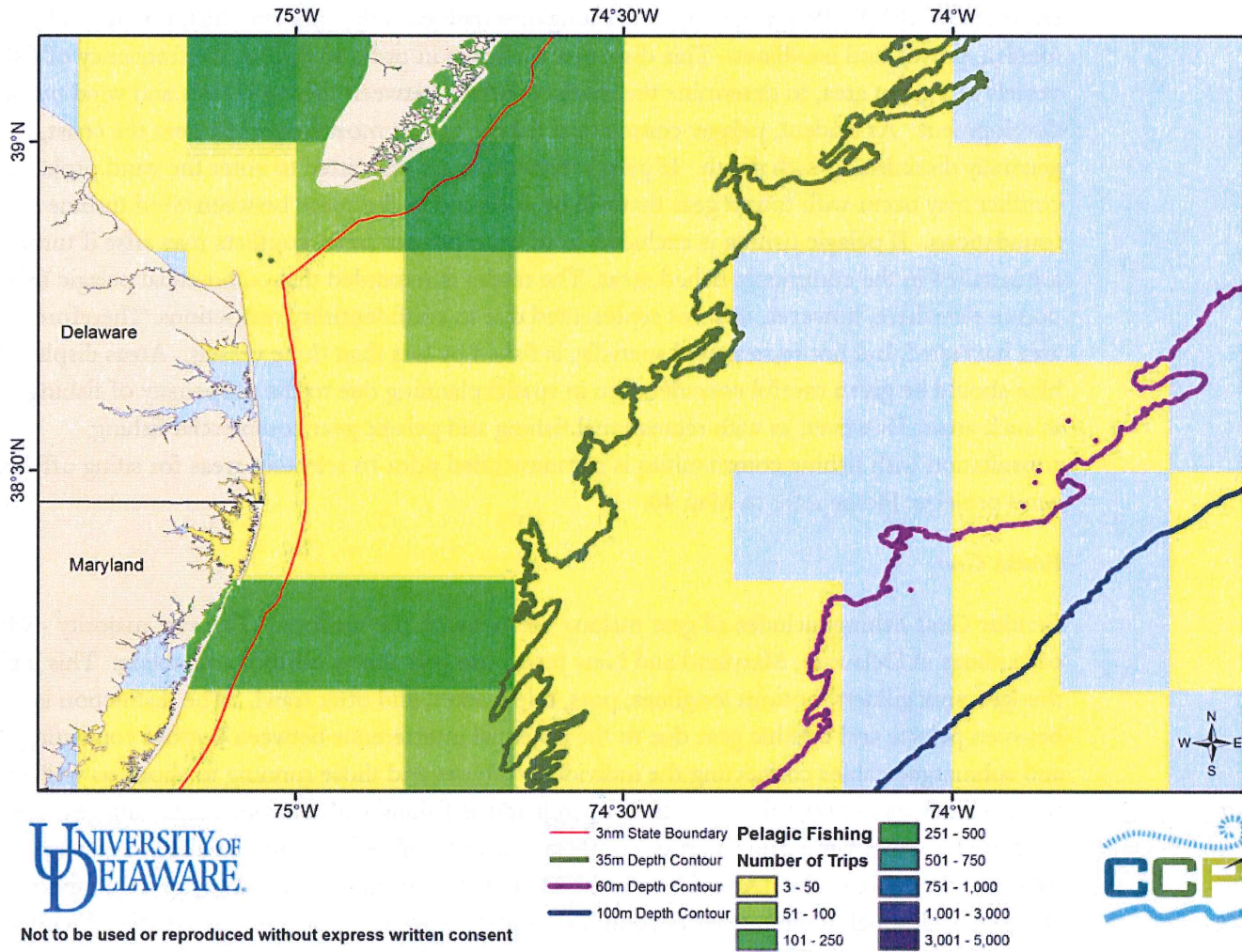
Benthic Gear fishing includes all gear making contact with the seafloor. The vast majority - 94% - of landings in Delaware, Maryland and New Jersey use gear that is bottom contacting. This includes dredges, sink gillnets, bottom longlines, pots, traps, rakes, and otter trawl. The distinction is made between pelagic and benthic gear due to the potential interference between bottom contacting gear and submerged cables connecting the individual turbines and those running to shore, as well as the relative landings between the two. If those individuals fishing with bottom-contacting gear are permitted to enter wind project areas, conflicts may occur if gear has the potential to damage submerged electric cables. As evident in the Map 41, significant fishing takes place throughout the study area, although it diminishes beyond the 60-meter contour, which is also associated with some fishing restrictions for EFH. If benthic fishing is excluded from wind project areas, conflict may arise if turbines are installed in areas commonly fished. The reader is reminded that benthic commercial fishing occurs elsewhere, however, it is not represented due to confidentiality restrictions. Therefore, any area harvested, but not represented spatially, is fished by less than three vessels. Burial of cables at certain depths and continued vigilance by wind project developers during operation may help to mitigate these impacts and reduce conflicts, although consultation with the fishing community is recommended to minimize conflict. As in previous maps, fishing activity is displayed in 10-minute squares because of data restrictions required by the NMFS.

