United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Memorandum

To: Director

From: James F. Bennett
Chief, Office of Renewable Energy Programs

JAMES BENNETT
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Date: 2021.03.26 12:25:12 -04'00'

Subject: New York Bight Area Identification Memorandum Pursuant to 30 C.F.R. § 585.211(b)

I. Purpose

This memorandum documents the analysis and rationale used to develop recommendations for Wind Energy Areas (WEA) in the New York Bight (NY Bight) for the Director of the Bureau of Ocean Energy Management (BOEM), and for environmental analysis. Pursuant to BOEM's 2017 Program Delegations Handbook, authority to determine final WEAs through the Area Identification (Area ID) is delegated to the BOEM Director.

II. Decision Summary

As described in Table 1 and depicted in Figure 1, the recommended WEAs for the NY Bight consist of 807,383 total acres.

Table 1: NY Bight WEAs Descriptive Statistics

	Fairways North WEA	Fairways South WEA	Hudson North WEA	Central Bight WEA	Hudson South WEA	Total
Acres	88,246	23,841	43,056	84,688	567,552	807,383
Installation Capacity (MW)[1]	1,071	289	523	1,028	6,890	9,802
Homes powered[2]	374,975	101,305	182,954	359,857	2,411,644	3,430,734
Power Production (MWh/yr)[3]	3,754,037	1,014,210	1,831,628	3,602,678	24,143,998	34,346,551
Max Depth (meters[m])	56	46	45	61	59	--
Min Depth (m)	42	39	41	52	32	--
Closest distance to NY (nautical mile [nmi])	15	15	21	38	45	--
Closest distance to NJ (nmi)	69	45	36	53	23	--

[1] Megawatts (MW) based upon 3MW/sqkm
[2] Based upon 350 homes per MW
[3] Megawatt hours per year (MWh/yr) Formula = Capacity (MW) * 8760 (hrs/yr) * 0.4 (capacity factor)

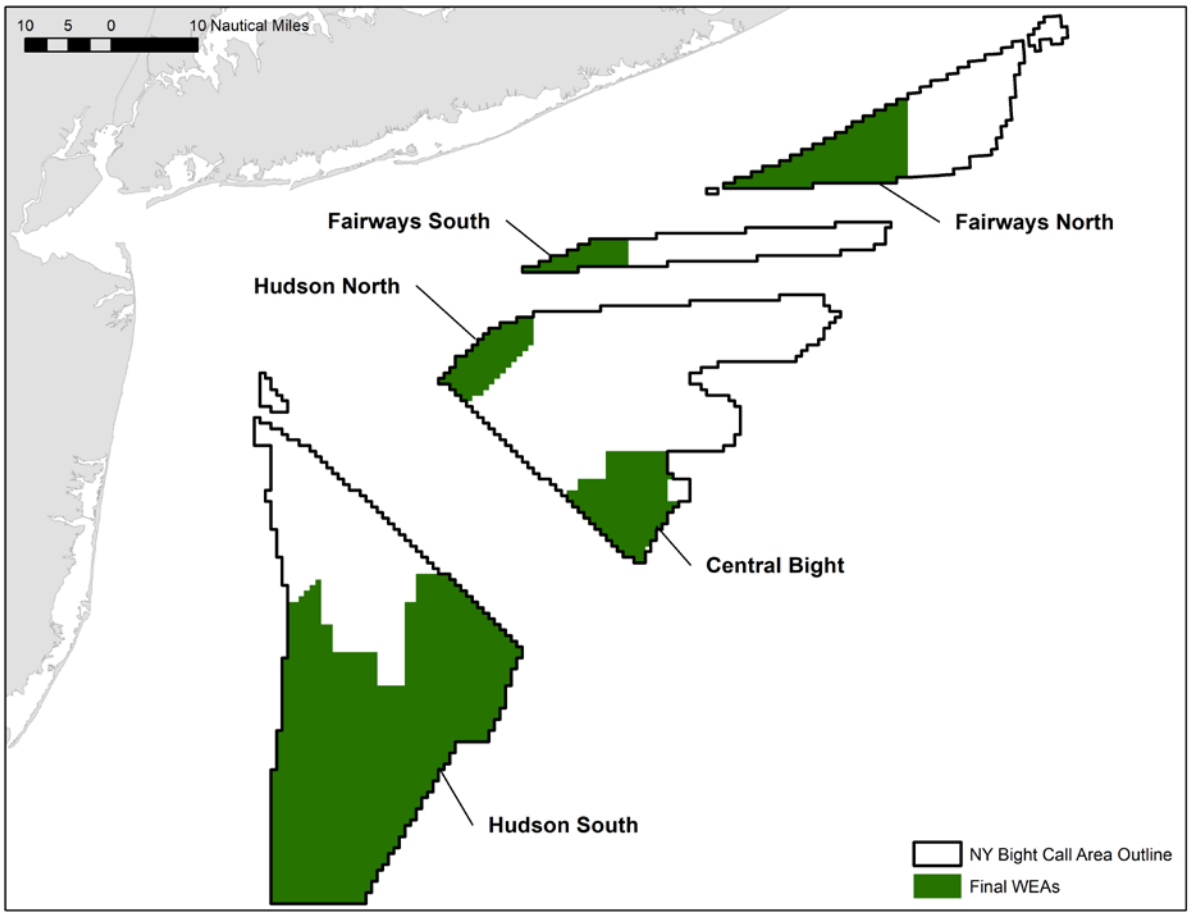

Figure 1: Map of the Recommended Wind Energy Areas in the New York Bight

III. Legal Standard

Pursuant to Subsection 8(p) of the Outer Continental Shelf Lands Act (OCSLA), the Secretary of the Interior (the Secretary), in consultation with the U.S. Coast Guard (USCG) and other relevant Federal agencies, may grant a lease, easement, or right-of-way on the Outer Continental Shelf (OCS) for activities that produce or support production of energy from sources other than oil and gas (43 U.S.C. § 1337(p)(1)(C)). The Secretary must ensure that activities under this subsection are carried out in a manner that provide for 13 specific enumerated requirements, including safety, protection of the environment, and consideration of other uses of the sea or seabed. *Id.* § 1337(p)(4)(A)–(L). BOEM has issued regulations governing the leasing process and management of offshore renewable energy projects. *See* 74 Fed. Reg. 19,638 (Apr. 29, 2009); *see also* 30 C.F.R. part 585.

This memorandum documents BOEM's consideration of OCSLA environmental factors and multiple uses at the Area ID stage of its leasing process (43 U.S.C. § 1337(p)(4)(A), (B), (D), (F), (I), and (J)), as explained further in Section IV below. The identification of WEAs for environmental analysis and leasing consideration does not constitute a final leasing decision. BOEM reserves the right under its regulations to issue leases in smaller, fewer and/or different

areas—or issue no leases. BOEM will conduct further analysis under OCSLA and the National Environmental Policy Act (NEPA) at subsequent stages of its regulatory process, including if and when leases are issued, and wind energy facilities are proposed on those leases.

IV. Description of the BOEM Process

A. Call for Information and Nominations

The competitive lease issuance process starts with the publication of a Call for Information and Nominations (Call), which requests comments from the public about areas of the OCS that they believe should receive special consideration and analysis for the potential development of renewable energy (30 C.F.R. § 585.211(a)).

On April 11, 2018, BOEM published a Call for Commercial Leasing for Wind Power on the OCS in the NY Bight.[4] BOEM delineated the Call Areas in consultation with numerous parties and information sources, including the State of New York and the Intergovernmental Renewable Energy Task Force. In addition to soliciting public comment in the *Federal Register*,[5] BOEM hosted public meetings with participation from members of the New York, New Jersey, Massachusetts, and Rhode Island Task Forces, as well as other representatives from relevant Federal, state, local, and tribal government entities. BOEM also held subject matter specific meetings to better understand concerns related to potential impacts to fisheries, navigation, and other potential use conflicts. A map of the Call Areas is shown in Figure 2.

[4] https://www.boem.gov/83-FR-15602/

5 https://www.regulations.gov/docket?D=BOEM-2018-0004

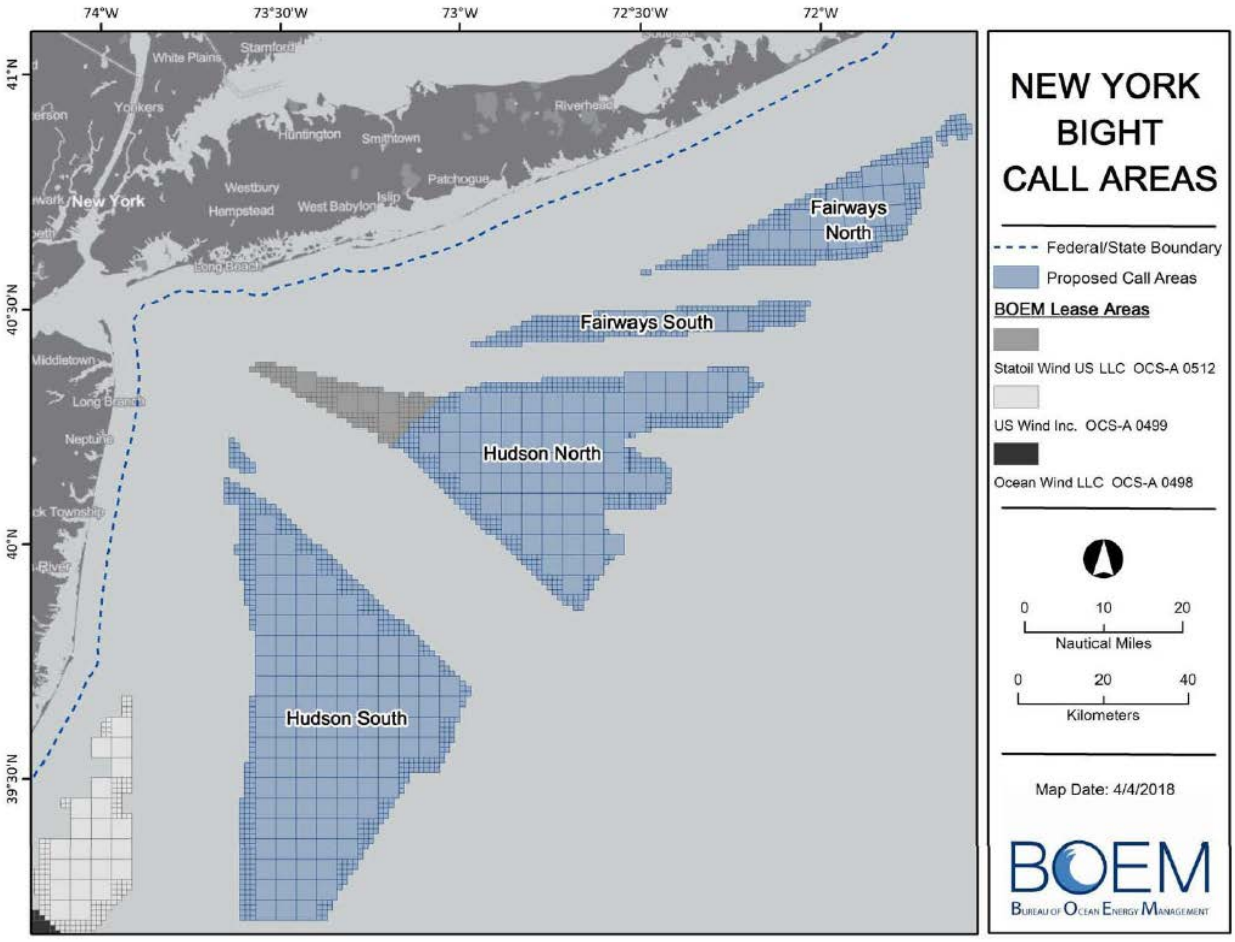

Figure 2: The New York Bight Call Areas

B. Area ID

An Area ID determination is a required regulatory step under the renewable energy competitive leasing process used to identify areas for environmental analysis and consideration for leasing. *See* 30 C.F.R. § 585.211(b). The goal of BOEM's Area ID process is to identify the offshore locations that are most suitable for leasing. The Area ID determination must take into consideration multiple competing uses and environmental concerns that may be associated with a proposed area's potential for commercial wind energy development. Potential impacts of a specific proposed renewable energy facility in the identified areas would be addressed during the review of a Construction and Operations Plan (COP), since it is then when project-specific information becomes available.

The comment period for the Call for Commercial Leasing for Wind Power on the OCS in the NY Bight ended on July 30, 2018, and thereafter, BOEM initiated the Area ID process by reviewing the 132 comments and 8 nominations it received. Comments received on the Call are available at https://www.regulations.gov/ [Docket No. BOEM–2018–0004], and include submissions from private citizens; Federal, state, and local government agencies; environmental and other advocacy groups; industry groups; and wind developers. Through the Area ID process, BOEM

considered the following non-exclusive list of information sources: comments and nominations received on the Call; information from the NY Bight Intergovernmental Task Force; input from New York, New Jersey, Rhode Island, and Massachusetts state agencies; input from Federal agencies; comments from relevant stakeholders, including the maritime community, offshore wind developers, and the commercial fishing industry; state and local renewable energy goals; and information on domestic and global offshore wind market and technological trends.

C. Environmental Review Process Following the Area ID Determination

After the Area ID determination is made, but before a lease sale occurs, BOEM will conduct environmental review pursuant to NEPA to assess the potential environmental impacts associated with lease issuance.[6] The Area ID informs the environmental review process by identifying and informing the geographic scope of environmental analysis for any future lease sales in the area. If there were a lease sale, the issuance of a lease would grant to the lessee only the exclusive right to submit a plan proposing development of the leasehold to BOEM for approval. The lease would not, by itself, authorize any activity within the lease area. Therefore, BOEM does not consider the issuance of a lease to constitute an irreversible and irretrievable commitment of agency resources toward the construction of a wind energy facility. Consequently, BOEM would prepare an Environmental Assessment (EA) before any lease sale and conduct associated consultations to consider the potential impacts from the activities that are reasonably foreseeable as a result of leasing, which are site characterization activities (such as biological, geological, geotechnical, and archaeological surveys) and site assessment activities (such as meteorological and oceanographic buoy deployment).

Department of the Interior (DOI) regulations require public involvement to the extent practicable in the preparation of an EA.[7] BOEM would initiate public scoping for any Lease Sale EA concurrent with the announcement of the WEAs, and would allow for public review of the EA. DOI has issued a directive that EAs prepared by DOI bureaus must be completed within 180 days.[8] The issuance of a notice to prepare an EA would begin the 180-day timeline. Through the public scoping process, BOEM would identify a reasonable range of alternatives to the proposed action of leasing in the full WEAs, and would analyze those alternatives in the EA. The EA and associated consultations might also identify potential lease stipulations to reduce or eliminate potential environmental impacts associated with site characterization and site assessment activities. If BOEM reaches a Finding of No Significant Impact (FONSI), then BOEM could proceed with lease issuance without the preparation of an Environmental Impact Statement (EIS).

