Clean Ocean Action
49 Avenel Blvd.
Long Branch, NJ 07740
Info@cleanoceanaction.org
732-872-0111

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Michelle Morin
Chief, Environmental Branch for Renewable Energy
Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, Virginia 20166

Re: Draft Environmental Impact Statement for Ocean Wind, LLC's Proposed Wind Energy Facility Offshore New Jersey

Dear Ms. Morin:

Clean Ocean Action ("COA")[1] submits the following comments in response to the request from the Bureau of Ocean Energy Management ("BOEM") for comments on the draft environmental impact statement ("Draft EIS" or "DEIS") for **Ocean Wind, LLC's proposed wind energy facility offshore New Jersey** (Docket # BOEM-2022-0021).[2] From the outset, COA affirms the dire consequences of climate change and emphasizes that the organization is not opposed to offshore wind energy development; however, we support it only when done reasonably and responsibly.

Ocean Wind, LLC ("Ocean Wind" or "the Applicant") proposes to build an offshore wind energy development ("OSW") project, known as "Ocean Wind 1," which would be located approximately fifteen (15) miles off the coast of southern New Jersey ("NJ") in water depth ranging from forty-nine (49) to 118 feet.[3] If approved, construction and operation of the OSW

[1] Clean Ocean Action is a regional, broad-based coalition of 125 conservation, environmental, fishing, boating, diving, student, surfing, women's, business, civic and community groups with a mission to improve the degraded water quality of the marine waters off the New Jersey/New York coast.
[2] Notice of Availability of a Draft Environmental Impact Statement for Ocean Wind, LLC's Proposed Wind Energy Facility Offshore New Jersey, 87 FR 37883.
[3] Ocean Wind 1 Construction and Operation Plan at 53, https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/OceanWind1-DEIS-Vol1.pdf.

project would require hundreds of trips to port by dozens of vessels, including some that measure more than 500 feet long.[4] The project would also include substantial helicopter support as well.

COA respectfully submits that the Draft EIS is incomplete, inconsistent, and misleading. It fails to present a responsible and reasonable "purpose and need" as required by the National Environmental Policy Act (NEPA) for the proposed project, as well as fails to evaluate all reasonable alternatives to the proposed Project as required by law. The Draft EIS makes clear that Ocean Wind 1 is being fast-tracked, and the document is written with a clear indication of a positive outcome for the Applicant here. The Draft EIS also makes clear the project will have a range of significant negative impacts to the marine environment and surrounding areas, plus there is a dearth of scientific studies in certain areas critical to assessing the impacts from this project's effects on multiple ecosystems in the region, as well as cumulative impacts. In particular, the Draft EIS fails to consider a true No Action Alternative, which would focus on energy-use reduction through conservation and efficiency, land-based renewables and improvements to transmission, nor a pilot-sized alternative to the massive industrial complex proposed. In sum, COA regards the Draft EIS as deficient in numerous respects.

COA's comments below on the Draft EIS for Ocean Wind 1 are to be considered in addition to those already provided by representatives of the organization at the virtual public hearings held on July 14, July 20, and July 26, 2022, as well as in other written submissions made to the federal docket. Moreover, COA maintains the 45-day public comment period issued under the original notice was insufficient time to review and prepare comments on the proposed complex and large-scale industrial development in the Proposed Action. While appreciative of the 15-day extension to the public comment period that BOEM announced on August 3, 2022, the 1400-plus page document remained a challenge to comprehensively review for environmental and socioeconomic impacts within the timeframe allotted.

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[4] Bur. Ocean Energy Mgmt., Ocean Wind 1 Offshore Wind Farm Draft Environmental Impact Statement 3.15-50, 51-52 (2022)(hereafter "DEIS").

OVERVIEW

The primary purpose of an Environmental Impact Statement ("EIS") is to "provide full and fair discussion of significant environmental impacts and inform decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts."[5] The document is also required to specify the underlying purpose and need to which the agency is responding in proposing the alternatives, including the proposed action.[6] Here, the Draft EIS does not provide a full discussion of the impacts, nor a fair portrayal of the impacts, of the proposed activities. The DEIS also does not present a sufficient purpose and need for the Proposed Action. As such, it is procedurally and substantively flawed.

The ocean and coastal region off the New Jersey coast has vastly improved over the decades with the elimination of ocean dumping, the blocking of fossil fuel facilities, and the improvement to waste water treatment. In response, marine life is thriving in the region with over 300 species of fish, thirty (30) varieties of whales and dolphins, including the endangered North Atlantic right whale, five (5) species of sea turtles, 350 species of birds, four (4) seal species, and thousands of species of invertebrates, to name a few.[7] This rich life, which has evolved over tens of thousands of years, is life sustaining to the region economically (in billions of dollars) and ecologically. The ocean ecosystem also is the primary buffer to climate change impacts. Massive, intensive, abrupt and rash industrialization will jolt the system with both known and unintended consequences. It is essential that the offshore wind industry's impacts be fairly and fully evaluated, including cumulative impacts, so as to avoid and reduce impacts and, if unavoidable impacts are identified, then they must be mitigated.

In brief, the Draft EIS is incomplete, inconsistent, and misleading. The document distorts information to minimize potential impacts to marine life and air quality, underestimates severe weather events, and presents a skewed and inaccurate analysis of the "no action alternative". The Draft EIS also fails to discuss the true magnitude and extent of the proposed OSW facility's environmental impacts throughout the project's life-cycle, from pre-construction through decommissioning. Significantly, the Draft EIS does not consider the many other wind farms being proposed on adjacent leased areas, nor does it examine connected actions occurring onshore or the cumulative effects of this project in conjunction with subsequent Ocean Wind and other OSW proposals.

As described in detail below, the Draft EIS lacks a full and fair discussion of significant environmental impacts to marine life and resources, including endangered species, which are threatened by this project. Moreover, there is no demonstrated need to rush straight into industrial-scale OSW off the NJ coast without a local pilot project.For all of the above reasons, the Draft EIS fails to conduct a full and fair discussion of significant environmental impacts

[5] 40 CFR 1502.1.

[6] *Id*. at 1502.13.

[7] See Hutchison, et al., *The Interaction Between Resource Species and Electromagnetic Fields Associated with Electricity Production by Offshore Wind Farms*, 33:4 Oceanography 96 (2020).

threatened by the Ocean Wind 1 facility, as required. COA urges BOEM to select an alternative not considered by the Draft EIS–"Alternative F"–involving a pilot OSW off the NJ coast, which will avoid the risks and harms posed by Ocean Wind 1 as currently proposed to NJ and the region.

With respect to the environmental review process for Ocean Wind 1 more generally, Clean Ocean Action would like to first observe that ocean waters are public and held in trust. Federal and state agencies are entrusted with the duties to protect these lands for the public interest. The Ocean Wind 1 proposal is a major use of open public ocean land and water, enjoyed and shared by millions of people of all ages and backgrounds. However, the process by which the DEIS is being reviewed lacks due process and transparency.

The Ocean Wind 1 Draft EIS is a lengthy, technical document; it is 1400+ pages with fourteen (14) appendices numbering 934 pages, seventy-nine (79) tables, forty-two (42) maps and figures, and more than 900 referenced documents that must be thoroughly reviewed from legal, scientific, policy, socio-economic, economic, health, and advocacy perspectives. There is much at risk, including a rich diversity of species and extensive onshore and offshore impacts.

The Draft EIS was announced in summer and the comment period commenced during prime summer vacation time. Interested groups do not meet during summer months or regularly with members and boards to be able to discuss issues and get board or administrative approval for testimony and comments in the amount of time given (e.g., forty-five [45] and fifteen [15] days). This is not enough time to review a 1,400 page document, prepare questions and concerns for verbal testimony at virtual hearings, and prepare meaningful written comments.

Also, the ongoing COVID-19 pandemic limited public engagement in the Draft EIS review process. While appreciative of three opportunities to provide testimony during the three virtual public hearings, by nature, virtual public hearings limit public participation and provide technical challenges to those wanting to attend. Technology is challenging and intimidating to many.

At the same time, the public needs to find additional time to comment on yet another environmental impact review for offshore wind energy development: the July 15th announcement of a "programmatic" environmental review of 6 newly leased areas for offshore wind in the waters off New Jersey and New York – nearly half a million acres of public ocean, in fact. How much is too much? This is too much, too fast and strips the public of its ability to meaningfully engage with the details, complexities and impacts of Ocean Wind 1, as well as the other projects being fast-tracked..