Map 40: Commercial Fishing – Pelagic Gear

### Commercial Fishing - Pelagic

Aggregate Number of Trips 2006-2010

MAP 4



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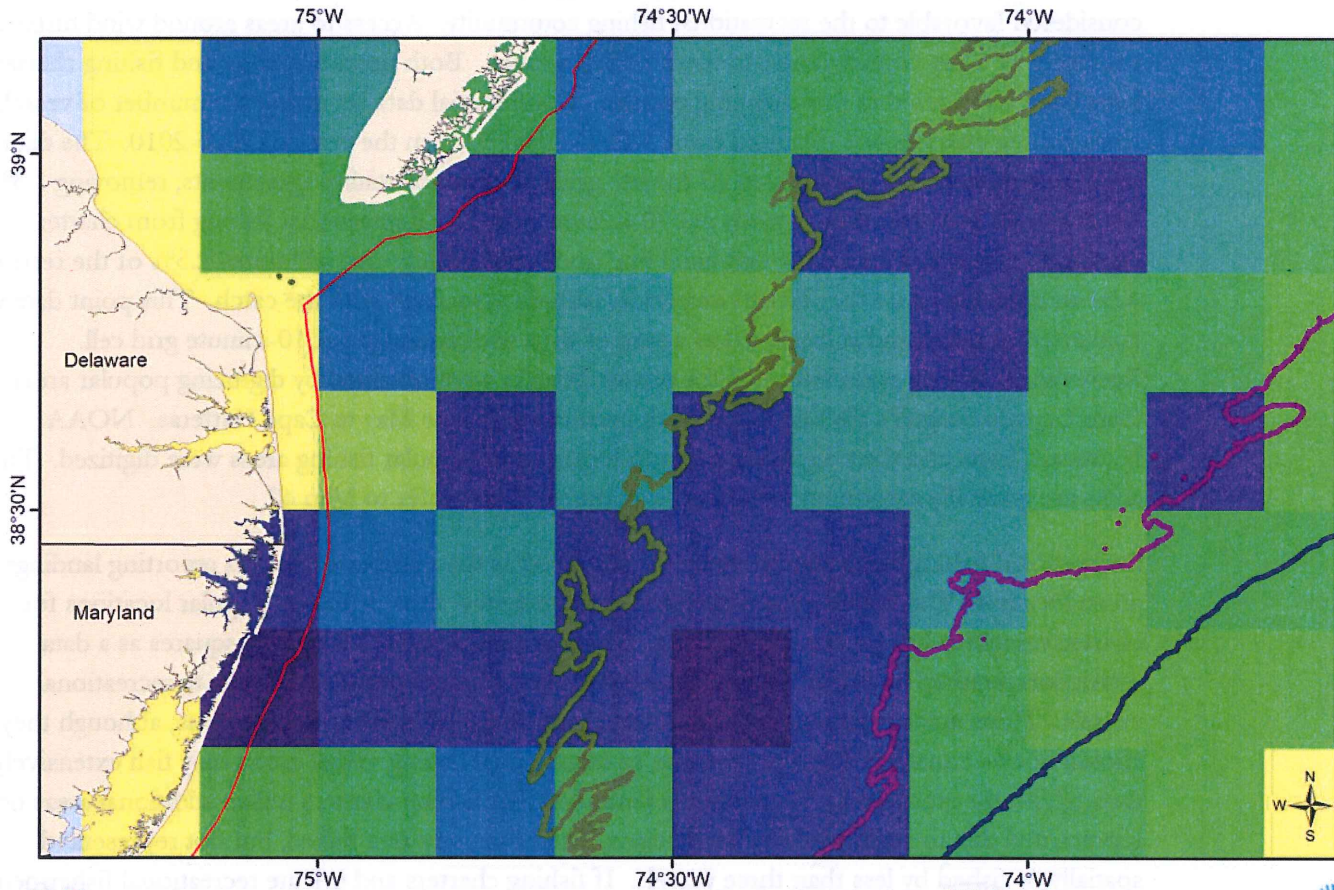