If a lease is issued and a lessee submits a COP on that lease, BOEM would consider its merits; perform the necessary consultations with the appropriate state, Federal, local, and tribal entities; solicit input from the public and task force members; and perform an independent, comprehensive, site- and project-specific environmental analysis under NEPA. This separate site- and project-specific environmental analysis for a COP, would provide additional

[6] 42 U.S.C. §§ 4321 *et seq*.
[7] 43 C.F.R. § 46.305.
[8] Memorandum dated August 6, 2018 from the Deputy Secretary of the Interior regarding Additional Direction for Implementing Secretary's Order 3355 Regarding Environmental Assessments.

opportunities for public involvement pursuant to NEPA and the Council on Environmental Quality regulations at 40 CFR Parts 1500–1508. BOEM would use this information to evaluate the potential environmental and socioeconomic impacts associated with the lessee-proposed project, when considering whether to approve, approve with modification, or disapprove a lessee's COP pursuant to 30 CFR 585.628. It is BOEM's position that any analysis of project-specific impacts prior to COP submittal is speculative.

D. Proposed and Final Sale Notices

If BOEM decides to offer an area(s) for lease, BOEM would publish the proposed area(s) for lease, along with the associated terms and conditions, and a proposed format of the competitive auction in a Proposed Sale Notice (PSN) issued pursuant to 30 C.F.R. § 585.216. The PSN would then be followed by a formal public comment period, which helps to inform the Final Sale Notice (FSN). BOEM may use information from the NEPA analysis for any lease sale, as well as information gathered in response to the PSN, to further refine lease areas and develop lease terms and conditions. BOEM must complete the NEPA analysis prior to issuance of the FSN.

V. Background

A. The New York Bight: General Description

The NY Bight, an offshore area extending generally northeast from Cape May in New Jersey to Montauk Point on the eastern tip of Long Island, is adjacent to the greater metropolitan Tri-State area, which is home to more than 20 million people and is the largest metropolitan population center in the United States, representing significant energy demand.[9] The NY Bight is home to a wide range of ocean uses and biological diversity, and is a major economic driver for the northeastern United States. In particular, the NY Bight supports a commercial fishing industry that produced more than $340 million dollars in landings from 2012 to 2016,[10] and contains the third largest port in the United States, servicing more than 8,500 deep-sea vessel transits in 2016.[11]

The NY Bight is also home to approximately 39 marine mammal species, 5 sea turtle species, and more than 50 avian species. Greater diversity and abundance of marine mammals exists beyond the continental shelf, primarily because of deep canyons and high productivity from upwellings along the shelf edge.

Several National Park Service units and numerous properties listed on the National Register of Historic Properties (NRHP) are located along the coastline of the NY Bight. These include, but are not limited to: Fire Island National Seashore; Sandy Hook National Park; Montauk Point Light House, Fire Island Administration Building, Fort Tilden Historic District, Long Beach Island Fishing Club, and the Marvin Gardens Historic District. The New York State Offshore

[9] https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk
[10] Based on NMFS June 7, 2018 comment in response to the Call indicating that "fishing within the proposed Call Areas landed over 62.6 million pounds (lb), valued at over $344.8 million during 2012-2016."
[11] Port Authority for the Port of New York and New Jersey. (2018, April) 2016 Port Trade Statistics. Retrieved from: http://www.panynj.gov/port/pdf/2016-Port-Trade-Statistics.pdf

Wind Master Plan (Master Plan) Cultural Resources Study provides a summary overview of the known historic properties within a mile of the New York shoreline, including Long Island.[12] Additional NRHP-listed properties identified by the New Jersey State Historic Preservation Officer include Bay Head Historic District, Board Walk Hall, and Lucy the Elephant. A more complete source of NRHP-listed properties, along with properties that have been determined NRHP-eligible but not listed, is found on the New York State Historic Preservation Office's Cultural Research Information System and the New Jersey State Historic Preservation Office LUCY system.

B. The New York Bight: A Buildable Environment

The NY Bight contains three elements that are critical for successful offshore wind development—sustainable wind speeds, relatively shallow water depths with buildable substrate and robust regional energy demand. Specifically, annual wind speeds of 8.1 m per second and higher are found in the NY Bight Call Areas, as depicted in Figure 3, which exceeds average speeds of several commercial developments in the North Sea.[13]

[12] https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Biomass-Solar-Wind/Master-Plan/17-25h-Final-Cultural-Resources-Study.pdf

[13] Analysis of wind speed observations on the North Sea Coast. (1998, February) Journal of Wind Engineering and Industrial Aerodynamics. Retrieved from https://www.sciencedirect.com/science/article/pii/S0167610597002857?via%3Dihub

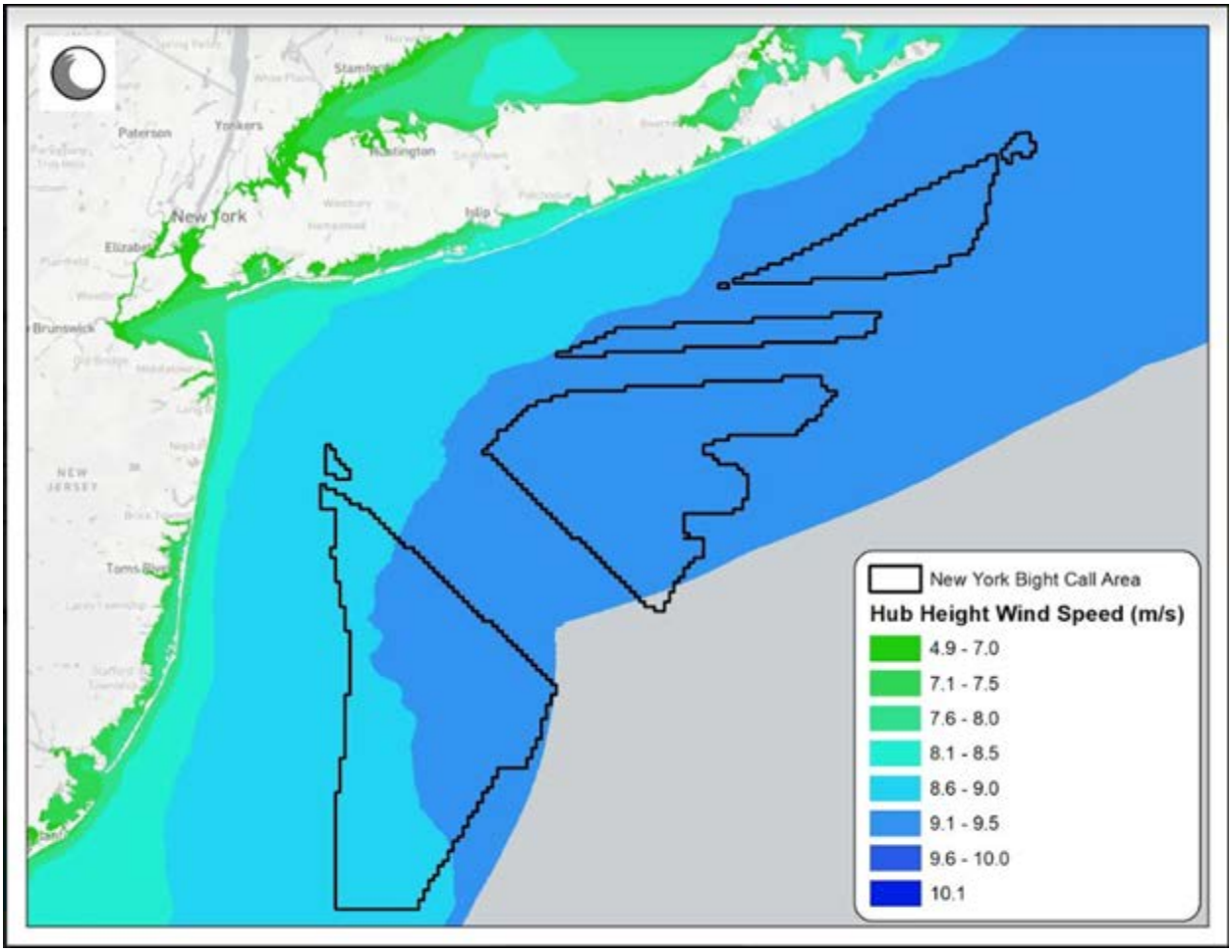

Figure 3: Estimates of the Annual Average Wind Resource (Speed) in the New York Bight[14]

The water depth, which ranges between 29 to 61 m, is suitable for several types of commercially viable bottom-fixed foundations[15], and geologic conditions in and around the NY Bight indicate offshore wind development is technically feasible. Finally, over 22 gigawatts (GW) of state supported offshore wind development targets are represented in the Northeast, including New York (9 GW), New Jersey (7.5 GW), Massachusetts (3.2 GW), Rhode Island (400 MW) and Connecticut (2 GW), representing a significant local demand and competitive development environment. BOEM estimates that this energy demand would not be satisfied by full utilization of the areas BOEM has already offered for lease in the region.

[14] https://www.nrel.gov/docs/fy16osti/66599.pdf
[15] Id.

C. Regional State Activities

1. New York

According to the U.S. Energy Information Administration, Energy Consumption Estimates, New York State's total energy consumption is the highest among the northeastern states.[16] New York's increasing demand for renewable energy also makes the NY Bight a strong candidate for offshore wind energy development.[17] New York's Clean Energy Standard requires that the contribution to in-state electricity generation from renewable resources rise to 70% by 2030.[18]

On October 2, 2017, BOEM received the State of New York's Area for Consideration for the Potential Locating of Offshore WEAs.[19] This document identifies an area of the NY Bight that the state determined, based on the same compilation and analysis of scientific, stakeholder, and analytical data that supports the Master Plan, to be most desirable for future offshore wind development. BOEM has taken the state's recommendation into account in recommending WEAs, and will consider the data and analyses generated by the state at subsequent stages of its planning and potential actions, including possible leasing in the NY Bight.

In January 2018, the State of New York published the Master Plan, which established the goal of supporting 2.4 GW of offshore wind energy by 2030.[20] The objective of New York's Master Plan is "to ensure that offshore wind in New York is developed in the most responsible and cost-effective manner possible," and the plan lays out a proposed path to meet the underlying goal. To support the Master Plan, the New York State Energy and Research Development Authority (NYSERDA) conducted more than 20 studies and engaged with stakeholders and the public with the stated objective of ensuring that offshore wind is developed in a responsible and cost-effective manner.

In July 2018, the New York Public Service Commission issued an order authorizing solicitations by NYSERDA, in consultation with the Long Island Power Authority and New York Power Authority, for a first phase of offshore wind procurements in 2018 and 2019 of approximately 800 MW.[21] On November 8, 2018, NYSERDA issued its first solicitation for 800 MW or more of new offshore wind projects for New York.[22]

On July 18, 2019, Governor Andrew Cuomo signed the Climate Leadership and Community Protection Act, which supports the development of 9,000 MW of offshore wind energy by 2035,

[16] Energy Consumption Estimates by End-Use Sector, Ranked by State, 2018 https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/rank_use.html&sid=US
[17] https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Standard
[18] Id.
[19] https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Offshore-Wind-in-New-York-State-Overview/Siting-Offshore-Wind-Facilities/Area-for-Consideration
[20] https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Offshore-Wind-in-New-York-State-Overview/NYS-Offshore-Wind-Master-Plan
[21] http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B37EE76DF-81B1-47D4-B10A-73E21ABA1549%7D
[22] https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Offshore-Wind-Solicitations/Generators-and-Developers/2018-Solicitation

enough to power up to 6 million homes.[23] Meeting the significant state goal will likely require development of a greater portion of the NY Bight for wind energy projects than that initially recommended by New York in its Area for Consideration.

Under the New York State Public Service Commission's July 2018 Order Adopting the Offshore Wind Standard, which set the framework for the first phase of offshore wind energy solicitations, NYSERDA selected and contracted with 2 offshore wind project proposals - totaling nearly 1,700 MW. These 2 projects, Empire Wind (816 MW) and Sunrise Wind (880 MW) completed contract negotiations in October 2019.

On July 21, 2020, Governor Cuomo issued a second offshore wind procurement where NYSERDA is seeking up to 2,500 MW of offshore wind. In January 2021, Equinor was selected to provide New York State with 2,490 MW of offshore wind power from the Empire Wind 2 and Beacon Wind 1 projects. Notably, this brings New York State's procurement totals to 3.3 GWs from proposed projects not only offshore New York, but also offshore Southern New England.

2. New Jersey

In August 2010, then Governor Chris Christie signed the Offshore Wind Economic Development Act (OWEDA) into law. OWEDA required the New Jersey Board of Public Utilities (NJ BPU) to establish a program for Offshore Wind Renewable Energy Certificates (ORECs) to incentivize the development of offshore wind facilities. On January 31, 2018, New Jersey Governor Phil Murphy issued Executive Order No. 8, which directs all New Jersey State Agencies with responsibilities under the OWEDA to fully implement the Act in order to meet a goal of obtaining 3.5 GW of offshore wind energy by the year 2030.[24]

As a result of the Executive Order, the NJ BPU issued a solicitation to acquire ORECs for 1,100 MWs of power generation from Qualified Offshore Wind Projects. On June 21, 2019, the BPU selected Orsted's Ocean Wind project (1,100 MW) offshore New Jersey to fill the solicitation.[25]

In January 2020, Governor Phil Murphy released the state's Energy Master Plan, which outlines the path to achieving the goal of 100% clean energy by 2050.[26] The plan outlines seven strategies, including "Accelerating Deployment of Renewable Energy and Distributed Energy Resources by developing offshore wind…" that would further the goal of developing 7,500 MW of offshore wind energy generation by 2035. In support of that goal, the NJ BPU issued a second solicitation in September 2020 to acquire ORECs for 1,200 to 2,400 MW of offshore wind capacity. Both Ocean Wind, LLC (OCS-A 0498) and Atlantic Shores Offshore Wind, LLC (OCS-A 0499), submitted applications in response to solicitation. A NJ BPU decision on the applications received is expected in June 2021.[27]

23 https://www.nysenate.gov/legislation/bills/2019/s6599
[24] See Offshore Wind in New Jersey
[25] https://www.bpu.state.nj.us/bpu/newsroom/2019/approved/20190621.html
26 https://www.nj.gov/governor/news/news/562020/approved/20200127a.shtml
27 http://njoffshorewind.com/

3. Massachusetts

On August 8, 2016, Massachusetts Governor Charlie Baker signed the Act to Promote Energy Diversity, which allows for the procurement of up to 1,600 MW of offshore wind energy by 2027. On June 29, 2017, the Massachusetts Electric Distribution Companies, in coordination with the Massachusetts Department of Energy Resources, issued a Request for Proposals (RFP) for long-term contracts for offshore wind energy projects. On May 23, 2018, the Massachusetts Electric Distribution Companies awarded Vineyard Wind two 400-MW, 20-year Power Purchase Agreements (PPAs) (totaling 800 MW) of offshore wind energy generation.[28] On August 9, 2018, Governor Baker signed an Act to Advance Clean Energy, which authorizes the Massachusetts Department of Energy Resources (DOER) to conduct procurements of up to 1,600 additional MW by 2035, after conducting a cost benefit analysis.[29] After conducting its analysis, DOER exercised the option in May 2019.