Currently, there are eleven (11) Memorandum of Understandings ("MOUs"), Memorandum of Agreements ("MOAs"), or "Programmatic Agreements" between BOEM and various agencies, foreign governments, companies, and consultants specific to offshore wind or renewable energy development. Of these eleven (11), four aim to fast-track and advance offshore wind energy in the New York/New Jersey Bight and beyond. The purpose of the most recent MOU, a 10-year

initiative between BOEM and the National Oceanic and Atmospheric Administration ("NOAA") signed on January 12, 2022, is "to coordinate the resources, responsibilities, and expertise of both agencies to responsibly advance offshore wind energy development on the Outer Continental Shelf." The MOU essentially cuts-out the public and is spearheaded by one administration's plans for "advancing" offshore wind. The MOU reads: "This MOU will also serve as an 'umbrella agreement' that facilitates the timely development of subsequent agreements related to offshore wind energy." These agreements are causing public confusion and deprive the public of due process in reviewing private interests' impacts to public resources.

Further, the federal fast-tracking initiative "Fast 41", which refers to Title 41 of the Fixing America's Surface Transportation Act (FAST Act) (42 U.S.C. § 4370m et seq.), created a new governance structure, set of procedures, and funding authorities to advance the federal environmental review and authorization process for covered infrastructure projects. It is important to note that *all* of the offshore wind projects off the NJ coast are listed in the federal "FAST-41" program and set for advancement. According to the U.S. Department of Transportation's "Permitting Dashboard," "Participation in the FAST-41 program is voluntary, and sponsors of projects that qualify under specific statutory criteria apply to obtain program benefits. The program helps ensure a deliberate, transparent, and predictable Federal environmental review and permitting process for certain large, complex infrastructure projects." These federal agreements and initiatives fast-tracking and streamlining large projects are essentially giving the "green light" to private companies to control and the rights to develop a public resource, the ocean. In short, BOEM is violating its obligation to protect offshore resources under the public trust and limiting due process.

Fast-tracked reviews for Ocean Wind 1 are not fair or just and they do not reflect good governance, especially in combination with the many expedited government and agency agreements described above. There will be moderate to major impacts from this OSW project, as noted in the Draft EIS. There will also be numerous Incidental Harassment Authorization applications, state permits for onshore development, U.S. Army Corps of Engineers permit applications, state consistency reviews, and again, now the Programmatic environmental review for the six (6) recently leased areas for offshore wind in the NY/NJ Bight – all being fast-tracked with lengthy, complicated materials to simultaneously review. Moving quickly and carelessly could prove devastating to marine life, and impact onshore communities. BOEM must provide more time, overall, to review Draft EIS and Final EIS documents now and in the future.

There are many unanswered questions about the impacts of offshore wind energy off the NJ coast, a sentiment echoed by scientists and policymakers in various fora. The lack of transparency and due process for the review of the Proposed Action is preventing a true and fair evaluation of the impacts. Offshore wind development should be evaluated fairly to ensure it is done correctly, responsibly, and reasonably, especially with respect to the reductions in carbon dioxide emissions that are so critically needed to combat climate change.

There is support for reasonable and responsible offshore wind energy and interest in participating in the review process that allows for sufficient time. Clean Ocean Action collected 2,816 petition signatures in a short time frame to support sufficient time and reasonable and responsible offshore wind energy development off the NY/NJ coast.[8]

Additionally, consideration and assessment of cumulative impacts in the Draft EIS is deficient. While cumulative impacts are mentioned briefly in sections, the Draft EIS does not broadly or specifically consider impacts as they relate to the twenty-four (24) other known projects and offshore wind lease areas in the NY/NJ Bight as they relate to Ocean Wind 1. As such, impacts from any and all of these projects will be amplified in the geographic analysis area.

Furthermore, scientists admit there is a dearth of scientific knowledge and studies that identify cumulative impacts of offshore wind energy development on wildlife, and yet BOEM and the federal government are fast-tracking this Proposed Action and similar large-scale, commercial, offshore wind development. More independent, peer-reviewed scientific studies must be completed before permits are awarded and decisions are made on large-scale offshore wind projects, such as Ocean Wind 1. The cumulative impacts can be grave and great to the North Atlantic right whale, key benthic species, and other important contributors to the ecosystem.

In light of the foregoing reasons, especially the lack of due process and lack of analysis concerning cumulative impacts to which this project will contribute, Clean Ocean Action urges BOEM to pursue a pilot-scale offshore wind development project before allowing Ocean Wind 1 to move forward at the proposed industrial scale.

1. Comments on Draft Environmental Impact Statement by Section

A. Introduction

COA objects to the confusing, overwhelming, and obfuscatory approach that the federal government has taken to reviewing the environmental impacts of Ocean Wind 1 and numerous other OSW projects proposed off the NJ/NY coast. For instance, there is an inappropriate bifurcation of the environmental reviews for the New York and New Jersey Bight Region, which has undermined a comprehensive and cumulative assessment of the full scale and scope of the offshore wind industry proposals and activities in this region. This bifurcation, in turn, has resulted in an Alternatives analysis that is neither full nor fair. Importantly, it is unclear how many of the studies used to justify the project have been peer reviewed or were primarily conducted through the Applicant's financial support. Furthermore, many of the panels of reviewers for studies relied upon in the Draft EIS's analysis include representatives of BOEM or the Department of the Interior ("DOI"). This dynamic begs serious questions regarding the blurred line between the external peer review process and the agencies' consultative roles in the

[8] *See* Clean Ocean Action, *Petition to Ensure Offshore Wind Energy is Done Right to Protect Ocean*, Change.org (last accessed Aug. 23, 2022), https://www.change.org/p/petition-to-ensure-offshore-wind-energy-is-done-right-to-protect-ocean.

preparation of these documents. Timely and independent peer review must take place for all studies produced by Ocean Wind 1, BOEM, or other federal agencies for the purposes of this OSW project.

As a more specific example, Section 1.2 of the Draft EIS indicates that the National Marine Fisheries Service ("NMFS") has received a request for an Incidental Harassment Authorization ("IHA") to take marine mammals during Ocean Wind 1's construction and operation activities. The Draft EIS explains that if NMFS issues the requested IHA, it intends to adopt BOEM's Final EIS to support its decision and fulfill its NEPA requirements. This approach to fulfilling NMFS's obligations for the Ocean Wind 1 IHA process is a prime example of how the federal government has stacked the deck for offshore wind developers at the expense of the public and the environment. It does not make sense for NMFS to close its public comment period for the IHA before the full scope of Ocean Wind 1's impacts on marine mammals can be fully vetted during the DEIS process.

Moreover, in the brief amount of time that has elapsed since this DEIS was published, BOEM has already released and opened the public comment period for a Programmatic EIS ("PEIS") that the agency is undertaking for six (6) commercial-scale offshore wind operations in the New York/New Jersey Bight. And yet, BOEM has sliced the geographic boundaries of its NEPA reviews in such a way as to avoid having to ever perform a full analysis of the cumulative effects from these many projects collectively. The timing of these announcements is particularly burdensome for the many local parties with a vested interest in both Ocean Wind 1 and the 6 operations proposed for the Bight. In fact, two of the three virtual public hearings scheduled for the Bight PEIS will occur before the public comment period for the Ocean Wind 1 DEIS has closed.

Further, numerous Memorandums of Understanding ("MOUs") and Memorandums of Agreements ("MOAs") and "Programmatic Agreements" create shortcuts in the process to expedite offshore wind development at the expense of fair and reasonable review of the environmental consequences.[9] Currently, there are eleven (11) MOUs, MOAs, or Programmatic Agreements between BOEM and various agencies, foreign governments, companies, and consultants specific to offshore wind or renewable energy plans and activities.[10] Of these 11, four (4) seek to fast-track and advance offshore wind energy in the New York/New Jersey Bight and beyond.[11] Similarly, Title 41 of Fixing America's Surface Transportation Act (42 U.S.C. § 4370m et seq.), referred to as "FAST-41," created a new governance structure, set of procedures, and funding authorities to advance the Federal environmental review and authorization process

[9] Memorandum of Understanding and Memorandum of Agreement (MoU/MoAs), Bur. Ocean Energy Mgmt. (last accessed Aug. 22, 2022), https://www.boem.gov/MOUs-MOAs.
[10] *Id.*
[11] *Id*.

for covered infrastructure projects. Looking at the Fast 41 "Dashboard," it is important to note that ***all*** of the offshore wind projects off the New Jersey coast are listed. In short, BOEM is looking to fast-track and green-light projects, thereby violating the public trust in protecting offshore resources.

Finally, no reasonable pilot project has been conducted to make meaningful comparisons for the large-scale offshore wind development of the Proposed Action. Despite assurances that data from OSW in Europe or the five-turbine project off Rhode Island can justify the safety of Ocean Wind 1 near New Jersey, these claims are not appropriate for reasons expanded upon below in Section 2. Given the scientific uncertainty, lack of transparency, and extensive onshore and offshore impacts of Ocean Wind 1, as well as the size, scope, and scale of this new industrial development of a public resource, Clean Ocean Action recommends BOEM consider a new alternative: Alternative "F", a pilot-scale sized project. A pilot project would allow the information needed to understand the risks and impacts of this development on resources and communities before large-scale development, such as the Proposed Action, would occur.