Map 41: Commercial Fishing – Benthic Gear

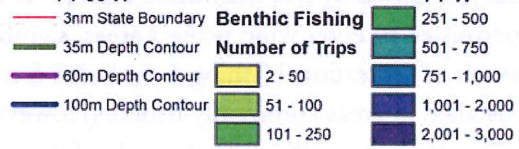
# Commercial Fishing - Benthic

Aggregate Number of Trips 2006-2010

MAP 4



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### *Recreational Fishing*

Recreational fisheries also potentially have space use conflicts with offshore wind. Offshore wind turbines may serve as artificial reefs or attract/aggregate fish (Wilson et al., 2010), which may be considered favorable to the recreational fishing community. Access to areas around wind turbines will likely be a key consideration to these fishing groups. Both private boaters and fishing charters have been considered in this mapping process. Confidential data reporting the number of vessels from fishing charters was obtained from NOAA-NMFS, from the years of 2006-2010. The data were summarized and displayed in 10-minute grids per confidentiality agreements, removing 1.3% of the data with less than three vessels per 10-minute grid cell. Recreational fishing from charter vessels was reported for diving and hand line (rod/reel) fishing. An additional 2.5% of the records were removed because they lacked longitude/latitude associated with the catch. This point data was converted to raster and is displayed as a sum of trips with landings per 10-minute grid cell. Recreational fishing areas indicated for private boaters were obtained by digitizing popular areas from Captain Seagull's Fishing Maps (with permission), Cape May to Cape Hatteras. NOAA Nautical Charts and then digitizing polygon locations of popular fishing areas were digitized. These areas are generally associated with benthic features. Please refer to Map 42.

Recreational fishing from charter vessels is displayed as the number of vessels reporting landings at a given location. The vessels reporting catch are aggregated, thus depicting popular locations for charter vessels to bring customers fishing. These are displayed in 10-minute squares as a data restriction required by NFMS. Overlaid are polygons of areas popular for private recreational vessels. These areas represent an accumulated knowledge of popular fishing areas, although they should not be considered comprehensive, as recreational fishing vessel crews may fish extensively throughout the study area. The reader is reminded that fishing charters utilize additional areas not represented due to confidentiality restrictions. Therefore, any area fished, but not represented spatially, is fished by less than three vessels. If fishing charters and private recreational fishermen are permitted to enter wind project areas, significant conflict with gear is unlikely to occur. However, if recreational fishing is excluded from wind project areas, conflicts may arise if turbines are installed in areas commonly fished. (However, even in such an eventuality, the entire area within the circumference of the outer bounds of the wind project would effectively operate as a marine protected area (MPA), presumably enhancing fishing opportunities on the periphery. Therefore, recreational fishing may be compatible with offshore wind turbines (Fayram & Risi, 2007), and in a survey conducted by the University of Delaware (Lilley et al., 2010), respondents indicated that offshore wind projects would be an interesting tourism highlight. Thus, recreational fishing charters may have compatible space use with wind projects.

### *Sand Borrow Locations*

The USACE maintains an active sand replenishing program for beach nourishment. Beginning in the 1970s, eroding beaches prompted officials to seek millions of cubic yards of sand from offshore deposits for beach replenishment. The USACE has identified several locations for sand borrow