On May 24, 2019, Massachusetts issued its second bid solicitation, requesting submittal of plans for an offshore wind farm of 400 MW, with the option of an additional alternative proposal of 200 to 800 MW.[30] On October 30, 2019, the Massachusetts Electric Distribution Companies selected Mayflower Wind for its bid of 804 MW of offshore wind energy generation. The next round of offshore wind solicitation is anticipated to be held in 2022.

4. Rhode Island and Connecticut

On May 23, 2018, Rhode Island announced the selection of Deepwater Wind (now owned by Ørsted US Offshore Wind) to provide 400 MW of offshore wind energy from the Revolution Wind project through the state's participation in the clean energy procurement process conducted by the Commonwealth of Massachusetts.[31] Additionally, the State of Connecticut selected Deepwater Wind to provide an additional 304 MW from the Revolution Wind project through the recent Clean Energy Request for Proposals issued by the Department of Energy and Environmental Protection (DEEP).[32] In January 2020, Governor Gina Raimondo announced a goal of meeting 100% of Rhode Island's electricity demand with renewable energy by 2030.[33] On October 27, 2020, Governor Raimondo announced Rhode Island's intention to procure up to 600 MW of new offshore wind energy, and issued an RFP to be developed by National Grid, with oversight by the state Office of Energy Resources, and subject to approval by the Public Utilities Commission, as early as 2021.

In addition, on June 7, 2019, Connecticut Governor Ned Lamont signed legislation authorizing the procurement of up to 2 GW of offshore wind energy by 2030, with the first solicitation in 2019 and subsequent solicitations established through the DEEP Integrated Resources Plan.[34] Following the first solicitation issued in August 2019, on December 5, 2019, the DEEP

28 https://www.mass.gov/service-details/offshore-wind
29 https://malegislature.gov/Bills/190/H4857
30 https://macleanenergy.com/83c-ii/83c-ii-documents/
31 https://www.ri.gov/press/view/33287
32 https://www.ct.gov/deep/cwp/view.asp?A=4965&Q=603300
33 https://www.ri.gov/press/view/39674#:~:text=In%20January%2C%20I%20set%20a,nation's%20burgeoning%20offshore%20wind%20industry.%22
34 https://www.cga.ct.gov/2019/amd/H/pdf/2019HB-07156-R00HA-AMD.pdf

announced the selection of Vineyard Wind's 804 MW Park City Wind proposal for a 20-year PPA. DEEP's draft Integrated Resources Plan, which analyzes pathways and recommends strategies for achieving a 100% zero carbon electricity target by 2040, was released on December 17, 2020, for public comment. The draft Integrated Resources Plan proposes the next procurement for offshore wind as early as 2023.[35] [36]

D. Nominations

In response to the NY Bight Call, BOEM received multiple nominations from commercial wind developers with the central portion of the Hudson South Call Area receiving the largest concentration of nominations as shown in Figure 4. BOEM received nominations from 8 qualified entities proposing to develop offshore wind within the NY Bight Call Areas.

1. Avangrid Renewables LLC
2. East Wind LLC
3. EDF Renewables Development, Inc.
4. Equinor Wind US LLC
5. Horizon Wind Power LLC
6. Innogy US Renewable Projects LLC
7. PNE Wind USA, Inc.
8. US Wind Inc.

Several developers noted in their submissions that, while they were nominating a specific area, they would be interested in any area that BOEM were to lease in the NY Bight. Additional information about each nomination, including maps, nomination rational and OCS block tables can be found here: https://www.boem.gov/NY-Bight-Nominations/.

35 https://portal.ct.gov/-/media/DEEP/energy/IRP/2020-IRP/2020-CT-DEEP-Draft-Integrated-Resources-Plan-in-Accordance-with-CGS-16a-3a.pdf

[36] http://www.wnpr.org/post/under-new-management-new-london-pier-looks-capitalize-offshore-wind

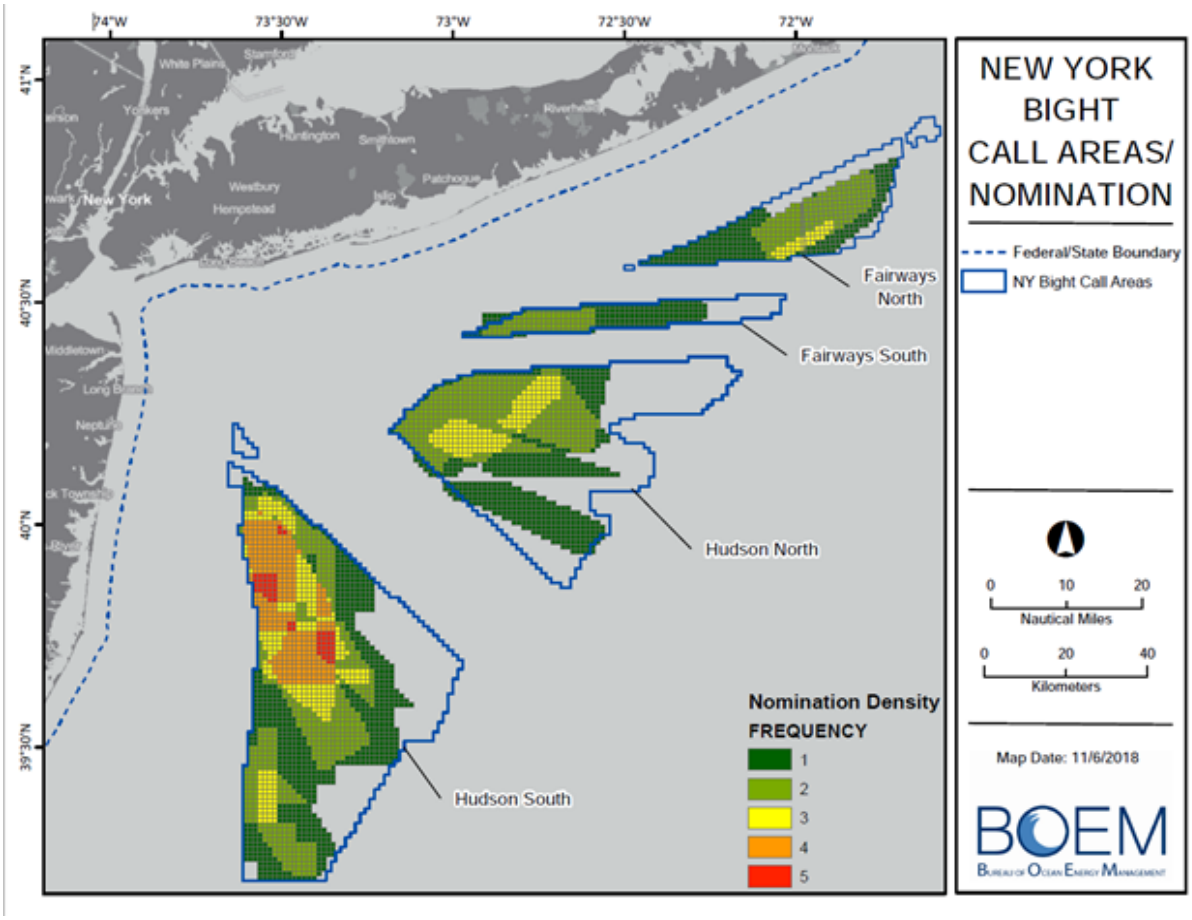

Figure 4: New York Bight nominations received in response to the Call for Information and Nominations.

E. Competing Uses Analyzed During the Area ID Process

BOEM considered multiple existing uses of the NY Bight in developing the Call Areas via thorough internal analysis. The uses that were found to interact most with potential offshore wind development are (i) commercial and recreational fishing, (ii) maritime navigation, and (iii) Department of Defense (DOD) activities. Several additional uses and potential impacts were considered but did not significantly influence the location of the recommended WEAs. Salient highlights of our internal analysis are included in the sections below.

1. Commercial and Recreational Fishing

Commercial and recreational fishing activities occur throughout the NY Bight. The top 5 commercial fishery management plans (FMPs) include: Atlantic sea scallop; summer flounder, scup, black sea bass; surfclam, ocean quahog; mackerel squid, butterfish; and fisheries for which there are no Federal FMP (e.g., lobster, Jonah crab, whelk, and menhaden).[37] Due to the diversity of fisheries in the NY Bight, a variety of gear types, vessels, and fishing techniques are used. While BOEM does not explicitly preclude any fishing effort within a potential wind farm,

[37] NMFS letter to BOEM regarding the NY Bight Call Areas dated June 7, 2018.

we recognize that aspects of the offshore wind development process may impact certain fishing activities. BOEM has tried to minimize these potential space-use conflicts. For example, the Call did not include for leasing consideration the Mid-Atlantic Scallop Rotational Area – an important scallop resource management area along the southern border of the Hudson South Call Area. Comments have been submitted recommending a buffer between the Hudson South Call Area and the Mid-Atlantic Scallop Rotational Area. However, any potential buffer should be considered in the context of lease area delineation (e.g., proposed sale areas).

Some fisheries may be more affected than others depending on the final facility attributes. As a result, no single mitigation approach or leasing exclusion area will resolve all potential fishing use conflicts. State fishery agencies and the commercial fishing industry did not reach consensus regarding locations in the Call Area that are less important to the industry because locations that are less important to one fishery are often deemed more important to another fishery. Even within a fishery the dependence on an area as a fishery can vary greatly from port to port or vessel to vessel.

a) Gear Types

According to NMFS, landings from bottom tending mobile gear (dredge and trawl gear) represented 70% of the landings from the NY Bight Call Areas. Some fishermen with bottom-tending mobile gear types assert that offshore wind development is incompatible with their existing use of the Call Areas, while others suggest that certain wind farm design parameters could allow for coexistence. Scallop fishermen, whose gear penetrates the seafloor by a few inches, are concerned about snagging unburied cables, along with physical impacts (e.g., sedimentation; water flow) from wind farm construction and operation. They generally prefer that the WEAs exclude heavily fished areas, since they do not see any effective mitigation of impacts. On the other hand, some surfclam and ocean quahog fishermen assert that offshore wind facilities could be compatible with their activities if the turbines are at least 2 to 4 miles apart, with cables buried at a depth of at least 2 m and in a straight orientation design based on the prevailing ocean currents.

b) Relative Use Index

In recognition that all of the Call Areas experience some level of fishing activity, BOEM developed a Relative Use Index (RUI), as depicted in Figure 5, to determine areas that would have less impact relative to total fishing activity and avoid known unique benthic habitats (represented by the NJ Sportfishing Atlas data layer in Figure 5). Using vessel trip report data from the NMFS for the period 2007-2015, BOEM identified the top six FMPs by total revenue in the Call Areas for mapping their relative use. The scallop fishery is by far the highest-value fishery. BOEM is concerned, however, that a strict revenue analysis would result in recommended WEAs that disproportionately impact lower value fisheries. To address concerns from the fishing industry about this disparity in economic value, BOEM created a weighted spatial overlay of multiple factors, including conversion of the fishing revenue, adjusted to weight the relative importance of the NY Bight to that FMP. For instance, an FMP with 5% of its revenue from a potential WEA would be given a higher index number than an FMP where only 0.5% of the revenue came from the area. The RUI also factored in fishing vessel transit

routes based on 2016 automatic identification system (AIS) data to better understand potential impacts to fisheries access. More information on vessel transit routes, and fisheries transit in particular, is presented in the Maritime Navigation section. Although recreational fishing data was not included in determining the RUI, BOEM's overall analysis considered recreational fishing areas identified in the New Jersey Sport Fishing Atlas.[38] The "cooler" blue areas indicate a lower relative economic importance across the top 6 commercial fisheries.

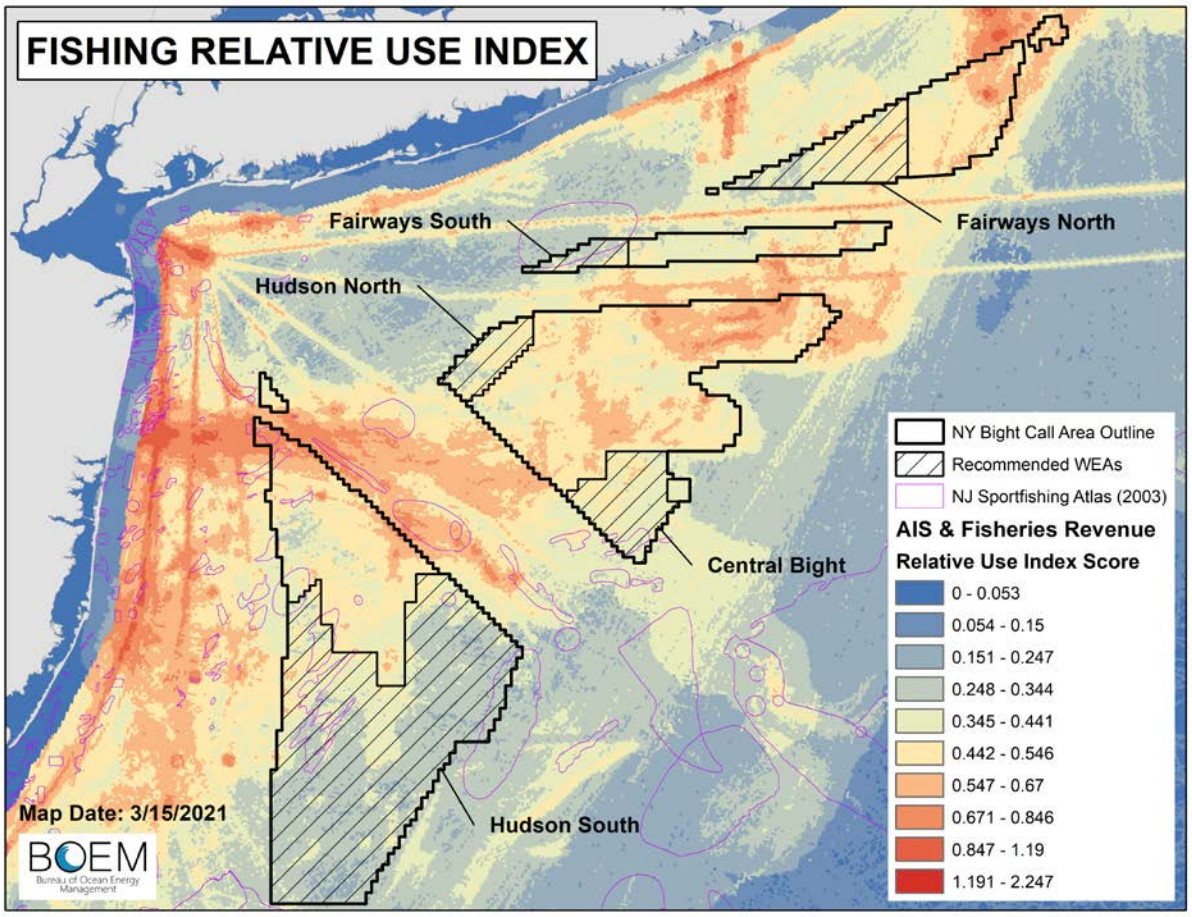

Figure 5: Fisheries Relative Use Index

c) The Cold Pool

At the November 28, 2018, NY Bight Task Force meeting, and at subsequent meetings and workshops, BOEM received input regarding the importance of summer thermal ocean stratification (aka the "cold pool") to fisheries production and its seasonal patterns and questions on how offshore wind development may affect this oceanographic feature. The "cold pool" refers to an annual phenomenon of a band of cold bottom water extending from Georges Bank to

[38] A more detailed description of BOEM's methodology and recommendations for fishing that also address comments received from the Call for Information and Nominations can be found on the BOEM website for the NY Bight (https://www.boem.gov/NY-Bight/); https://www.state.nj.us/dep/gis/digidownload/metadata/statewide/sportfishing.htm

near Cape Hatteras as a remnant of winter-cooled shelf water that persists through the summer months as warming stratifies the surface water.[39] The thermal stratification is driven by seasonal changes in the water column, and its annual evolution and spatial structure varies by location.[40] There have been a few recent studies in European waters (Schultze et al. (2020)) that have looked at the impacts of offshore wind facilities on thermal stratification. Additionally, BOEM is currently funding a modelling study to assess impacts of offshore wind energy facilities on oceanographic processes within and near to the southern New England lease areas that is near completion.