B. Lack of a Fair Presentation and Assessment of Alternatives

The "Alternatives" section of the Draft EIS and accompanying analysis are not full nor fair, as they are skewed and inaccurate for two reasons. First, the "No Action Alternative" presented by BOEM in the Draft EIS is not a true "no action" alternative. In fact, the so-called "No Action Alternative" in the document actually presumes that offshore wind energy will definitely continue to be developed at other BOEM lease sites in the area. As a result, the "No Action Alternative" repeatedly described throughout the Draft EIS in fact involves quite a lot of industrial action–just not by Ocean Wind 1 specifically. The contrast that this document is supposed to make between the "No Action Alternative" and the other alternatives, all of which involve industrial-scale offshore wind energy development at Lease Site OCS-A 0498, thus hardly appears to be much of a contrast at all to many readers. Consider, for example, that the Draft EIS classifies some impacts of the Proposed Action (i.e., construction and operation of Ocean Wind 1) as lower overall than the impacts of the "No Action Alternative" provided.[12] Such an outcome is plainly absurd. How can introducing infrastructure to an area of the ocean where it did not previously exist cause fewer impacts than not building it at all? Instead of the analysis presented in this Draft EIS, BOEM should be required to re-submit the Draft EIS for public review and comment with an analysis that reflects a "No Action Alternative" which

[12] In Table S-2, the summaries and comparisons of impacts among alternatives shows these questionable assessments: Birds (page S-10) - impacts under 'No Action" are alleged to be minor, while impacts for the "Proposed Action" are characterized as negligible to minor; Coastal Habitats (S-11) - impacts of "No Action" are projected to be moderate, while impacts for the "Proposed Action" are classified as minor; Commercial Fisheries (S-11) - the consequences of "No Action" are shown to be moderate to major, but those of the "Proposed Action' are described as minor to major; Finfish (S-12) - no action is minor to moderate, but proposed action is negligible to moderate; Marine Mammals (S-12) - no action is minor, but proposed action is negligible (to major); Sea Turtles (S-14) - no action is minor, but proposed action is negligible to minor.

actually involves no offshore wind energy development. Or, in the alternative, the EIS for Ocean Wind 1 must include a more narrowly tailored analysis that does not obfuscate the likely impacts of development at this site by only presenting them against a background of widespread offshore wind growth across the region.

Furthermore, the Draft EIS wrongfully fails to consider a pilot project. Clean Ocean Action suggests an "Alternative F" that would require a pilot offshore wind energy project to be conducted off the New Jersey coast before rushing into industrial-scale development. This is a reasonable alternative and should be fully evaluated in the DEIS. Experience with this new industry is lacking not only in New Jersey and New York, but across the United States as well. Thus, there are simply too many remaining unknowns associated with offshore wind development of this scale in this area. The cost and economic viability of offshore wind energy, for example, is actively undergoing much scrutiny around the country,[13] while uncertainty also continues to abound with respect to the degree to which offshore wind-related development in coastal areas will exacerbate local sea level rise.

One of the main reasons why so much remains unknown about Ocean Wind 1's true environmental and economic impacts is because the project is being justified based on studies from the wind farm at Block Island, Rhode Island, and others from European projects. However, neither of these are appropriate comparisons for offshore wind energy development off the New Jersey coast. These projects and their local environments are not comparable to the Ocean Wind 1 lease site or the NewYork/New Jersey Bight more generally. In fact, recently, studies on OSW development in the Mediterranean Sea have observed that North Sea or Baltic Sea OSW may not be comparable due to changes in ocean bathymetry and other factors.[14] This supports COA's opinion that the NY-NJ OSW region must be viewed as its own entity and studied more thoroughly.

To start, the waters of the North Sea and Northern Europe do not have nearly as much variety of marine mammals, including the critically endangered North Atlantic Right Whale. Second, New Jersey has warmer waters than Northern Europe or Rhode Island ("RI"), and turbines placed off the NJ coast will realistically need to be able to withstand Category 3 or Category 4 hurricanes. Offshore turbines have not had to withstand weather events of that magnitude in Europe or Rhode Island. Similarly, studies from Europe or Block Island are inapt because they involve different technology than the type that will be used by Ocean Wind 1. Block Island Wind Farm, for example, uses six (6) megawatt ("MW") turbines with brace-jacket foundations, which

[13] Sarah Vogelsong, *What's 'reasonable and prudent' when it comes to Dominion offshore wind project's costs?*, Virginia Mercury (May 16, 2022), https://www.virginiamercury.com/2022/05/16/whats-reasonable-and-prudent-when-it-comes-to-dominion-offshore-wind-projects-costs/.

[14] *See* Josep Lloret, et al., *Unravelling the ecological impacts of large-scale offshore wind farms in the Mediterranean Sea*, 824 Science of the Total Environment 153803 (2022), https://www.sciencedirect.com/science/article/pii/S0048969722008956.

plainly contrast with the twelve (12) MW turbines using monopile foundations expected to be found at Ocean Wind 1.

BOEM must recognize that a pilot project offers value for more than matters of quantitative scientific observation–which is why the logistic importance of a local pilot project cannot be overstated. Siting five 6-MW turbines off the coast of Rhode Island for the wind farm at Block Island is hardly the same as siting nearly 100 12-MW turbines in the waters off New Jersey, which include vital shipping lanes for one of the busiest ports in the country. Studies, such as the one by Strobach et al. (2018) on the impacts of inland terrain on offshore wind development in Maryland, for example, reconfirm that a lot of factors remain unknown and need to be investigated in greater depth and detail in the proposed WEA, and this Project. While there are definitely some aspects of the Rhode Island process that would benefit the development of offshore wind near NJ, such as the creation of a Special Area Management Plan before completing the BOEM review process, neither it nor the European studies are appropriate scientific or logistical stand-ins for New Jersey's uniquely busy coast. A small, local pilot project that uses the proposed technology and can be robustly evaluated before, during and after construction is the only way to address the shortcomings identified above and begin the path toward responsible development of offshore wind energy in these waters through a process that reflects fair, responsible, and good governance.

If BOEM is not willing to develop wind development off the New Jersey coast responsibly–namely, by considering and choosing an "Alternative F" that would require a pilot project at Lease Area OCS-A 0498–then Clean Ocean Action has no choice but to urge the selection of a true, no-build No Action Alternative.

C. Affected Environment and Environmental Consequences: Highest Priorities

The Draft EIS analyzes how Ocean Wind 1 will affect the environment and local communities' relationship with it. Across the various sections of analysis that the document contains, however, one theme is clear: there are enormous gaps in the baseline data and scientific literature concerning the impacts of OSW–and Ocean Wind 1 in particular–on natural resources and the ecosystems that rely on them. Our most urgent concerns with the Draft EIS's characterization of environmental consequences from Ocean Wind 1 are set forth below.

i. Benthic Resources (3.6)

The Draft EIS does not include a full and fair discussion of Ocean Wind 1's impacts on benthic resources. The short, intermediate and long term impacts of wind energy turbine installations can be understood only if there is thorough knowledge on bottom sediments, habitat types, benthic assemblages, and fish species. Unfortunately, this information is currently lacking in most of the Wind Energy Areas, and the proposed project is no exception. If approved, Ocean Wind 1 will cause significant harm to the benthic environment, both inshore and offshore, and also adversely

impact Submerged Aquatic Vegetation ("SAV") habitats, especially in Barnegat Bay and the Oyster Creek area. Contrary to what the Draft EIS suggests, SAV habitats are not extensively studied in the vicinity of Ocean Wind 1 or the infrastructure supporting it.

1. General Deficiencies of the Benthic Resources Analysis

Ocean Wind 1 is on the Southern Mid-Atlantic Bight shelf, with two export cable routes from Lease Site OCS-A 0498 to coastal and back-bay areas. This includes a cable route through the Barnegat Bay Estuary, which is impaired and subject to the Barnegat Bay Restoration Plan. The Draft EIS does not fully take into account the serious risk that the export cables will pose to this fragile ecosystem, and also wrongly states that (1) the overall impacts on benthic communities will be minor and (2) most adverse impacts of benthic mortality and habitat alteration will be temporary or short term.[15] COA disagrees with the assessment that impacts resulting from the Proposed Action would only range from negligible to moderate adverse, and also questions the relevant scientific evidence to support the claim that the impact would also range to "moderate beneficial."[16]

Separately, the Wind Farm Area is predominantly composed of soft sediments, especially the finer fraction (0.125-0.25 mm), which are known to accumulate toxic heavy metals and persistent organic pollutants including Polychlorobiphenyls ("PCBs") and Polyaromatic hydrocarbons ("PAHs"). Ocean Wind 1 will result in the resuspension and redistribution of these contaminants, thereby adversely affecting the benthic fauna, but these impacts have not been discussed in the Draft EIS.