Current evidence suggests that while offshore wind facilities may cause local mixing of the water column,[41,42] there is no clear consensus that offshore wind facilities would have a significant impact on this phenomenon on a regional scale. In addition, the annual and spatial variability of the "cold pool" is not fully understood, making delineation difficult. Thus, BOEM has decided not to use it as a factor to differentiate areas within the Call Area at this planning stage. However, impacts to this oceanographic feature will be considered in future leasing and project review decisions, as more information becomes available.

2. Maritime Navigation

Commercial vessels 65 feet or greater in length are required to carry AIS transponders. BOEM conducted a review of 2011-2017 AIS trackline and density data within the Call Areas to determine historic vessel usage patterns and identify how they may conflict with potential offshore wind energy development. BOEM shared the findings with area operators and harbor safety committees and sought their comments. Three main areas of concern emerged: the navigational complexity for deep draft vessels within traffic lanes, deep draft vessels entering or exiting traffic lanes, and tug and towing vessels crossing the Call Areas.[43] BOEM also considers vessel transit, using AIS and Vessel Monitoring System (VMS) data.

In June 2020, the USCG published an Advanced Notice of Proposed Rulemaking (ANPRM) for "Shipping Safety Fairways Along the Atlantic Coast."[44] This ANPRM included traffic lanes previously described in the 2016 Atlantic Coast Port Access Route Study (ACPARS), as well as a tug and towing lane crossing the NY Bight. Further, USCG published two notices of study to conduct Port Access Route Studies (PARS), one for the Seacoast of New Jersey,[45] and the other

[39] Houghton et al 1982; Lentz 2017
[40] Lentz 2017
[41] Carpenter, J.R., L. Merckelbach, U. Callies, S. Clark, L. Gaslikova, and B. Baschek. 2016. Potential impacts of offshore wind farms on North Sea stratification. PLoS ONE 11(8):e0160830. Cazenave, P.W., R. Torres, and J.I. Alen. 2016. Unstructured grid modelling of offshore wind farm impacts on seasonally stratified shelf seas. Progress in Oceanography 145(2016):25–41.
[42] Schultze, L., L. Merckelbach, S. Raasch, N. Christiansen, U. Daewel, C. Schrum, and J. Carpenter. 2020. Turbulence in the Wake of Offshore Wind Farm Foundations and Its Potential Effects on Mixing of Stratified Tidal Shelf Seas. Presented at Ocean Sciences Meeting 2020, San Diego, California.
[43] A "traffic lane" is a more encompassing term, including TSSs, fairways, and other formally designated routing measures.
[44] "Shipping Safety Fairways Along the Atlantic Coast (Advanced Notice of Proposed Rulemaking)." Federal Register 85:119 (June 19, 2020) p. 37034. Docket No. USCG-2019-0279.
[45] "Port Access Route Study: Seacoast of New Jersey Including Offshore Approaches to the Delaware Bay, Delaware (Notice of Study)." Federal Register 85:198 (October 13, 2020) p. 64507. Docket No. USCG-2020-0172.

for the Northern NY Bight.[46] These two studies combined encompass the whole of the NY Bight Call Areas.

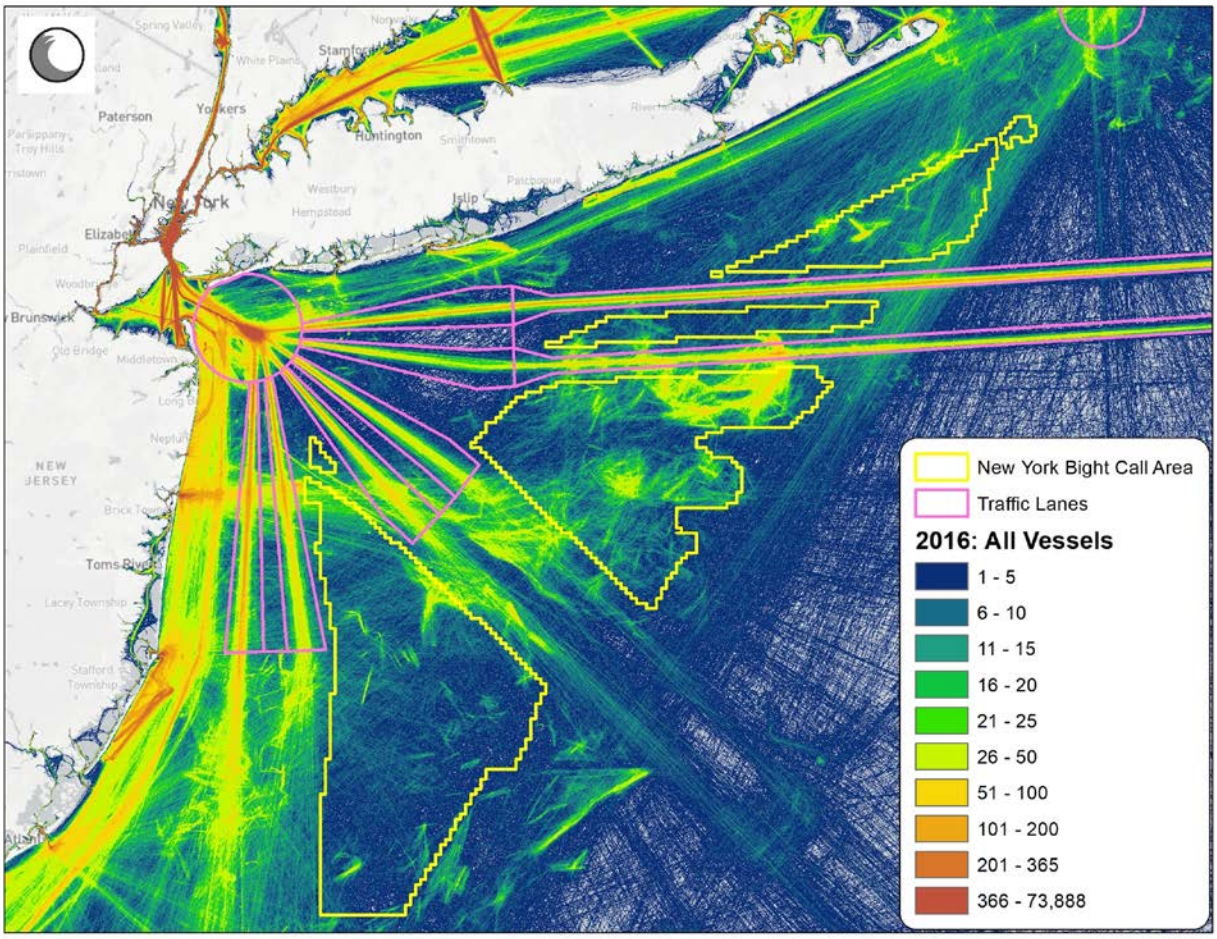

Figure 6: AIS counts for all vessels carrying AIS transponders in 2016.[47]

[46] "Port Access Route Study: Northern New York Bight (Notice of Study)." Federal Register 85:125 (June 29, 2020) p. 38907. Docket No. USCG-2020-0278.

[47] AIS transponders are mandated on all commercial vessels, including commercial fishing vessels, in excess of 65 feet in length.

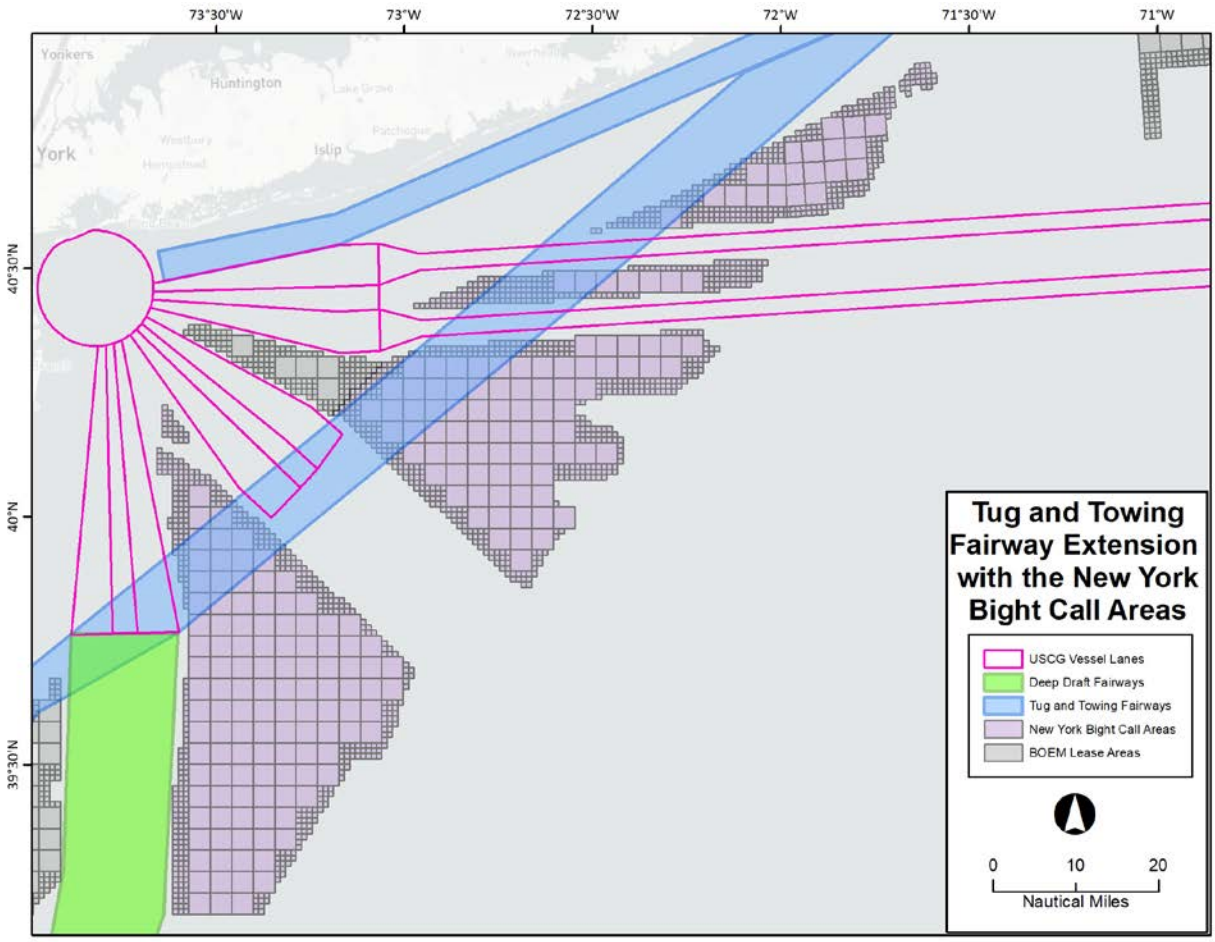

Figure 7: ANPRM Fairways near the BOEM Call Areas

a) Deep Draft Vessels Within Traffic Lanes

The NY Bight contains three Traffic Separation Schemes (TSS) that join in a precautionary area near the entrance to New York Harbor. A pair of directionally separated fairways feed into the northernmost TSS from the east, as depicted in Figure 6. TSSs are internationally recognized traffic lanes formally designated by the USCG and typically used by cargo vessels, tankers, cruise ships, and other deep draft vessels. Deep draft commercial traffic almost exclusively use the TSSs to enter or leave New York Harbor. A 2016 economic study conducted by the Port Authority of New York and New Jersey found that the Port and its neighboring counties handled more than 8,500 deep sea vessel transits in 2016 alone, making it one of the busiest container ports in the United States.[48]

Small and quick moving vessel traffic (e.g., commercial fishing vessels) and large, slow moving traffic (e.g., tugs and barges) frequently cross the three TSSs. Though these crossing vessels are required by international and domestic collision regulations to stay clear of deep draft vessels

[48] Port Authority of New York and New Jersey. (2017, April). *2016 Port Trade Statistics*. Retrieved from https://www.panynj.gov/port/trade-stats.html

using the TSSs, the USCG and commercial vessel operators informed BOEM that navigational complexity may increase as a result of two factors.

First, fishing vessel operators state that they are sometimes not at the helm, despite vessel operator rules, especially if vessels have a single operator and the vessel is actively fishing. Second, due to inclement weather conditions and the size of crossing vessels, it may be more difficult to detect small crossing vessels from the bridge of a deep draft vessel. The largest cargo vessels can require several miles of sea space to stop and/or avoid collisions. Deep draft vessel operators (and tanker operators in particular) have also expressed concerns that wind turbines may cause shadowing effects on their radars, essentially "hiding" crossing fishing vessels during times of poor visibility and reducing the potential reaction time of the larger vessels. For these reasons, the USCG recommends in its Marine Planning Guidelines[49] that there be no surface occupancy within 5 nmi of the terminus of a TSS nor within 2 nmi of the edges of a traffic lane.[50]

b) Deep Draft Vessels Entering or Exiting Traffic Lanes

As depicted in Figure 7, deep draft vessels in the NY Bight tend to stay within the designated TSS lanes throughout their charted boundaries. Once the official TSS lanes end, however, vessels tend to adjust course to take the most direct route to their destinations. This pattern was particularly evident in the middle TSS (Ambrose-Hudson Canyon-Ambrose), and the TSS closest to New Jersey (Barnegat-Ambrose-Barnegat).

If the Hudson North and South Call Areas were fully developed with offshore wind farms, a funneling effect would likely occur in which vessels continue to travel along the regulated TSS trajectory until they reach the edge of the developed area and then take a more direct route to their destination. This would result in increased concentrations of vessels between the two Call Areas, in a space where there are no internationally designated lanes or separation zones. Spatially prohibiting vessels from proceeding directly to their destination would also result in increased vessel travel time and fuel costs.