2. Invasive Species

The DEIS states, *"Although the likelihood of invasive species becoming established as a result of offshore wind activities is very low, the impacts of invasive species on benthic resources could be strongly adverse, widespread, and permanent if the species were to become established and out-compete native fauna. Such an outcome, however, is considered highly unlikely."*

COA strongly agrees that invasive species are strongly adverse. However the DEIS fails to provide proof of evidence to support its claim that it would be highly unlikely. In fact, the proposed project significantly alters the habitat of the region (structures, rocks, turbulence, turbidity, abnormal temperatures and other conditions making it highly susceptible and likely that invasives species will become localized and/or widespread as well as seasonal or permanent with devastating consequences to the region ecology and marine species. For example, the Indo Pacific lionfish (*Pterois volitans)* has become invasive in areas of the US. It is causing devastation in areas where it has become established, but has been rarely sighted off New Jersey.. The Proposed project would provide excellent habitat for this reef fish and help establish

[15] DEIS at 3.6-23.
[16] *Id.*

this invasive species and others. A Belgian study has determined that wind turbine foundations attract non-native species and ten non-native species were observed after one year of construction of WTG.[17] The DEIS fails to consider benthic habitat alterations as a condition for invasive population. This is a potential impact of critical concern and a detailed assessment is needed in order to mitigate risks. To date, there is very limited knowledge on this subject area In addition, a detailed review of protections on how this will not result is also required, as are plans to respond to and eliminate the threat from invasives by the proposed project to facilitate invasive species.

3. Deficiencies of the Analysis Concerning Submerged Aquatic Vegetation

SAV habitats are designated as Essential Fish Habitats by the National Marine Fisheries Service ("NMFS"). These submerged communities contribute to one of the most productive ecosystems in the world supporting biogeochemical cycling, physical stabilization of sediments, and life cycle habitat needs of multiple aquatic species. SAV provides a nutrient source, nursery area, and critical habitat for commercially and recreationally important fish, benthic, and marine mammal populations (de Boer 2007), including threatened and endangered species.[18]

Mapping the distribution and extent of eelgrass is a critical first step in understanding, managing, and protecting shallow-subtidal estuarine habitats.[19] However, SAV maps alone are not sufficient to determine the presence/absence of regulated SAV habitat and such data can be used only for informational purposes. The SAV mapping project by the University of Rhode Island recommends a three-tier approach for northeastern US estuaries: Tier 1 - Digital aerial photographs are used as base maps to create digitized polygons; Tier 2 - percent cover assessments at evenly-spaced plot locations as grids; and Tier 3 - the most detailed method to measure biomass, plant height, and other ecological metrics.[20]

More recently, the Scientific Advisory Board - Ecological Processes Standing Committee's (EPSC) report to NJDEP (2021) concluded that a dedicated monitoring program, performed, on an annual basis or semi-annual basis is necessary to assess the health of SAV meadows and to avoid missing any significant changes.[21] Further, such monitoring should include both remote sensing and *in situ* sampling for a robust evaluation of SAV extent and health. New and recent

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[17] *See* Malin Westerlund, *Offshore wind farms could become a breeding ground for invasive species*, ING (Mar. 29, 2022), https://ing.dk/artikel/offshore-wind-farms-could-become-a-breeding-ground-invasive-species-255603.
[18] *See* Scientific Advisory Board, *Submerged Aquatic Vegetation and Habitat: Survey and Mapping Methodologies Review*, N.J. Dept. Envmtl. Prot. (2021), https://dspace.njstatelib.org/bitstream/handle/10929/74097/sab-sav-mapping.pdf?sequence=1&isAllowed=y.
[19] *See* Michael Bradley, et al., *2021 Tier 1 Mapping of Submerged Aquatic Vegetation (SAV) in Rhode Island and Change Analysis*, Univ. R.I. (2021), http://www.crmc.ri.gov/sav/Tier1_Mapping_SAV_2021.pdf.
[20] Environmental Data Center, *Submerged Aquatic Vegetation (SAV) Mapping and Monitoring*, Univ. R.I. (last accessed Aug. 22, 2022), https://www.edc.uri.edu/initiatives/submerged-aquatic-vegetation-sav-mapping-and-monitoring/.
[21] *See* Bradley, et al., *supra* n. 18.

monitoring techniques should be adopted including UAVs to perform rapid, cost-effective monitoring. Trend analyses between species show that sampling frequency (e.g., annual vs. biennial) impacts their accuracy and demonstrate the importance of increasing sampling frequency.[22]

The bay's seagrasses are an important element of the bay ecosystem, because they harness energy and nutrients that are consumed by other organisms. The seagrass beds also provide a critical structural component in an otherwise barren sandy bottom, serving as essential habitat for a host of organisms from shellfish and crabs to fish and waterfowl. However, in recent years the bay's seagrasses have suffered due to the host of problems including declining water quality, dredging, brown tides, algal infestation, boat scarring and disease (Kennish et al., 2003).[23] Remote-sensing and manual time-series trends to study the impacts of Superstorm Sandy showed that seagrass cover continued to decline between 2006-2013. In fact, the decline has been observed from 1968 onwards and occurred throughout the entire Bay.[24]

The 2021 BBP-CCMP Vulnerability Assessment Report identifies how SAVs are facing increased threats from climate change risks and eutrophication of the Bay's waters.[25] As such, a wealth of recent and publicly available scientific literature reaffirms that SAV is a vulnerable and fragile habitat, and any adverse impacts will result in a cascade of harmful impacts through the ecosystem.

Despite these and other available studies, the assessment done by Ocean Wind 1 is sparse, sporadic, in phases, and not during the growing season, or under warm water temperatures. Ocean Wind, as stated in the DEIS, is yet to complete field characterization surveys in more planned survey areas, which is very critical to the Project and should have been included in the DEIS to assess true impacts.

3. Deficiencies of the Analysis Concerning Sediment Biogeochemistry

There is a lack of sediment biogeochemistry data and its impacts in the Draft EIS. This is an important concern which has not been addressed as these impacts would last longer at all stages

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[22] *See* Dr. Elizabeth A. Lacey, *Barnegat Bay Submerged Aquatic Vegetation Monitoring Program 2021 Final Report*, Barnegat Bay Partnership (2021), https://www.barnegatbaypartnership.org/wp-content/uploads/2022/04/Barnegat-Bay-Submerged-Aquatic-Vegetation-Monitoring-Program-2021-Report.pdf.

[23] *See* Richard G. Lathrop, et al., *Final Report: Submerged Aquatic Vegetation Mapping in the Barnegat Bay National Estuary Update To Year 2003*, Rutgers U. (2004), https://crssa.rutgers.edu/projects/sav/downloads/CRSSAreport2004-02_SAV_Mapping_in_the_BBay_Natl_Esstuary_Upd_2003.pdf.

[24] *See* Brian R. Calder & Larry A. Mayer, *IOCM Research in Support of Super Storm Sandy Disaster Relief*, NOAA Co-operative Agreement NA14NOS4830001, Univ. N.H. (2015), http://sandy.ccom.unh.edu/publications/library/2015-12-29_FinalReport.pdf.

[25] *See* David J. Yozzo, BBP CCMP Vulnerability Assessment Report, Barnegat Bay Partnership (2019), https://www.barnegatbaypartnership.org/wp-content/uploads/2022/01/CCVA-Final-Report.pdf. COA is a member of the Advisory Committee and Scientific and Technical Advisory Committee of BBP.

of the Project. The Draft EIS claims that there will be beneficial impacts from turbine foundations, including scouring protection to increase fish populations and variety of species, yet fails to describe the likely extent of adverse impacts of the same.

Turbine foundation and substructures, and scouring protections result in modifications to adjacent fish species. These also result in changes to benthic communities of macrofauna around these human-made structures. These also result in a fining of the sediment and organic matter enrichment, which is due to a combination of the deposition of fecal pellets from the fouling fauna and biomass falling from the structures.[26] This increased carbon enrichment causes an increased mineralization activity in the sediments resulting in increased sedimentary oxygen consumption. Consequently, this leads to higher levels of carbon dioxide being released from sediments, which has far-reaching effects for sediment biogeochemistry with reduced mineralization outside the Ocean Wind 1 site.

Altered sediment biogeochemistry including changes in oxygen fluxes due to accumulation of epifauna on turbine structures have been investigated in OSW in the North Sea. The results showed that these affect pelagic primary productivity and ecosystem functioning[27] Results of model simulations showed that potential changes in regional annual primary productivity of up to 8% were likely within the OSW farm area, and these are non-negligible.

Another recently published study on the OSW's footprint on the ocean floor reported the following findings:

> "The filtering action of OWF biofouling fauna induces a significant increase in TOC deposition within the OWF perimeter that rarely stretches beyond it. Around the turbine (<2 km) the TOC flux to the seabed increases annually on average by 2–15% but this increase may amount to 50% in certain areas. This increase can potentially affect surrounding benthic communities.
>
> Beyond 5 km from the monopile, the carbon flux decreases compared to the reference situation and reaches its maximum decrease at a distance of 9–13 km then decreases to 0.5% at 30 km. The decrease of the flux does not exceed 2% and hence is tangibly smaller than the increase.
>
> Model simulations assess the extension of the impact and clearly highlight that the effect of OWFs on carbon dynamics is not spatially uniform but rather exhibits a high degree of variability in response to the local hydrodynamics and, in particular, residual and tidal

[26] *See* Emil De Borger, et al., *Offshore Windfarm Footprint of Sediment Organic Matter Mineralization Processes*, Frontiers in Marine Science (2021), https://www.frontiersin.org/articles/10.3389/fmars.2021.632243/full.
[27] *See* Kaela Slavik, et al., *The large scale impact of offshore wind farm structures on pelagic primary productivity in the southern North Sea*, Univ. Hamburg (2018), https://arxiv.org/pdf/1709.02386.pdf.

circulation, wave- and current induced bottom stress and local gyres. In particular, these local gyres act as retention areas inside which the carbon deposition may be enhanced."[28]

The Draft EIS fails to address these challenges to sediment health and benthic communities, while this is being addressed as a significant issue of concern in the offshore wind farms in the North Sea.

ii. Finfish, Invertebrates, and Essential Fish Habitat (3.13)

Ocean Wind 1 will have more significant impacts on finfish, invertebrates, and essential fish habitat ("EFH") than acknowledged in the Draft EIS. Lease Area OCS-A 0498 is within the New Jersey Wind Energy Area, which, in turn, is located within the Northeast Wind Energy Area, an area abundant in fish assemblages with diverse habitat. The geographic analysis area covers affected environments for finfish, invertebrates and essential fish habitat, including demersal and pelagic fisheries resource species, which are primarily in federal waters; estuarine fisheries resource species, which are interstate migrants; protected species; and highly migratory species. Among these, there are a number of species that require relatively rare types of habitats for one or more life stages, and those that have limited mobility during one or more life stages.

The following species have been identified as "species of concern," and the list includes many kinds of marine life, including commercially valuable shellfish species with limited mobility as juveniles and adults: sea scallops (*Placopecten magellanicus*), Atlantic surf clams (*Spisula solidissima*), and ocean quahogs (*Arctica islandica*). The immobile, attached egg masses (egg mops) of the longfin squid (*Doryteuthis pealeii*) represent another such life stage. Also included are juvenile Atlantic cod (*Gadus morhua*), which prefer gravelly or vegetated bottoms and adults that prefer rocky, pebbly or gravelly bottoms, as well as black sea bass (*Centropristis striata*), which require structured refuge habitats as juveniles and adults and show strong site fidelity toward favorable habitats.

In fact, seasonal trawl surveys conducted by Northeast Fisheries Survey Center between 2003 and 2016 in the New Jersey Wind Energy Area (approx. 344,000 acres) show that this is a taxon-rich area. Grab sampling yielded ninety-four (94) infaunal taxa, numerically dominated by polychaetes. Sand shrimp, sand dollars, and dwarf warty sea slugs were the numerical dominants (96%) among the twenty-four (24) taxa of epibenthic (beam trawl) fauna. The 113 taxa of megafauna identified include thirty-nine (39) with managed fisheries.

Taxonomic presence and distribution between seasons showed ninety-six (96) taxa in the warm season and fifty-nine (59) in the cold season. Although there is considerable overlap in the lists of taxa present in the two seasons, the distributions of biomass, numbers, and frequency of catch for the two seasons are quite different. For example, Atlantic croaker, longfin squid, and scup

[28] Evgeny Ivanov, et al, *Offshore Wind Farm Footprint on Organic and Mineral Particle Flux to the Bottom*, Frontiers in Marine Science (2021), https://doi.org/10.3389/fmars.2021.631799.

dominated the warm season fauna, while Atlantic herring, little skate, and spiny dogfish dominated the cold season. There is also considerable overlap among species present and dominance with other offshore wind energy lease areas, especially those near New York waters. This critically highlights the need to understand the impacts of proposed lease areas in the NY/NJ Bight region, including cumulative impacts. Plus, further underscoring this point, the impacts of Ocean Wind 1 and other offshore wind development in the Bight cannot be measured, let alone understood, given the lack of baseline data concerning the interaction of this development with local species and their habitats.

Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC)

Species of concern in the NY/NJ Bight have zones of Essential Fish Habitat ("EFH") that are defined either for the species as a whole (i.e., all life stages) or as separate zones for each life stage. The Bight includes EFH for at least twenty-seven species, including blue fish, summer flounder, and black sea bass, and the designation applies across life cycle stages–from larvae to juveniles and adults.[29]

Additionally, there are four artificial reef areas mapped offshore, adjacent to the proposed Oyster Creek offshore export cable corridor, as well as one artificial reef area mapped offshore adjacent to the BL England offshore export cable corridor. The proposed Oyster Creek export cable would cross various sensitive and critical inshore habitats, such as shoals, intertidal and subtidal flats, and especially Submerged Aquatic Vegetation ("SAV"). SAV has been identified as a critical parameter to improving and maintaining the health of Barnegat Bay for many years, including in the recently released 2021 Comprehensive Conservation and Management Plan ("CCMP").[30] Critical habitats continue to be lost, including freshwater and tidal wetlands (important for flood protection, water quality, and wildlife habitat) and seagrass beds (critical nursery habitat for many fish and shellfish species).[31] SAV in particular has been routinely highlighted as a holistic target to protect and restore the Bay.

The geographic analysis area and the Project Area also include several finfish species that are state and federally managed. These include: American eel (*Anguilla rostrata*), Atlantic croaker (*Micropogonias undulatus*), Atlantic herring (*Clupea harengus*), Atlantic menhaden (*Brevoortia tyrannus*), Atlantic striped bass (*Morone saxatilis*), Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*), black drum (*Pogonias cromis*), black sea bass (*Centropristis striata*), bluefish (*Pomatomus saltatrix*), cobia (*Rachycentron canadum*), scup (*Stenotomus chrysops*), shad

[29] The essential fish habitat (EFH) mapper, Natl. Oceanic and Atmospheric Admin. (2021)(Degrees, Minutes, Seconds: Latitude = 39º 29' 54" N, Longitude = 75º 42' 42" W), https://www.habitat.noaa.gov/apps/efhmapper/efhreport/.

[30] *See* Barnegat Bay Partnership, 2021 Comprehensive Conservation and Management Plan for Barnegat Bay-Little Egg Harbor Estuary, https://www.barnegatbaypartnership.org/wp-content/uploads/2021/12/BBP-CCMP-Updated-Dec-2021-forScreens.pdf.

[31] *See* Barnegat Bay Partnership, State of the Bay Report 2016 (2017), https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb.pdf.

(American shad [*Alosa sapidissima*] and hickory shad [*Alosa mediocris*]) and river herring (alewife [*Alosa pseudoharengus*] and blueback herring [*Alosa aestivalis*]), Spanish mackerel (*Scomberomorus maculatus*), monkfish (*Lophius spp*.), spiny dogfish (*Squalus acanthias*), spot (*Leiostomus xanthurus*), summer flounder (*Paralichthys dentatus*), tautog (*Tautoga onitis*), weakfish (*Cynoscion regalis*), winter flounder (*Pseudopleuronectes americanus*), and coastal shark species. American shad, alewife, and striped bass are some of the anadromous fish species in the Project area that migrate up rivers to lower-salinity environments annually for spawning. Atlantic sturgeon (*Acipenser oxyrinchus*), a species protected under the Endangered Species Act ("ESA"), is also found in the geographic analysis area.