Additionally, the June 2020 ANPRM includes a Deep Draft Fairway at the terminus of the Barnegat-Ambrose-Barnegat TSS. Though no part of the Call Areas is in conflict with this Fairway, it is possible that one (or both) of the PARS currently being conducted in the area may recommend additional fairways that conflict with the Call Areas or with future WEAs.

[49] United States Coast Guard. (2015, July 8). *Atlantic Coast Port Access Route Study*.

[50] The Marine Planning Guidelines do not constitute enforceable rules denying surface occupancy in those areas. If a leased area fell within the Marine Planning Guideline Buffers, the USCG would review a lessee's Navigation Safety Risk Assessment (submitted with its COP) to determine the level of risk for surface occupancy within the Marine Planning Guideline Buffers. Bureau of Ocean Energy Management. (2018, October 19). *Summary Report: Bureau of Ocean Energy Management's Offshore Wind and Maritime Industry Knowledge Exchange.*

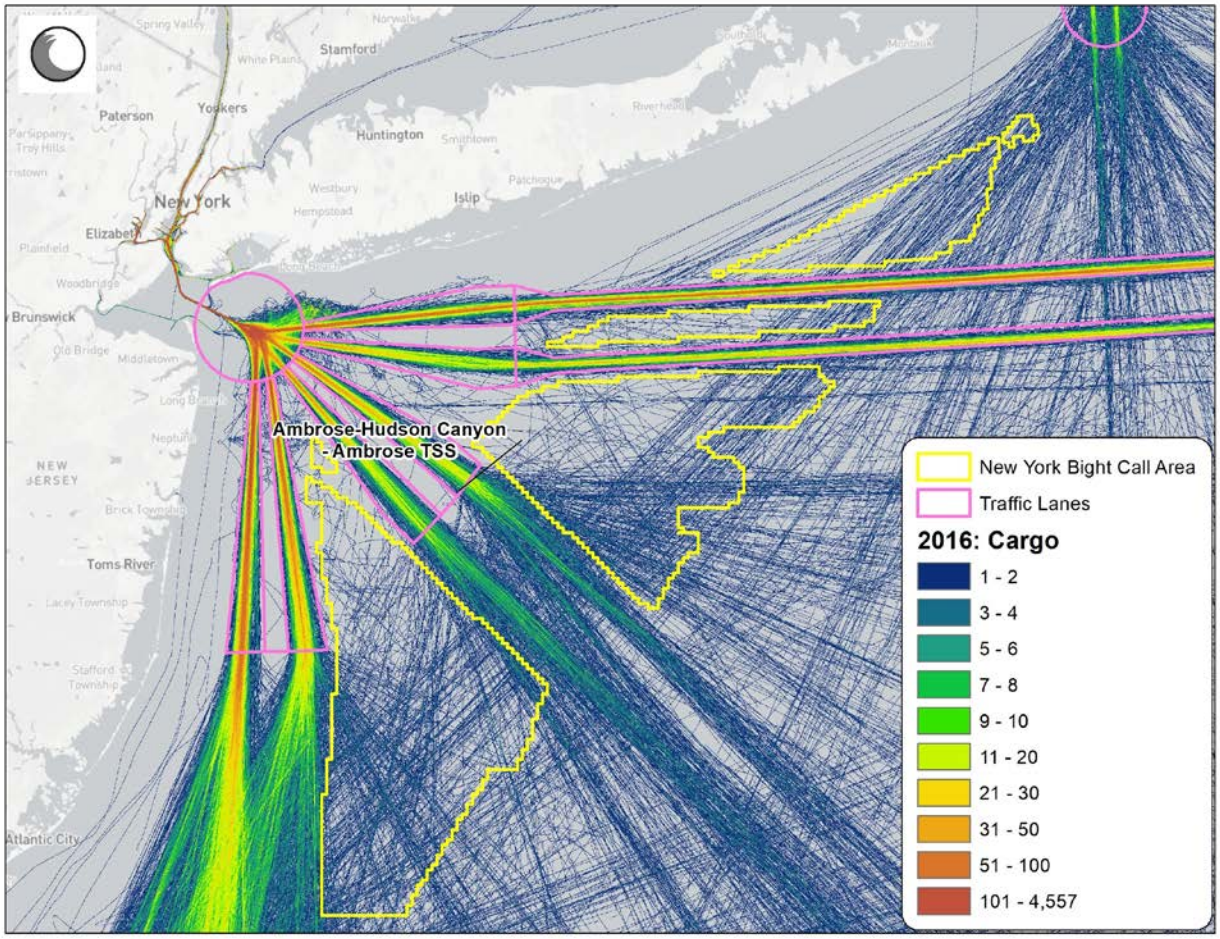

Figure 8: AIS Counts for all Cargo Vessel Traffic in the New York Bight in 2016.

c) Tug and Towing Vessels Within the NY Bight

Although tug and towing vessels historically stay near the shore due to calmer sea states, comments from stakeholders, such as the American Waterways Operators, indicate that these vessels are starting to travel farther offshore as tug and barge maneuverability improves with the advancement of integrated and articulated tug and barges. In 2015-2016, there was an average of 15 tug or towing transits through the Call Areas per month, with up to 27 in July 2015.[51] As tugs become better able to handle offshore conditions, preferring to avoid the busy shoreline, vessel operators anticipate such vessels to continue to use this direct path.[52]

With completion of its ACPARS in 2016, the USCG began the process of formally designating additional traffic lanes in the Atlantic, known as fairways. This process was furthered by the publication of the ANPRM for "Shipping Safety Fairways Along the Atlantic Coast." BOEM

[51] Marine Cadastre. (2018). *2009-2017 National AIS at 1 Minute Intervals*. Retrieved from: https://marinecadastre.gov/data/

[52] American Waterways Operators. (2018, July 30). *Re: Commercial Leasing or Wind Power on the Outer Continental Shelf in the NY Bight -- Call for Nominations (BOEM-2018-0004).* Docket comment: BOEM-2018-0004-0095.

had met several times in 2018, at both the leadership and staff level, with members of USCG's Marine Transportation Systems to discuss the impacts of potential future traffic lanes on current and potential future leases. The USCG's preliminary maps include a potential lane for the tug and towing traffic that crosses the NY Bight, as shown in Figure 9.[53] The potential tug and towing lane depicted in the preliminary maps is exactly located in the same position as the ANPRM tug and towing lane.

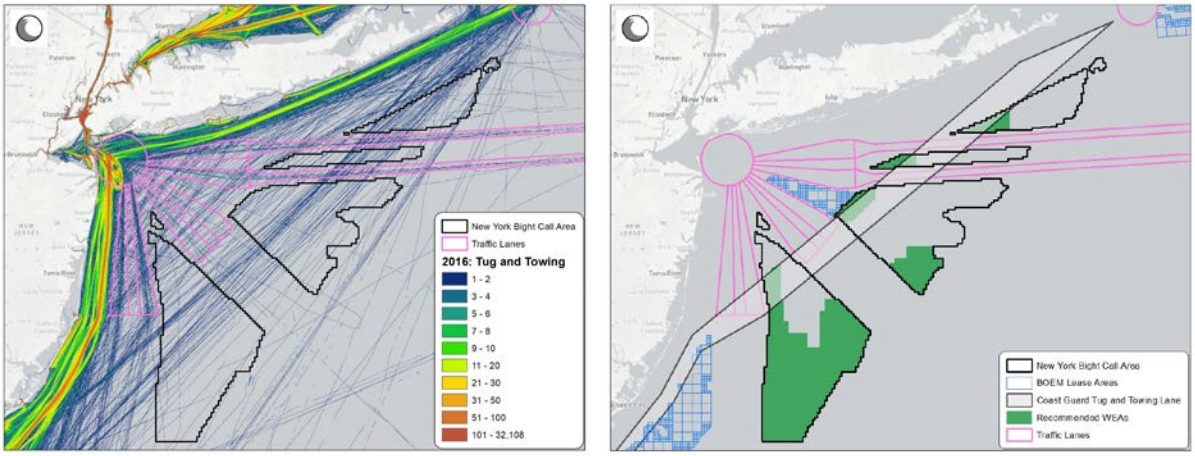

Figure 9: Tug and Tow Traffic and the Potential Towing Lane as of November 2018.

d) Fishing Vessel Transit in the NY Bight

Although fishing vessels are represented in the AIS data described above, they are under-represented due to the fact that only vessels 65 feet and greater are required to carry AIS. To help address this concern NYSERDA conducted outreach with the fishing industry beginning in January 2019 culminating in a 2020 report that included proposed transit corridors and best management practices as shown in Figure 10.[54] These proposed transit corridors should be further considered in the proposed lease area delineation should WEAs be identified and the leasing process commence.

[53] George Detweiler. (2018, November 29). *U.S. Coast Guard's Presentation at the Intergovernmental Renewable Energy Task Force for the NY Bight*. Retrieved from: https://www.boem.gov/NY-Bight-Fairways-Presentation/
[54] NYSERDA. (2020, June). *New York Bight Transit Lanes Survey, Workshop, and Outreach Summary.*

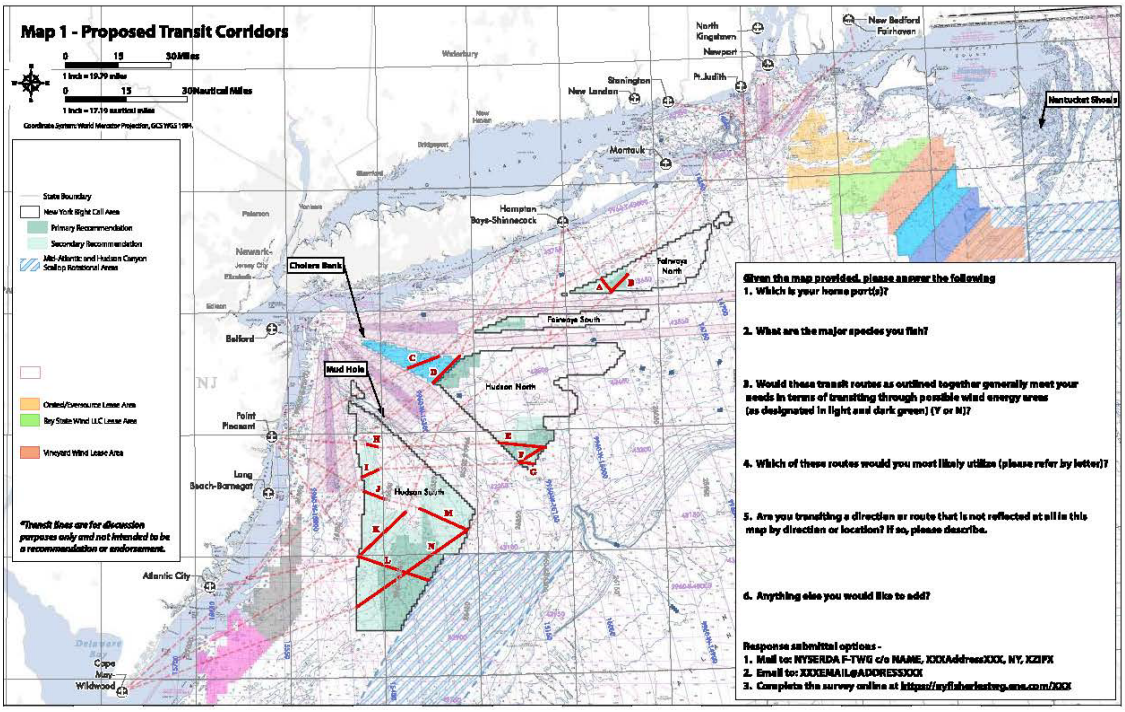

Figure 10: Consolidated transit lanes as illustrated in the NYSERDA Report

3. Department of Defense

As part of BOEM's ongoing coordination with the DOD, the DOD provided an initial wind energy compatibility assessment (2017) of the areas offshore the North Atlantic coast. DOD presented the map shown in Figure 11 at the November 28, 2018, NY Bight Task Force meeting. Since the initial 2017 DOD assessment, BOEM continued to work with the Military Aviation and Installation Assurance Siting Clearinghouse to deconflict existing and future activities identified by DOD, particularly the Department of the Navy's Marine Corps training exercises. On December 15, 2020, DOD provided an updated assessment, illustrated in Figure 12.

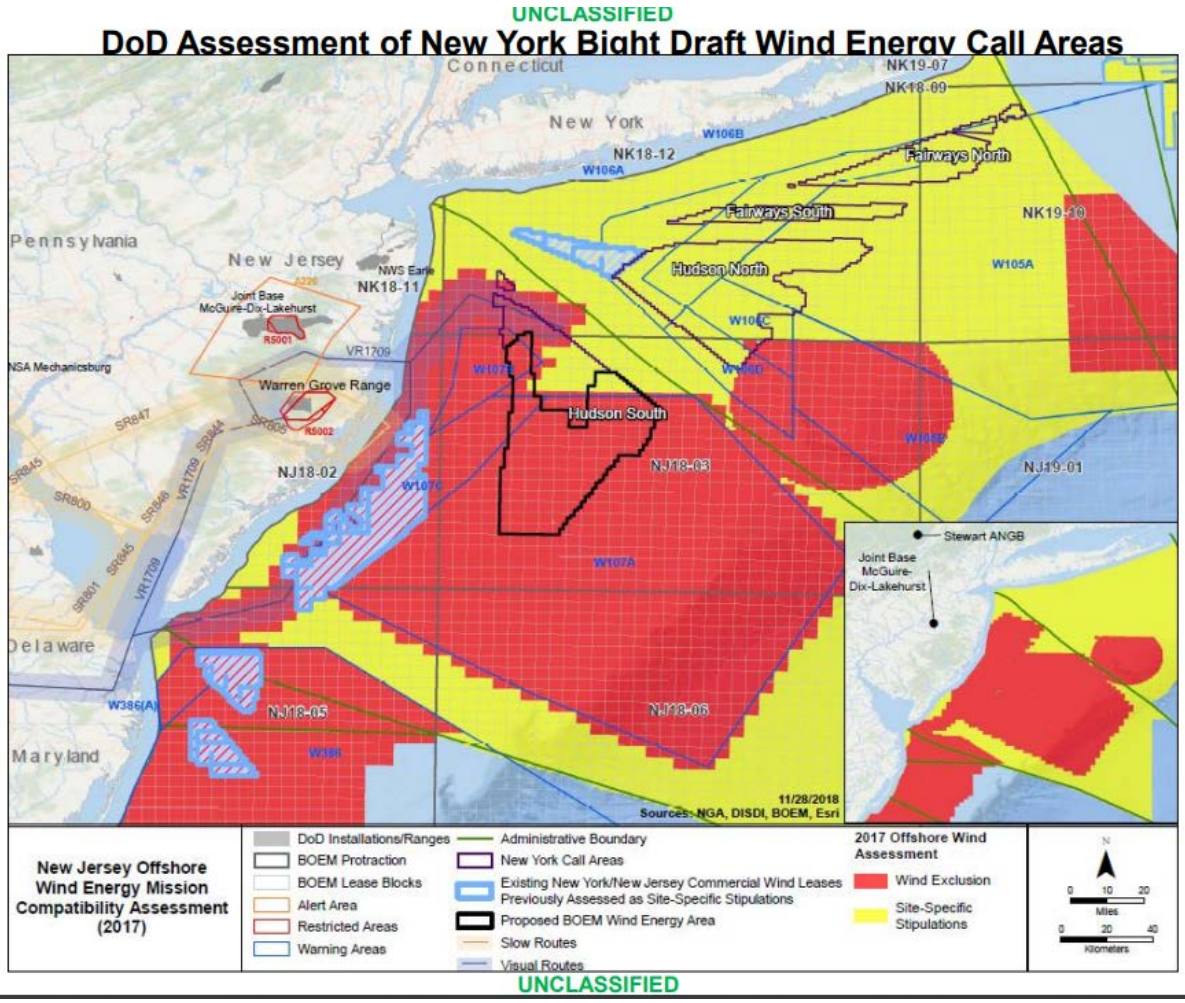

Figure 11: Preliminary DOD Offshore Wind Compatibility Assessment as presented by the DOD at the November 28, 2018, New York Bight Task Force Meeting.