Environmental concerns – existing and emerging

Global climate change is affecting all marine environments. The New Jersey shelf in particular has been experiencing increasingly elevated temperatures in both surface and bottom depths. According to a recent study, marine, estuarine, and riverine habitat types in the Northeast U.S. were found to be moderately to highly vulnerable to stressors resulting from climate change.[32] In general, rocky and mud bottom, intertidal, SAV, kelp, coral, and sponge habitats were considered the most vulnerable habitats to climate change in marine ecosystems.[33] Similarly, estuarine habitats considered most vulnerable to climate change include intertidal mud and rocky bottom, shellfish, kelp, SAV, and native wetland habitats.[34] Riverine habitats found to be most vulnerable to climate change include native wetland, sandy bottom, water column, and SAV habitats.[35] On the same note, finfish and invertebrate migration patterns can be influenced by warmer waters, as can the frequency or magnitude of disease. For example, due to warming waters, there has been a northward shift in some fish species, including highly migratory species like the tiger shark. As a result, there are fish species (e.g., mahi mahi, wahoo, and Spanish mackerel) that may experience a northward shift toward Ocean Wind 1 over time and eventually become affected by the project during operation and decommissioning..

The Draft EIS states that the impacts resulting from Ocean Wind will be negligible to moderate for finfish, invertebrates, and EFH, but this cannot be true; impacts will be more significant. In the context of other proposed construction activities until 2030, including other lease areas in the geographic analysis area, as well as changes to the marine environment from climate change, the Draft EIS is lacking in a detailed assessment including cumulative impacts of the project.

As of May 13, 2022, the Draft EIS lists the construction schedule for Ocean Wind 1 in Table F-2 (Appendix F). NOAA navigation charts identify a number of sewer pipelines, stormwater

[32] Farr et al. 2021.
[33] *Id*.; DEIS at 3.13-11.
[34] Farr, *supra* n. 31.
[35] *Id.*

outfalls, and intake structures along the coast of New Jersey that begin onshore and extend offshore. These include:

- 101 foundations (to be erected during 2024-2025)
- Dredging and Port Improvement Projects – an offshore wind port on the eastern shore of the Delaware river in lower Alloways Creek. The development plan includes dredging the Delaware River Channel and construction is planned to commence in 2021 with a targeted completion date of late 2023.
- The City of Atlantic City intends to secure authorization for marina upgrades, namely dredging in the marina and at Absecon Inlet, for the benefit of multiple marina users, and both this in-water activity and upland improvements by Ocean Wind (including office and warehouse) are being separately reviewed and authorized by USACE and state and local agencies

The Draft EIS provides the following details concerning sea bed anchoring disturbance and scour protection:

- Estimated foundation number is 101 including Offshore Survival Systems (OSS) with a foot print of 4 acres.
- WTG seabed disturbance is 84 acres.
- Offshore export cable disturbance is 1935 acres, the highest among current leases in the NY/NJ area.
- The disturbances to sea bed (including scour protection) from 101 WTG foundations (scour protection incl), construction/anchoring, operation, and hard protection offshore export cables and interarray is estimated to be 4, 285 acres.
- More than 400,000 gallons (426,671) of oils and lubricants will be used in WTGs and OSS.
- About a quarter million (236,216) gallons of total diesel fuel will be used.

All of these carry considerable risks and these have not been discussed more thoroughly in the Draft EIS.[36] And yet, the Draft EIS lacks information on the composition and toxicity of these lubricants. In particular, worst case discharges ("WCDs") from electric service platforms have not been addressed, but these may have adverse shoreline impacts and impacts on wildlife. Potential impacts include mortality from heat loss, starvation, or drowning.[37] Weather events, such as hurricanes, need to be an important criterion for planning for WCD scenarios for an oil spill from an offshore wind farm, with adverse events like Hurricane Katrina in 2005 serving as

[36] Jared Anderson, *You Can't Have Offshore Wind Power Without Oil*, Forbes (Mar. 1, 2017), https://www.forbes.com/sites/jaredanderson/2017/03/01/you-cant-have-offshore-wind-power-without-petroleum/?sh=1d7507494f2f.

[37] *See* Tim Gunter, *Potential Impacts from a Worst Case Discharge from an United States Offshore Wind Farm*, 2014 Oil Spill Conference 299032 (2014), https://tethys.pnnl.gov/sites/default/files/publications/Gunter%202014.pdf.

cautionary tales. In fact, with respect to the possibility of a similar event occurring in the context of offshore wind development,

> "A hurricane or powerful northeaster has the potential for causing structural failure and environmental damage if the ESP was blown off its moorings and either sank or grounded in a sensitive area. While this may seem like an extreme case, during Hurricane Katrina in 2005, a mobile offshore drilling unit, the Ocean Warwick, broke from its moorings, drifted 66 miles, before running aground near Dauphin Island, AL. While the probability of a hurricane impacting the Northeast is less likely than in the Gulf of Mexico, Superstorm Sandy similarly caused significant damage across New Jersey and New York in 2012."[38]

On a final note, the Draft EIS does not provide an adequate analysis of Ocean Wind 1's impacts on Atlantic sturgeon. A recent study indicates that only 250 adults return to the Delaware River to spawn.[39] Ocean Wind 1 activities within the Delaware River, Delaware Bay, and open ocean need to be assessed for impacts to this endangered species. In fact, the Delaware Riverkeeper Network filed a 60-day notice of intent to sue the National Marine Fisheries Service for violating multiple sections of the Endangered Species Act. These violations concern the Biological Opinions issued to the Army Corps of Engineers for the New Jersey Wind Port project and the Edgemoor Container Port project. According to the Network, if permitted by the Army Corps, these commercial ports could threaten the continued existence of the Delaware River Estuary's genetically unique population of Atlantic sturgeon.[40]

Accidental Releases

The Draft EIS states that non-routine events such as accidental oil or chemical spills can have adverse or lethal effects on marine life. Applicant-proposed measures ("APMs"), such as a spill prevention and a response plan, would be developed and implemented during all phases of Ocean Wind 1. However, this is inadequate for the following reasons:

- Unlike the Gulf Coast, the Eastern Seaboard does not have the support vessel supply that can be relied upon during such events.
- Regulatory requirements for offshore wind have not been developed and prescribed by the regulatory authority BOEM and this is an inherent challenge to developing appropriate response strategies for offshore wind farms. The closest comparative would be Offshore Facility plans that stipulate the amount of boom, skimming capacity, and

[38] *Id.*

[39] *See* Shannon L. White, et al., *Evaluating sources of bias in pedigree-based estimates of breeding population size*, Ecological Applications (2021), https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1002/eap.2602.

[40] *Delaware Riverkeeper Network Intends To Sue NOAA Fisheries Over Wind*, The Fisherman (Aug. 22, 2022), https://www.thefisherman.com/article/delaware-riverkeeper-network-intends-to-sue-noaa-fisheries-over-wind/.

storage capacity required in a 6-hour, 12-hour and 24-hour timeline for offshore facilities with similar WCD scenarios.[41]

- Ocean Wind 1 will impact nearshore and offshore habitats, but the Draft EIS does not detail the magnitude of these impacts, the species at risk, and recovery of habitats. Similarly, the document does not specify which state, Federal, and local regulations are applicable and will be adhered to.
- The COP Volume III for the proposed project does not provide any details on the OSRO, instead stating that "Ocean Wind LLC has marked each Appendix in this COP which contains privileged and confidential material with the legend 'Contains Confidential Information,' and requests that BOEM (and each federal and state agency to which a copy of this COP is provided) withhold these designated materials from public disclosure."

On the contrary, Atlantic Shores has a draft Oil Spill Response plan that covers the offshore wind energy generation project within the southern portion of Lease Area OCS-A 0499 (the Lease Area). BOEM should impose the same requirement here for Ocean Wind 1 and adjust the Draft EIS's analysis concerning impacts to finfish and invertebrates as appropriate.

Anchoring

The Draft EIS understates the impact that vessel anchoring will have on finfish, invertebrates, and EFH. The document states that vessel anchoring will cause short-term impacts on finfish and invertebrates in the immediate area where anchors and chains meet the seafloor in offshore sandy environments. These impacts include turbidity, which affects finfish and invertebrates, as well as injury, mortality, and habitat degradation, primarily of invertebrates. Anchoring wind turbines may also cause temporary or permanent impacts in the immediate area where anchors meet the sea floor.[42] Additionally, clouding and sedimentation during construction can cause damage to fish eggs, can damage and or disturb spawning grounds for fish. The introduction of hard substrate (here, anchors) to the environment can cause alteration of food species availability and abundance, which in turn may alter community composition and abundance of fish.[43] During construction, operation, and decommissioning of an offshore wind farm, the foundations, anchors, and cables will alter benthic habitat and organisms.[44]

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[41] *Offshore Wind*, Marine Spill Response Corporation (last accessed Aug. 22, 2022), https://www.msrc.org/industries/offshore-wind.

[42] *See* Riya Ajmera, *Mutual Benefits for Offshore Wind Energy in the Mid-Atlantic: Science and Policy Strategies to Mitigate Harm to Marine Species and Maximize Benefits for Renewable Energy*, Monmouth U. (2021), https://www.monmouth.edu/uci/documents/2021/10/riya-ajmera-uci-offshore-wind-energy-paper.pdf/.

[43] *See* OSPAR Commission, Assessing the environmental impact of offshore wind farms (2008), https://www.ospar.org/documents?v=7114.

[44] *See* U.S. Offshore Wind Synthesis of Environmental Effects Research, Benthic Disturbance from Offshore Wind Foundations, Anchors, and Cables (2022), https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational-Research-Brief-Benthic-Disturbance.pdf.

Anchoring would affect nineteen (19) acres under the Proposed Action, and the combined impacts from ongoing and planned activities, including the Proposed Action, could collectively affect up to 2,682 acres (10.9 km2) (although some of this may occur after the resource has recovered from the earlier impacts). The Draft EIS claims that, if anchoring occurs in sensitive SAV habitat, impacts would likely be moderate and long term within that specific habitat. However, the project area includes sensitive benthic organisms, eel-grass beds and hard bottom habitats, and any impact to these resources would be long term and permanent. Moveover, eelgrass beds in the Barnegat Bay region has been identified as critical for the health of the Bay, and is one of the holistic targets for ecosystem restoration of the Bay.(CCMP, 2021)

EFH and HAPC for highly migratory species, such as the Tiger shark, also lie within the project boundaries. It is a gross simplification for the Draft EIS to state that Ocean Wind 1 will contribute an undetectable increment to the combined impacts of anchoring from ongoing and planned activities including offshore wind on finfish and invertebrates. Similarly, there is no supporting evidence for the Draft EIS to state, "All impacts would be localized, turbidity would be temporary, and displacement and mortality from physical contact would be recovered in the short term." The development of multiple wind farms in the region, each containing dozens of turbines, will result in cumulative impacts on EFH and HAPC that need to be investigated.

Electromagnetic Fields (EMF)

The Draft EIS unfairly minimizes the impacts that electromagnetic fields ("EMF") from Ocean Wind 1 will have on finfish, invertebrates, and EFh. The document states that "[t]he Proposed Action would slightly increase the impacts of EMF in the geographic analysis area beyond those described under the No Action Alternative. The combined impact on finfish, invertebrates, and EFH would likely be negligible and localized though long term." However, increased numbers of subsea cables from future OSW farm projects and other marine industries may lead to cumulative effects in heavily developed regions. The potential for cumulative effects from EMFs has not been characterized in studies or research to date. Even so, the EMF from a single cable needs to be considered in the context of other cables in the area (i.e., existing and proposed cables), as well as other activities that might occur in the region. For example, the addition of new cables might increase the number of subsea cables a migratory species will encounter along its migratory route. These scenarios need to be studied to understand the actual interactions that may occur.[45]

Finally, cumulative effects from EMFs are both physical and biological. Physically, more numerous cables, their orientation, and cable type may influence EMFs encountered by marine fauna. Biologically, behavioral and physiological effects may interact, early life history experiences may influence later life stages, and a single encounter may inform the next exposure,

[45]https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational-Research-Brief-Electromagnetic-Field-Effects-on-Marine-Life.pdf

or not. Further, EMFs need to be considered along with OSW-associated infrastructure risks, such as entanglement or reef effects. With future plans for more expansive OSW arrays that are located at greater distances offshore and use larger capacity power cables, a higher encounter rate is certain. A more complete knowledge base and data set concerning EMF interactions with affected species will help reduce the risk of EMF to important resource species (or, alternatively, retire the risk with more confidence).[46] Until consequences of EMF at the individual, population, or system levels have been addressed, data gaps in the fundamental biology of marine species – and the specific question of response to anthropogenic EMFs–make conclusions about potential impacts highly speculative.

Noise

Activities from Ocean Wind 1 causing underwater noise effects on finfish and invertebrates, such as pile-driving, drilling, and vessel traffic, will cause noise impacts that require mitigation to the extent they cannot be avoided. Pile-driving will produce the most intense underwater noise impacts, with the greatest potential to cause injury and behavioral effects on finfish and invertebrates. Operational turbine noise, meanwhile, will occur over the longest duration. Therefore, these effects are the focus of the comments below.

In context of reasonably foreseeable environmental trends, Ocean Wind 1 will contribute a noticeable increment to the combined noise impacts on finfish and invertebrates from ongoing and planned activities, including offshore winds. A serious limitation to understanding interactions between affected species and this new anthropogenic noise, however, is that the Draft EIS does not address the impacts of anthropogenic noise from Ocean Wind 1 turbine operations over the course of the project's lifetime. For example, There is a growing understanding that anthropogenic noise, such as pile-driving, may affect the behavior of marine mammals and lead to spatial displacement. However, there have been no empirical studies linking the consequences of this behavioral response to longer term population change.[47] Plus, the noise caused by offshore wind development does not stop after the construction phase. The waters surrounding the lease areas will be subjected to noise generated by the turbines for the duration of the lease. Possible effects of these noises include attraction toward the noise sources, avoidance of the area, temporary hearing damage, and permanent physical injury. As the industry expands, the extent to which these effects will disrupt marine life remains unclear and requires continued research from BOEM and Ocean Wind 1.

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[46] *See* Zoe L. Hutchinson, et al., *The Interaction Between Resource Species and Electromagnetic Fields Associated with Electricity Production by Offshore Wind Farms*, 33:4 Oceanography 96, 96-107 (2021), https://tos.org/oceanography/assets/docs/33-4_hutchison2.pdf.

[47] *See* Helen Bailey, et al., *Assessing environmental impacts of offshore wind farms: lessons learned and recommendations for the future*, 10 Aquatic Biosystems (2014), https://aquaticbiosystems.biomedcentral.com/articles/10.1186/2046-9063-10-8#:~:text=The%20major%20environmental%20concerns%20related,of%20contaminants%20from%20seabed%20sediments.

The rapid increase in the number and size of offshore wind farms means that the cumulative contribution from the many turbines will be considerable and should be included in assessments for maritime spatial planning purposes, as well as environmental impact assessments of individual projects.[48] To date, most studies on the potential effects of noise from offshore wind energy development have tended to focus on the installation and operation phases. However, the four key phases of OWF development (site surveys, construction, operation, and decommissioning) each produce sounds that have the potential to influence marine life, and the EIS for Ocean Wind 1 must consider noise generated during each phase in its own context.[49]

Presence of Structures

The Draft EIS states, "Various impacts on finfish resulting from the presence of new structures associated with the Proposed Action are described in detail in Section 3.13.3.2. New structures could affect finfish migration through the area by providing unique complex features (relative to the primarily sandy seafloor) and altering water currents; this could lead to retention of those species and possibly affect spawning opportunities. Impacts on fish migration as a result of structures associated with offshore wind are unknown, as studies related to this potential impact are not available.

Although not designed as artificial reefs, offshore wind energy development projects have similar impacts–both desired and undesired: they may offer possibilities for nature enhancement, but at the same time be a nuisance to nature. For the sake of environmentally friendly marine management, it is of utmost importance to distinguish desirable from undesirable impacts and to take action to promote the former while at the same time mitigating the latter. To that end, a proper understanding of mechanisms behind the impacts is needed in order to develop effective nature-inclusive designs. For example, requirements may include eco-designing scour protection layers to enhance fish habitat or restore oyster beds and deploying add-on structures, such as fish hotels. To this end, the Draft EIS never considers whether possible positive ecosystem effects from Ocean Wind 1 will be nullified upon the project's eventual decommissioning.

Offshore wind construction and operation activities can also cause possible habitat disturbance for species of concern, including black sea bass, sea scallop, ocean quahog, and surf clam. EFH for these species of concern overlap with the Project Area for Ocean Wind 1, so these species–as well as the potential for their habitat disturbance–cannot be ignored.

Highly Migratory Species

Highly Migratory Species ("HMS"), such as tuna, swordfish, and sharks, live and migrate throughout the Atlantic Ocean. These species are unique because they traverse domestic and

[48] https://tethys.pnnl.gov/sites/default/files/publications/Tougaard_et_al._2020.pdf

[49]https://tos.org/oceanography/article/acoustic-impacts-of-offshore-wind-energy-on-fishery-resources-an-evolving-source-and-varied-effects-across-a-wind-farms-lifetime

international boundaries, and must be analyzed more closely in the Draft EIS due to their presence in the Project Area for Ocean Wind 1.