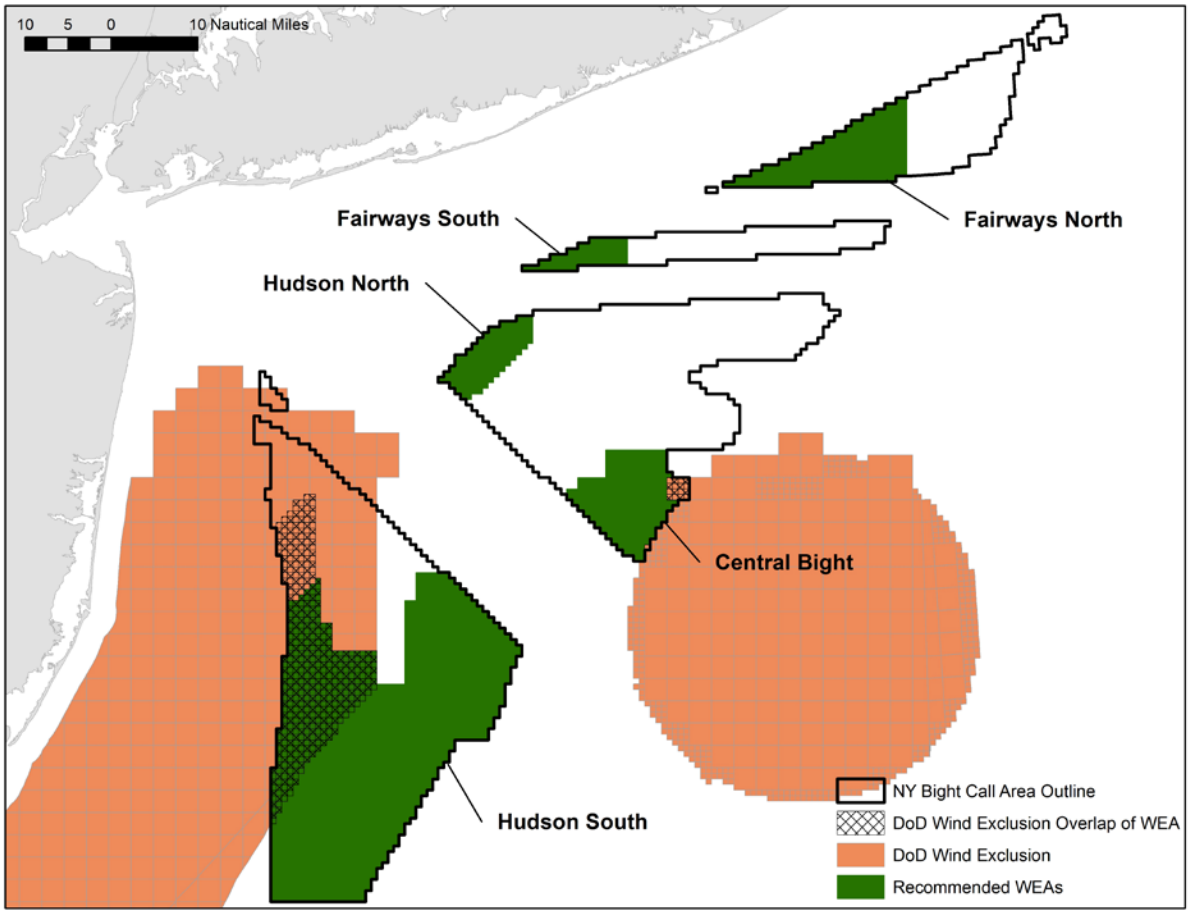

Figure 12: December 2020 DOD Offshore Wind Compatibility Assessment

DOD identified a portion of the Hudson South Call Area as "Wind Exclusion" due to potential conflict with Marine Corps CH-53E Helicopter mid-air refueling exercises. Such exercises occur between 800-5,000 feet in elevation, and portions of this training area could overlap with the potential rotor sweep zone of an offshore wind turbine. In addition, DOD identified potential impacts to U.S. Air Force NEXRAD weather radar if wind turbines exceed 1,000 feet above sea level within the Hudson South Call Area. An area of overlap between the DOD Wind Exclusion areas and the Call Areas has been removed in the Recommended WEAs to reduce this conflict. Further, BOEM will continue to work with the U.S. Air Force to ensure site-specific stipulations are implemented to mitigate impacts to NEXRAD weather radar should the leasing process move forward.

Development of offshore wind in the Fairways North and South, and Hudson North Call Areas may require the development and implementation of site-specific stipulations after identification of the WEAs. Such stipulations may be necessary to mitigate potential impacts to the North American Aerospace Defense (NORAD) Command's air surveillance radar. Such stipulations would be identified during BOEM's future coordination with DOD if a lease is issued in these areas and a Construction and Operations Plan is submitted for approval.

4. Additional Considerations

BOEM considered several other potential factors that did not significantly influence the spatial orientation of the recommended WEAs. These factors were already adequately addressed through the designation of the Call Area and/or will be further analyzed later in the BOEM process. These factors include visual impacts; the presence of avian species; marine mammals and other protected species; and radar, cables, and other existing infrastructure. BOEM's analysis of these factors is briefly described below.

a) Visual Impacts

Hundreds of important coastal scenic, historic, and recreational resources; historic properties (properties either listed on or determined eligible for listing on the NRHP as defined in Section 106 of the National Historic Preservation Act (NHPA)); tribal properties and treasured seascapes; commercial interests dependent on tourism; and the private property of coastal residents all have viewsheds that could potentially be adversely affected by offshore wind energy developments within the NY Bight Call Areas. The number of affected resources, properties, and interests and the extent of impacts depends on project siting. Based on the extent and degree of potential onshore visibility demonstrated through the NYSERDA visualization study (particularly at night from Federal Aviation Administration (FAA) safety lighting), stakeholders have raised concerns that visual impacts from turbines sited within 20 miles from these properties could occur to such a level as to not be resolvable through future mitigation measures. However, the extent of visual impacts can depend on project specifics such as wind turbine number, size, spacing, and configuration; as well as potential design measures such as paint colors and aircraft detection lighting systems, all of which would be fully analyzed in the event a lease(s) is issued and a COP(s) is submitted. Of the total 849,727 acres identified as WEAs, 54,490 acres are located within 20 statute miles from shore.

BOEM has therefore determined that potential impacts to viewshed from offshore wind facilities are an issue that would be further analyzed during BOEMs review of a COP. Under BOEM's phased process for renewable energy development, review of project-specific visual impacts under both Section 106 of the NHPA and NEPA does not occur until BOEM considers approval a COP.

b) Marine Protected Species

BOEM's broad scale analysis indicates that wind development within the Call Areas poses a minimal risk to marine mammal diversity and even lower risk to overall cetacean abundance and diversity because most species have habitat preferences for waters farther offshore than the Call Areas.

Five species of large whales listed as endangered and four species of sea turtles listed as threatened or endangered under the Endangered Species Act (ESA) are found in the vicinity of

the NY Bight.[55] There is no critical habitat for any endangered and threatened species in the NY Bight. Three of the endangered whale species are primarily found in deeper waters seaward of the Call Areas.[56] Additionally, North Atlantic right whales (NARWs) and fin whales are considered to be seasonally "common" in the areas examined. In providing comments on these areas, NOAA identified a biologically important feeding area (BIFA) off Montauk Point for fin whales; BOEM's analysis also identified these areas as a potentially important feeding area for NARWs.[57] BOEM did not include the BIFA in the recommended WEAs.

Overall, BOEM determined that wind energy development within the Call Areas poses low risks to marine mammal diversity and very low risks to overall cetacean abundance and diversity because most species have habitat preferences for waters beyond the continental shelf edge and outside the Call Areas.[58] Likewise, BOEM determined that existing regulatory mechanisms to protect NARWs from vessel strikes appear adequate. BOEM also determined that site-specific mitigations to impacts on marine protected species would be identified at later stages in the development process, such as through lease stipulations and terms and conditions of COP approval.[59]

Loggerhead turtles are also considered to be seasonally "common" in the proposed Call Areas, with other turtle species occurring with less frequency in the area. However, no known "hotspots," migratory corridors, nor nesting beaches exist in the vicinity of the Call Areas.[60] Similar to marine mammals, BOEM determined that wind energy development in the Call Areas poses very low risks to sea turtle abundance and diversity because most species have habitat preferences outside of the Call Areas. Additionally, existing regulatory mechanisms appear adequate and site-specific mitigations to impacts will be identified at later stages in the development process.

c) Avian Species

BOEM's analysis found that 11 seabird species are present at a level of relatively moderate density during at least one season in the Call Areas.[61] None of these species are listed under the ESA, and none of these species were found at relatively high densities. Based on this

[55] Additional information on seabird presence in the Call Area is available in BOEM's study *Modeling At-Sea Occurrence and Abundance of Marine Birds to Support Atlantic Marine Renewable Energy Planning: Phase I Report* available at https://www.boem.gov/ESPIS/5/5512.pdf ; NYSERDA's *Birds and Bats Study* available at https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Studies-and-Surveys ; and the Northeast Ocean Data Portal here https://www.northeastoceandata.org/

[56] Sperm whales, Blue whales and Sei whales.

[57] See note 15 for maps of the BIFA.

[58] An overview of BOEM's analysis, including maps of marine protected species abundance is available here: https://www.boem.gov/Subject-Matter-Presentation-Visual-Impacts-and-Avian-and-Marine-Protected-Species-BOEM/

[59] BOEM will further consider vessel speed restrictions in the development of lease stipulations for any future leases awarded in the Call Areas.

[60] NYSERDA's Marine Mammals and Sea Turtles Study contains relevant analysis. It is available at: https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Studies-and-Surveys

[61] Common Loon, Common Murre, Common Tern, Cory's Shearwater, Double Crested Corm, Dovekie, Great Black Back Gull, Herring Gull, Laughing Gull, Northern Gannet, Wilson's Petrel. 47 total bird species were present in the Call Area. The remaining 36 species are present at densities lower than moderate.

information, BOEM determined that impacts to seabirds should be addressed on a site-specific basis at the COP review stage as opposed to during this broader planning Area ID stage.[62]

d) Radar

BOEM identified and considered the existing and available information related to weather, coastal air navigation, and vessel navigation radar in the NY Bight.[63] Additionally, BOEM received comments identifying potential locations and measures for effective mitigation. The information analyzed did not reveal portions of the Call Areas requiring exclusion due to radar usages.[64] In addition, site-specific impacts and concerns are better addressed through coordination with DOD, FAA, and NOAA which will occur during the COP review stage and consider mitigation techniques,[65] at site-specific levels.[66] Therefore, BOEM did not use radar impacts to exclude areas when identifying the recommended WEAs in the NY Bight.

e) Cables, Pipelines, and other Infrastructure

The presence of in-service submarine cables in portions of the Call Areas increases risk to offshore wind energy development. However, BOEM has decided against excluding portions of the Call Areas due to the presence of subsea cables because proven technical solutions exist to reduce the risks to both potential wind energy facilities and existing infrastructure. Technical solutions include separation schemes between existing and new renewable energy infrastructure and maintenance of sufficient cable burial depth (1.5-2 m) to protect both the cable and other seabed users. In addition, early communication and outreach to the owners of existing infrastructure can reduce risk factors.[67]

f) Wind Resource/Wake Effects

BOEM determined that wake effects should not influence the delineation of WEAs within the Call Areas. The most frequently occurring and consistent winds in the Call Areas come from the southwest direction.[68] Therefore, wind energy facilities directly northeast of each other are more

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[62] Additional information on seabird presence in the Call Area is available in BOEM's study *Modeling At-Sea Occurrence and Abundance of Marine Birds to Support Atlantic Marine Renewable Energy Planning: Phase I Report* available at https://www.boem.gov/ESPIS/5/5512.pdf ; NYSERDA's *Birds and Bats Study* available at https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Studies-and-Surveys ; and the Northeast Ocean Data Portal here https://www.northeastoceandata.org/

[63] A map of high frequency radar locations in the NY Bight is available here: https://www.boem.gov/Initial-Technical-and-Navigation-Analysis/

[64] BOEM received comments from the Mid-Atlantic Regional Association Coastal Ocean Observing System, the Rutgers University Center for Ocean Observing Leadership, the Long Island Commercial Fishing Association, National Coalition for Fishing Communities, and the State of New Jersey on potential impacts.

[65] Examples of mitigations include modifying the turbine installation layout, stealth treatment on main turbine elements, changes to radar data processing and adaptive scanning, among others.

[66] NYSERDA also recommended a site-specific consultation process to address impacts on radar in their paper *New York State Area for Consideration for the Potential Locating of Offshore Wind Energy Areas* available at https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Studies-and-Surveys

[67] As referenced in BOEM's Construction and Operations Plan Guidance-*Attachment H: Coordination Efforts Relating to Existing Telecommunications Cables* https://www.boem.gov/COP-Guidelines/

[68] Wind frequency analysis based on NOAA's National Data Buoy Center data; Station 44025 located 30 nmi south of Islip, NY. The station data is available at https://www.ndbc.noaa.gov/station_page.php?station=44025

likely to experience a reduction in energy production throughout the year. The highest speeds in the Call Areas come from the west-northwest direction during the winter season; therefore, a project built just to the southeast of another may experience a significant reduction in energy production. BOEM believes such concerns can be mitigated by requiring sufficient wake recovery distance between any leases to maintain equitable project development scenarios for multiple developers. Lease areas can be refined from WEAs at the PSN and FSN stages, and/or conditions can be placed on COP approvals for projects in adjoining lease areas. It is therefore premature to eliminate areas from consideration for WEAs because of wake effects.

VI. Rationale for Wind Energy Area Recommendations

A. Introduction

To facilitate the Area ID planning process, BOEM prefers to maintain flexibility by identifying more (and in some cases, larger) WEAs. In recommending the following WEAs, BOEM also aims to be responsive to the region's renewable energy goals, increase the potential for competition in future offshore wind energy solicitations, and develop a predictable leasing pipeline.

BOEM understands that some of the recommended WEAs (or portions thereof) may ultimately not be offered as lease areas. For instance, BOEM is aware that some of the recommended areas overlap with proposed navigation corridors. As described in the navigation section above, the USCG is currently pursuing a regulatory initiative to convert historical tug and tow vessel routes into safety fairways. BOEM recognizes that the designation of a safety fairway is a lengthy public rulemaking process that may change based on public input. For the purposes of this effort, BOEM is working closely with the USCG and stakeholders and believes that there is space within the NY Bight to safely accommodate both offshore wind and tug and tow traffic aspirations. The process to designate this fairway is in its early stages, and the fairway width and location are still undetermined. Given this uncertainty, BOEM has decided to include areas with potential overlap for further consideration and will continue to work with the USCG in the planning process to identify an outcome that provides for both navigation safety and opportunities for offshore wind development.

BOEM also recognizes that coastal states closest to a lease area are afforded many potential opportunities related to offshore wind industry development, including workforce and supply chain development. Conversely, potential impacts to existing ocean users generally fall most heavily on the state whose coastline is closest to the leased area. The inclusion of WEAs in proximity to both the NY and NJ coastlines facilitates more equitable distribution of these positive and negative offshore wind development externalities.

BOEM's WEA recommendations are a result of balancing key existing interests and resources in the region, energy goals, and anticipated future uses based on the best available information and statutory obligations. Areas proposed for leasing will be identified in a PSN, as discussed in Section IV. BOEM will consider, in its final leasing decision, the results of the NEPA analysis and associated consultations, as well as relevant new information that it receives between its WEA designation and issuance of the FSN. Additionally, BOEM maintains its flexibility to

offer only a portion of the WEAs for lease, leaving unselected areas for future consideration. This section discusses the rationale for the recommendation of each WEA and, where appropriate, the exclusion of portions of the Call Area that BOEM is not designating as WEAs at this time. As different areas had different balancing factors, select area-specific issues are discussed in more detail for specific recommended WEAs below.

B. Fairways North Wind Energy Area

Figure 13: Fairways North Wind Energy Area

The recommended Fairways North WEA was chosen by balancing several factors, the most prominent being commercial fishing, navigation, marine protected species, and commercial viability.

1. Fisheries

The RUI for fisheries showed relatively high usage in the northern and eastern portion of the Fairways North Call Area, with fisheries usage decreasing towards the west. As a result, the western third of the area was determined to be relatively less impactful to fisheries interests. However, the State of New York stated in their comments on the NY Call that Fairways North had the "greatest concern to the highest number of individual fishermen" and recommended it be removed from further consideration.

2. Navigation

Two main factors were drivers from a navigation perspective. The first is a recommendation from the ACPARS Marine Planning Guidelines for a buffer along the sides of a traffic lane. While not a traffic lane, the Nantucket to Ambrose Safety Fairway sees considerable vessel traffic. BOEM therefore considered a 2 nmi buffer between the fairway and the recommended WEA but decided not to implement the buffer in this recommended WEA and to rely on future navigation safety risk assessments to evaluate site-specific safety issues.

3. Marine Protected Species

NOAA identified a BIFA off Montauk Point for fin whales adjacent to the Fairways North Call Area and suggested that a 10 nmi buffer be implemented to protect this resource. The buffer overlaps with the eastern portion of this Call Area. When considered in tandem with high fishing use in the same area, BOEM decided to exclude the eastern portion of this Call Area from the recommended WEA.

4. Commercial Viability

BOEM received three nominations in response to the Call in this region (Avangrid Renewables, East Wind, and Horizon Wind Power). The nominations were concentrated in the central portion of the Call Area.[69] The recommended WEA overlaps with a portion of each nomination.

BOEM acknowledges that NYSERDA's Area for Consideration document, which was submitted to BOEM on October 2, 2017, excludes both Fairways North and South in part because NYSERDA concluded that development would likely require considerable electrical transmission costs. As described by the State of New York;

> "… small, discontinuous sites are not cost effective, and may create diseconomies of scale. Larger sites allow for increased capacity and generation, which enable higher revenues and cost savings from installation and operations and maintenance costs."[70]

Following the November 2018 Task Force meeting, Avangrid Renewables wrote to BOEM stating that "an efficient and effective offshore wind industry can only be secured if developers

[69] NY Bight commercial nominations received in response to the Call. https://www.boem.gov/NY-Bight-Nominations/

[70] Letter from NYSERDA, dated December 12, 2018 RE: Analysis - Project Relative Economics

are able to bring forward sufficiently large projects" in order to allow for economies of scale. They did not view Fairways North or South as large enough to support a viable project, but suggested we continue study of the area in the future. Conversely, Horizon Wind Power asserted that 200-400 MW projects are viable and sought inclusion of a WEA within the Fairways North Call Area.

5. Changes from Draft to Recommended WEA

In order to be responsive to state requests and provide additional renewable energy leases, BOEM revised the boundary of the draft WEAs provided to the Task Force in November 2018 in Fairways North WEA to include an area that is not conflicted with USCG or DOD interests. The recommended WEA has an estimated potential installed capacity of over 1 GW, which is sufficiently large for commercial development. Additionally, inclusion and expansion of this area also helps to address concern of the distribution of the positive and negative externalities of offshore wind development throughout the NY Bight, particularly considering New York's recent increase in stated goals for offshore wind. Further study into commercial viability and potential developments in ship-routing measures will inform potential lease sales within this WEA.

C. Fairways South Wind Energy Area

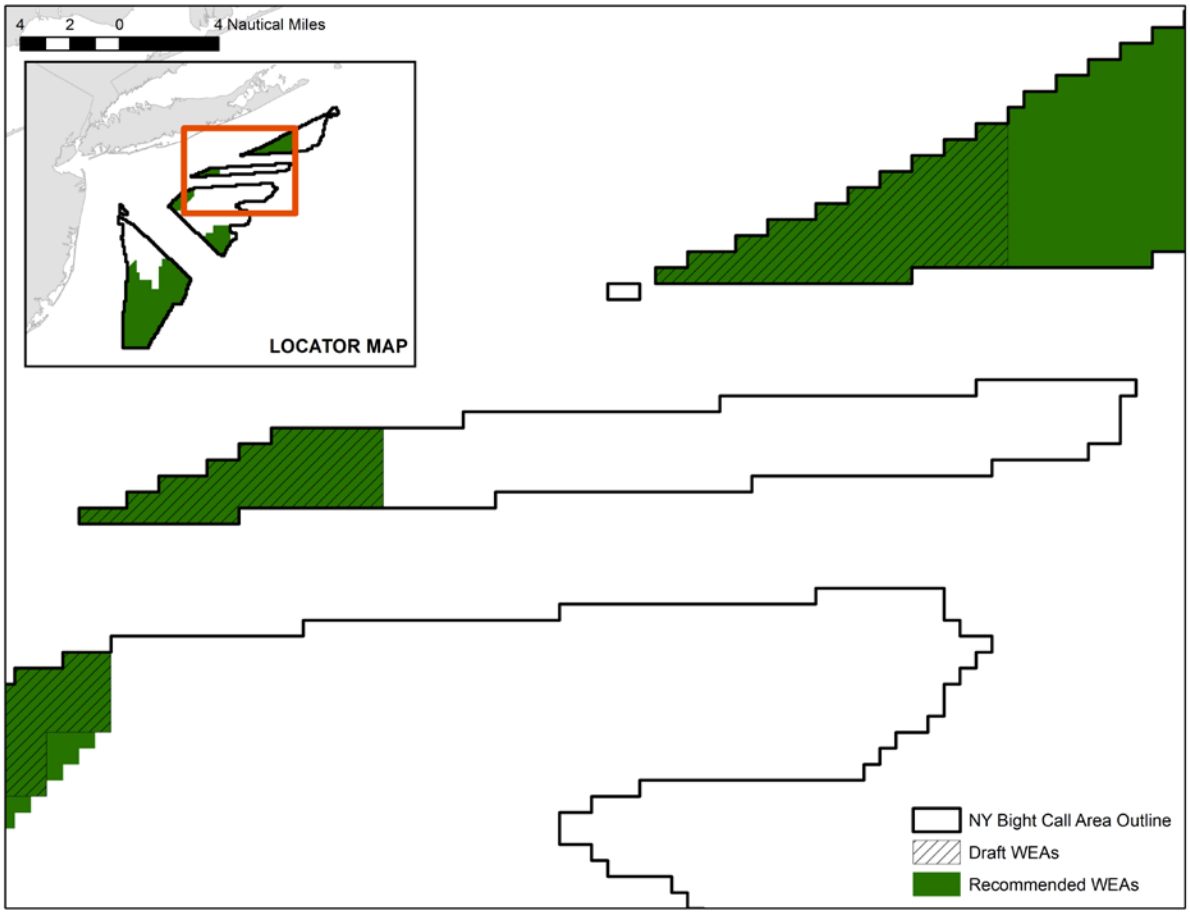

Figure 14: Fairways South Recommended Wind Energy Area

The recommended Fairways South WEA was delineated as a result of balancing several factors, the most prominent being commercial fishing, navigation, and commercial viability.

1. Fisheries

The fishing RUI in this region depicts relatively high usage in the eastern portion of the Fairways South Call Area, with fisheries usage decreasing towards the west. The western portion has relatively few (1-2) submarine cables that could present future commercial fishing gear conflicts due to the use of cable protection measures. This was an area recommended for leasing by the members of the surfclam and ocean quahog fishing industry. Potential downsides of this area are that it overlaps with a New Jersey Prime Fishing Area (Yankee Spot), which New Jersey Fisheries Management Administration and the Littoral Society asked to be removed from consideration. The State of New York said the area is less important than Fairways North, but still has sufficient conflicts with commercial fishermen to suggest the whole area be removed.

2. Vessel Navigation

BOEM recognizes that the proximity of this recommended WEA to the Ambrose to Nantucket traffic lanes presents a concern to mariners in this region, particularly to vessels that may be experiencing mechanical or technical difficulties and require more room to maneuver. Based on AIS trackline analysis, however, a majority of vessels travel within the bounds of the established traffic lanes. Site-specific navigation studies will be conducted if the site is proposed for development, which will inform the siting of any future wind energy facility. Additionally, this recommended WEA is within a potential fairway identified by the USCG. At this time, BOEM has decided to keep this area in consideration and allow for continued dialogue regarding this specific area's suitability to safely and efficiently support offshore wind energy development.

3. Commercial Viability

The recommended WEA in Fairways South represent the smallest area considered for inclusion. As suggested in the section above, there is debate on what a minimum size for a viable project may be. However, procurements for projects around or less than 200 MW indicate that there may continue to be demand for smaller projects. Furthermore, this area overlaps with two nominations from developers, and could be preferred by smaller and/or locally-based entities. The recommended Fairways South WEA could also be combined with a nearby WEA (such as Hudson North) to form one larger lease area.

4. Changes from Draft to Recommended WEA

The recommended WEA in Fairways South is the same as the draft WEA presented at the November 28, 2018, NY Bight Task Force meeting.

D. Hudson North Wind Energy Area

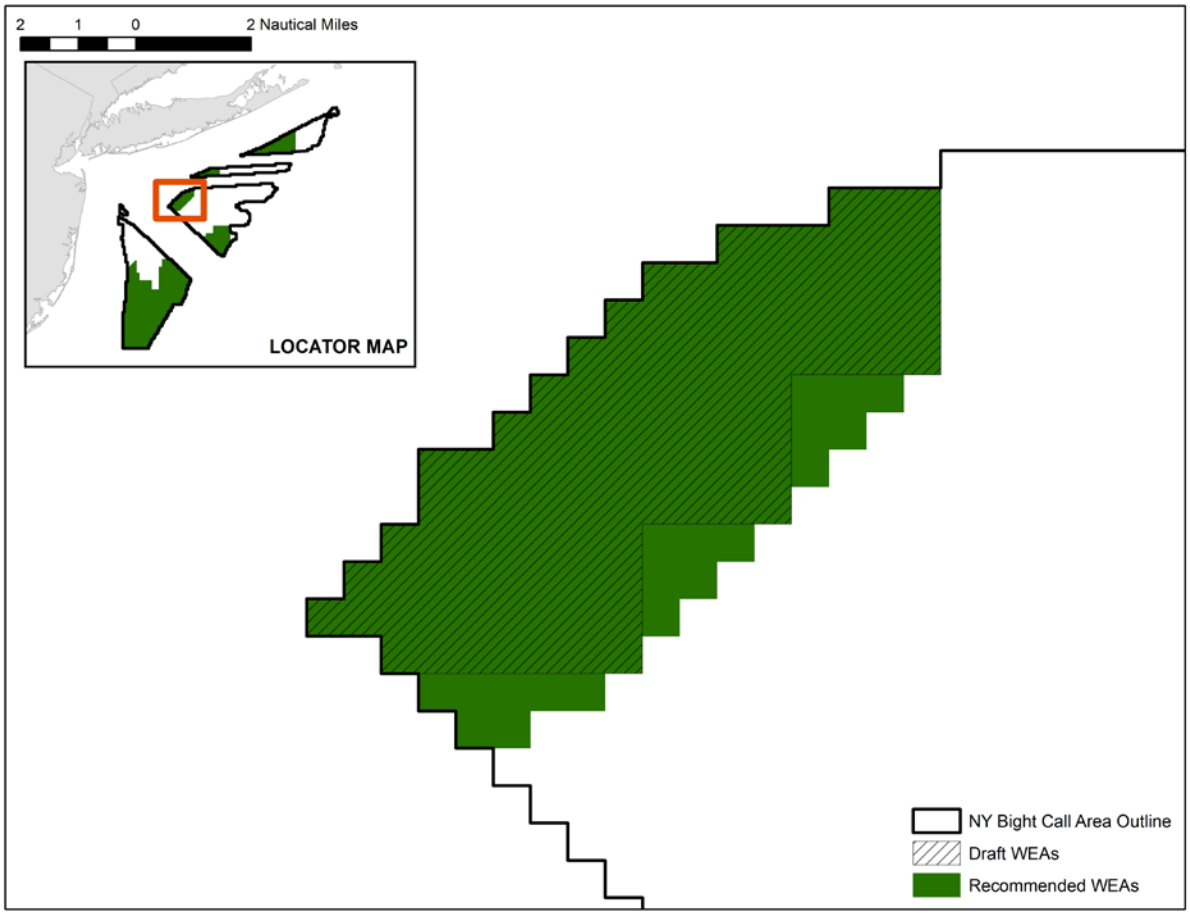

Figure 15: The Hudson North Recommended Wind Energy Area

The recommended Hudson North WEA was delineated as a result of balancing several factors, the most prominent being commercial fishing, commercial viability, and navigation.

1. Fisheries

The RUI determined that the Hudson North WEA has less relative fishery value than other portions of the Hudson North Call Area. The area experiences higher fishing activity during certain periods, especially among scallop fishermen, but it was recommended for offshore wind development by members of the surfclam/ocean quahog industry and the recreational fishing community.

2. Commercial Viability

At approximately 43,000 acres, this WEA is smaller than most areas that BOEM has leased in the past. Nonetheless, it may be suitable for development not only due to opportunities for offtake from neighboring states, but due to its relatively shallow waters, proximity to

transmission solutions, and consistent wind speeds which may increase its installed capacity per acre. In addition, this area overlaps with three nominations received in response to the Call.

3. Navigation

The recommended Hudson North WEA conflicts with the tug and tow extension safety fairway currently under consideration by the USCG. The outcome of that process may influence future leasing decisions in this area.

In addition, BOEM considered the existing traffic patterns in the region through analysis of AIS trackline data. As depicted in Figure 7, BOEM observed a notable "spreading" pattern wherein vessels have a tendency to stay within a TSS but veer off towards their destination once they have exited. This creates a fan-like effect at the exits to each of the TSS lanes in the region. The inclusion of this area may require traffic to enter or exit the TSS further south, but the exclusion of the central portion of the Hudson North Call Area may allow for some spreading of vessel traffic north of the recommended Central Bight WEA. BOEM anticipates that these two WEA recommendations, in tandem, will help minimize the alteration of vessel routes entering and exiting the Hudson-Ambrose-Hudson TSS.

4. Changes from Draft to Recommended WEA

At the November 28, 2018, NY Bight Task Force meeting, several commenters expressed concern that the draft Hudson North WEA was not of sufficient size for viable commercial development. The State of New York specifically suggested that the irregular boundary of the draft WEA could cause unintended challenges to survey and development activities and suggested that BOEM consider making the WEA a more uniform shape. BOEM has responded by adjusting the eastern boundary to eliminate the irregularity. Filling in the saw-like eastern boundary with a more uniform edge also allows more area to be included without significantly impacting navigation. The boundary adjustment also slightly increased the size of the WEA to a conservatively estimated capacity of approximately 520 MW.

E. Central Bight Wind Energy Area

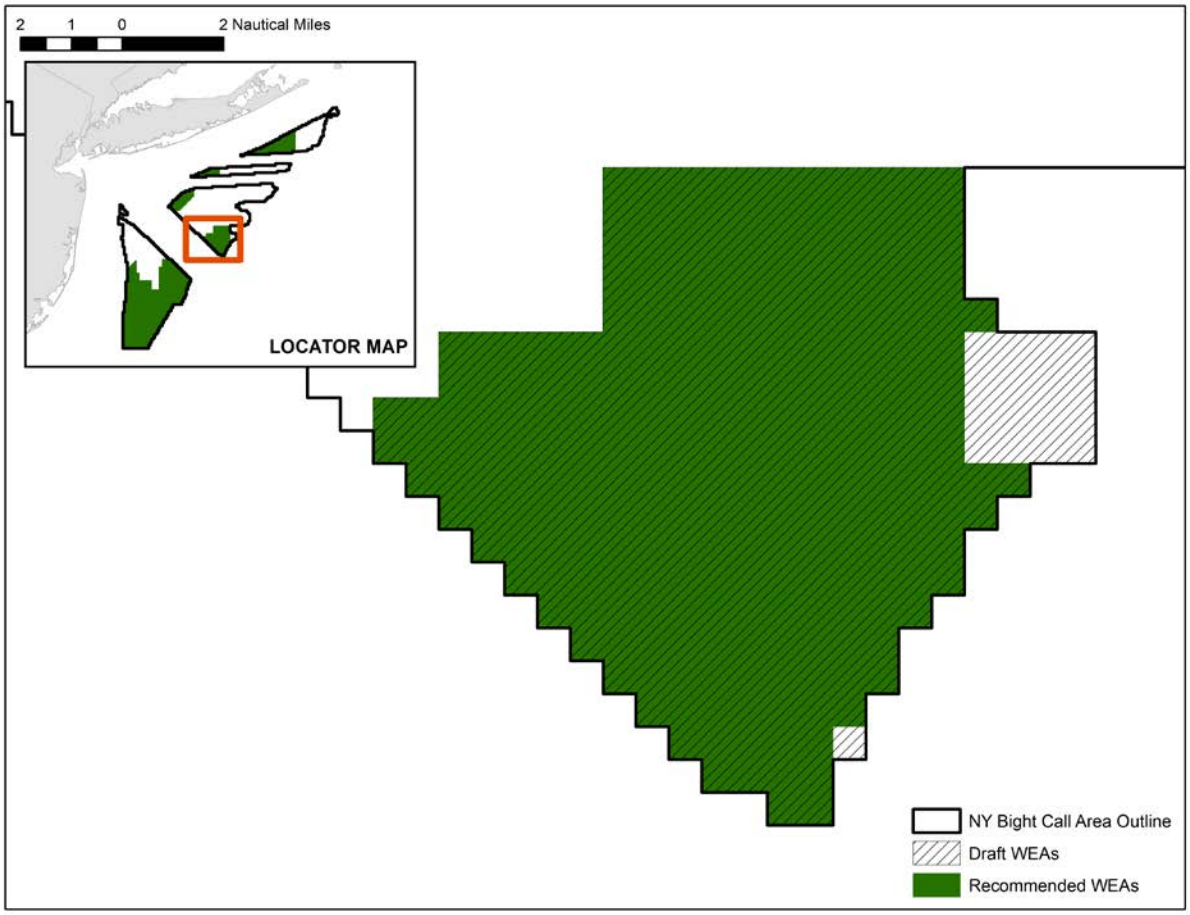

Figure 16: The Central Bight Recommended Wind Energy Area

The recommended Central Bight WEA was delineated as a result of balancing several factors, the most prominent being fisheries, navigation, and commercial viability.

1. Fisheries

The Central Bight WEA contains higher RUI scores relative to the other recommended WEAs, but the Central Bight WEA presents less fisheries conflict than portions of the Hudson North Call Area that BOEM has excluded from consideration. New Jersey Prime Fishing Areas (identified as George's Bank) which follows the 180 feet (30 fathom) depth contour, and 5 submarine cables which could create fishing gear conflicts due to the need for cable protection measures. It should also be noted that the George's Bank area is immediately adjacent to areas recommended for removal from consideration by the New Jersey Marine Fisheries Administration. Despite low usage by most of the commercial fisheries included in the RUI, this area presents potential exposure to the scallop fishery, which has higher revenue than other fisheries, as discussed above.

2. Navigation

The recommended Central Bight WEA does not conflict with the potential tug and tow safety fairway, but could conflict with existing deep draft vessel traffic patterns if fully built out. Deep draft vessels could avoid offshore wind installations by traveling to the north of the Central Bight WEA. During the 2015-2016 period, the recommended Central Bight WEA alone saw a monthly average of 30 cargo vessels and 11 tankers, with more vessels transiting on either side of the area. Most of these vessels were inbound to New York, with the remainder crossing or outbound. Site-specific navigation concerns would be assessed as part of a Navigational Risk Assessment at the COP stage, which, based on additional analysis of traffic concerns and proposed turbine layouts, may result in the imposition of mitigation measures.

3. Commercial Viability

This area was recommended as a WEA because it provides enough acreage for a commercially viable project, while avoiding potential conflicts with DOD activities and reducing potential conflicts with most of the fishing activities within the Hudson North Call Area. The WEA is relatively far from shore and in deeper waters, which may increase development costs relative to shallower sites closer to shore. However, when examined in relation to all of the existing uses, this area presents the least amount of conflict with offshore wind energy development. In addition, the recommended Central Bight WEA overlaps with one nomination submitted in response to the Call.

4. Additional Factors Considered

The Area for Consideration submitted by the State of New York included a majority of the recommended Central Bight WEA. However, the recommended WEA includes a 21,706-acre area along the eastern boundary with the Hudson Shelf Valley that New York excluded. At the November 28, 2018, Task Force meeting, New York requested that BOEM reconsider including a WEA in this area due to its sensitive biological characteristics.[71] After reconsideration of this specific area, BOEM concluded that no new information was presented to change the original designation. Moreover, lease stipulations, permit conditions, and other mitigation mechanisms designed to protect marine species and their habitat in compliance with existing laws will likely address potential impacts at later stages.

5. Changes from Draft to Recommended WEA

The draft primary and secondary recommendations for the Central Bight WEA were combined to create an 84,688 acre recommended WEA. In consideration of the December 2020 DOD assessment and overlap of Wind Exclusion areas, one lease block and one aliquot were removed along the Eastern boundary of the Draft WEA to avoid this conflict.

[71] https://www.boem.gov/NYSERDA-Presentation/

F. Hudson South Wind Energy Area

Figure 17: The Hudson South Recommended Wind Energy Area

The recommended Hudson South WEA was delineated as a result of balancing several factors, most prominently commercial fishing, navigation, commercial viability, and compatibility with DOD activities.

1. Fisheries

The recommended Hudson South WEA contains the largest contiguous area of relatively low RUI scores in the NY Bight. It also avoids several heavily fished areas in the north, central, and southern portions of the original Call Area. Members of the surfclam and ocean quahog industry identified not only portions of the area that they have historically fished, but also portions of the northeastern border as an area that would be compatible with offshore wind energy development and potential turbine layouts that would promote coexistence. However, locations not historically used by surfclam and ocean quahog fishermen are typically heavily fished for other species, notably scallops. The western edge of the recommended WEA contains diverse bathymetric features that support recreational fishing areas and is also historically fished by the surfclam and ocean quahog industry. However, scallop VMS data for 2015-2016 shows very

low scallop fishing in this area, as shown in Figure 18. This area also overlaps with a portion of an area the scallop industry recommended for leasing.

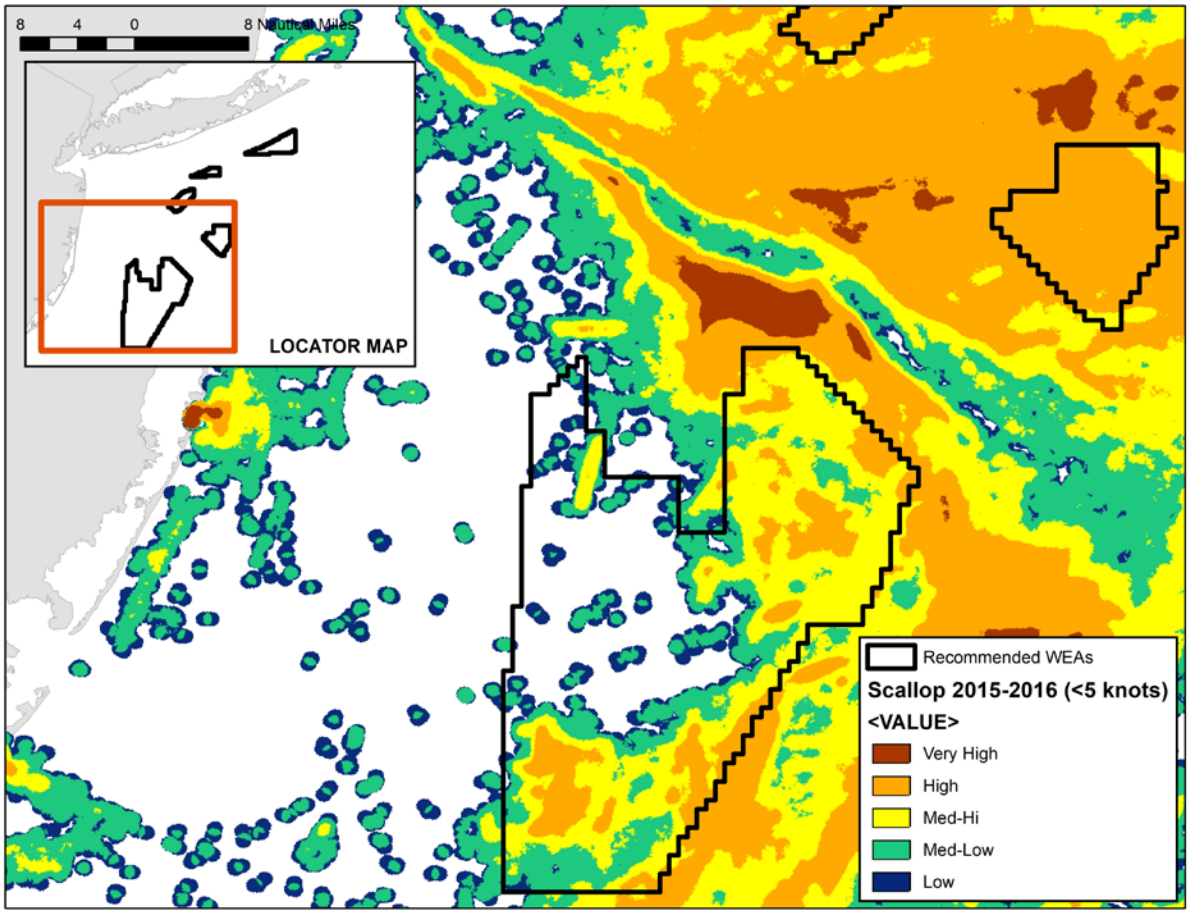

Figure 18: Scallop Fishing Intensity in Relation to the Call Areas

2. Navigation

The main considerations from a navigation perspective were the tug and tow safety fairway, existing deep draft vessel traffic patterns, and a USCG weapons training area. In consultation with the USCG, it is likely that even if it is possible to relocate portions of the proposed tug and barge safety fairway to deconflict the Hudson North and Fairways North and South areas, a portion of Hudson South would still be in conflict. As such, BOEM has removed the area of the Hudson South Call Area that conflicts with the proposed fairway (Figure 9). BOEM acknowledges that development of this recommended WEA may require deep draft vessels entering or exiting the adjacent TSSs from the south to travel farther prior to taking a more direct route to their destination. Due to vessel traffic concerns and the recommended Hudson South WEA's potential to support multiple lease areas, BOEM plans to examine the need and effectiveness of mitigation measures to facilitate existing uses and interaction between leases, such as transit lanes within the recommended WEAs and buffers between leases and/or TSSs, prior to lease area designation and sale. The USCG weapons training area in the northern

portion of the Hudson South Call Area, as well as relatively higher volumes of vessel traffic in that area, were factors in excluding that portion of the Hudson South Call Area from the WEA.

3. Commercial Viability

The Hudson South WEA had the greatest interest from developers in response to the Call, with 5 nominations. This WEA could support both the New York and New Jersey energy markets and their associated infrastructure. In addition, this area represents the largest contiguous acreage, potentially allowing for multiple lease areas that would both increase competition in the market and fulfill a significant portion of the demand from adjacent states. Finally, in its Master Plan, NYSERDA expressed a strong preference for inclusion of a large portion of this area.

4. Department of Defense

As noted above, DOD identified potential conflicts with Department of the Navy training and with radar used by the U.S. Air Force and NORAD. BOEM has eliminated areas that conflict with a majority of DOD activities in the Hudson South Call Area and will resolve remaining conflicts within the recommended WEAs during the process of identifying lease areas for a PSN, where certain areas may be excluded from leasing, and by developing site-specific stipulations in coordination with DOD.

5. Changes from Draft to Recommended WEA

The portion of the draft WEA which overlaps with the proposed USCG tug and barge safety fairway in Hudson South has been removed from the WEA recommendations. This area also overlaps with areas identified as a DOD Wind Exclusion zone in December 2020.

VII. Director Concurrence

☑ Yes

☐ No

AMANDA LEFTON

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Amanda Lefton
Director, Bureau of Ocean Energy Management

3/26/21
Date