NOAA's EFH mapper shows that the proposed wind farm will impact sixteen (16) HMSs, including four (4) species of tuna and ten (10) shark species. It must be noted that this climate-driven shift in distribution of marine species is some of the highest in the US Northeast Continental Shelf LME. During periods of anomalously high sea-surface temperatures, movements of tracked sharks shifted beyond spatial management zones with underlying protection from commercial fishing and bycatch. With these induced-shifts, these study results have implications for fisheries management, human–wildlife conflict, and ecosystem functioning. This has been documented in a more recent study on the apex predator, the Tiger shark (*Galeocerdo cuvier*).[50] Tiger sharks satellite-tracked in the western North Atlantic between 2010 and 2019 revealed significant annual variability in the geographic extent and timing of their migrations to northern latitudes from ocean warming.[51]

Warming effects within the wind turbine fields caused by sun radiation on monopoles and transference into waters as well as the increased infrastructure itself may affect the migratory pathways and activities of these important species. Moreover, the cluttered underwater areas may impact these species as well. These impacts will be increased with each monopole within projects, including increased contributions to cumulative impacts from other nearby OSW projects. Yet, the Draft EIS does not include any assessment of how to address and mitigate these impacts. A pilot project would enable scientists to study, evaluate, interpret and determine consequences such that development reductions or mitigation strategies could be implemented.

iii. Marine Mammals (3.15)

Ocean Wind 1 will have significant, permanent, and potentially irreversible impacts on marine mammals. Approximately thirty-nine (39) species of marine mammals occur in Atlantic Outer Continental Shelf ("OCS") waters from Florida to Maine. The Atlantic Coast's marine mammals include baleen whales (specifically, the North Atlantic right whale, blue whale, fin whale, sei whale, and humpback whale, all of which are endangered species), toothed whales (dolphins, porpoises, and the endangered sperm whale), the endangered West Indian manatee, and four species of seals.[52]

The western stock of the North Atlantic right whale (*Eubalaena glacialis*) is the most endangered whale occurring along the Atlantic Coast. This species ranges from wintering and calving grounds in the South Atlantic region to summer feeding, nursery, and mating grounds in

[50] Hammerschlag et al, 2022.

[51] https://onlinelibrary.wiley.com/action/doSearch?ContribAuthorRaw=McDonnell%2C+Laura+H.

[52] Bur. Ocean Energy Mgmt., National Environmental Policy Act Documentation for Impact-Producing Factors in the Offshore Wind Cumulative Impacts Scenario on the North Atlantic Outer Continental Shelf 137 (2019), https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Studies/Renewable-Energy/IPFs-in-the-Offshore-Wind-Cumulative-Impacts-Scenario-on-the-N-OCS.pdf.

New England waters and northward. Three areas have been designated under the Endangered Species Act as critical habitat for the North Atlantic right whale: coastal Florida and Georgia; Great South Channel (east of Cape Cod), and portions of Cape Cod Bay.

The Atlantic OCS also supports diverse non-endangered and non-threatened cetaceans. Approximately twenty-eight (28) species are found in Atlantic OCS waters, including (4) species of seals in Mid- and North Atlantic waters: harbor, gray, harp, and hooded seals.[53]A three-year visual-line aerial transect survey investigation from nearshore to 120 nautical miles offshore in the New York/New Jersey Bight confirmed the year-round occurrence of large whales. A Bight-wide density estimate of all large whales including Humpback whale, Fin whale, Sperm whale, Blue whale, Sei whale and the Right whale was 6.3 individuals per 1,000 square kilometers, and the average annual abundance was estimated to be 272 individuals. Sightings occurred frequently within the Project Area for Ocean Wind 1 and other nearby offshore wind development sites.

The geographic analysis area (Figure 3.15-1) included in the Draft EIS is likely to capture the majority of the movement range for most species in this group, but it fails to include all areas that would be transited by Project vessels. For example, the Draft EIS must consider the very real possibility that local supply chains will not be established on the timeline required for Ocean Wind 1's construction, resulting in impacts to marine mammal species from vessels traversing the Atlantic Ocean in order to support this project.[54] This is a significant concern and a glaring omission, resulting in an incomplete assessment of Ocean Wind 1's impacts.

Twenty (20) marine mammal species have the potential to interact with the Project, as they are likely to have regular or common occurrences in the Project area (DEIS, 3.1.5.1). Of particular note is the fact that this region is the migratory corridor for the highly endangered North Atlantic right whale,[55] which has less than 340 surviving individuals and is in serious danger of becoming extinct. Nevertheless, Ocean Wind 1 and its immediate vicinity overlap with a hotspot for marine mammal strandings during the last two decades. These stranding events have routinely included seals, porpoises, dolphins, humpback whales, fin whales and other whales routinely, but the Draft EIS never considers the potential consequences of placing an industrial-scale wind energy development project within this pre-existing stranding hotspot. This is a significant concern that BOEM must address in its environmental review for Ocean Wind 1.

North Atlantic right whales are considered regular visitors to the Ocean Wind 1 Project area.[56] In fact, foraging and even the presence of a cow-calf pair have been documented, suggesting that

[53] BOEM 2019.
[54] *See* John Engel, *U.S. offshore wind generation goals have a supply chain problem*, Renewable Energy World (Aug. 13, 2021), https://www.renewableenergyworld.com/wind-power/u-s-offshore-wind-generation-goals-have-a-supply-chain-problem/.
[55] Luke Hanna, *Is Offshore Wind Development a Threat to the North Atlantic Right Whale?*, TETHYS (Aug. 27, 2012), https://tethys.pnnl.gov/stories/offshore-wind-development-threat-north-atlantic-right-whale.
[56] DEIS at 3.15-3.

nearshore waters off New Jersey serve as feeding and nursery habitat. Initial sightings of females, and subsequent confirmations of these same individuals in calving grounds, confirm that these waters are part of the species' migratory corridor.[57] These observations, in turn, reaffirm the serious risks that Ocean Wind 1 poses to this highly endangered species and the need for a critical eye with respect to the scope of harms from introducing even more anthropogenic activity into the species' range.

Next, the Draft EIS inaccurately overestimates the North Atlantic right whale population at 412. More accurately, the North Atlantic Right Whale Consortium currently estimates the population census to be 336.[58] Plus, with reproducing females estimated to be less than 100, this species has even become the most recent addition to NOAA Fisheries' Species in the Spotlight, which is an agency-wide effort launched in 2015 to spotlight and save marine species that are among the most at risk of extinction in the near future.

The newest threat to the North Atlantic right whale is the declining body lengths of calves due to sub-lethal stressors, including likely impacts from climate change. Additionally, anthropogenic stressors exacerbate indirect and incidental pressures on the vulnerable population, and recoveries are not encouraging.[59]

COA's comments on the DEIS focuses on the following impacts to marine mammals.

Accidental Releases

According to the Draft EIS, the region experiences frequent and chronic accidental releases of fuels, fluids, and hazardous materials from ongoing activities, and these risks will increase with increasing vessel traffic over the next 35 years. However, the marine mammals in this region are already subject to anthropogenic stressors and uniquely vulnerable to their impacts. Additional risks include increased sedimentation from land and seabed disturbance, as well as trash and debris. Ocean Wind 1 and related activities are only likely to further stress the marine mammals.

Due to the aforementioned limitations on the impacts analysis, the Draft EIS's statement that "these impacts from accidental release and discharges from other offshore wind activities would likely be minor for mysticetes, odontocetes, and pinnipeds and are likely to result in long-term consequences to individuals that are detectable and measurable but do not lead to population-level effects" cannot be accurate. Regarding the North Atlantic right whale, for instance, the Draft EIS acknowledges that these impacts would not be minor. Nevertheless, it categorizes these impacts as moderate for North Atlantic right whales on the basis that they would result in

[57] DEIS at 3.15-3.
[58] H.M. Pettis, et al., *2021 Report Card*, North Atlantic Right Whale Consortium (2021), https://www.narwc.org/uploads/1/1/6/6/116623219/2021report_cardfinal.pdf.
[59] *See* Joshua D. Stewart, et al., *Decreasing body lengths in North Atlantic right whales*, Current Biology 31:14 3174-179, https://www.sciencedirect.com/science/article/pii/S096098222100614X.

population-level effects through detectable and measurable impacts on the individual, but the population can be expected to sufficiently recover.

The Draft EIS states:

> [A]ccidental releases of fuel, fluids, hazardous materials, trash, and debris may increase as a result of the Proposed Action. [...] Ocean Wind would establish and implement a Spill Prevention, Control, and Countermeasures Plan, which would include an Oil Spill Response Plan and Spill Prevention, Control, and Countermeasures Plan specific to vessels as part of the APMs (Appendix H, Table H-1, GEN-11).[60]

The Draft EIS goes on to state, "All offshore wind projects would be required to comply with regulatory requirements related to the prevention and control of accidental spills administered by USCG and BSEE. Oil Spill Response Plans (OSRO) are required for each project and would provide for rapid spill response, cleanup, and other measures that would help to minimize potential impacts on affected resources from spills."

However, the Draft EIS does not provide a detailed draft OSRO for accidental spills, which has been submitted for the Atlantic Shores South project. Does BOEM have any specific guidance/regulatory requirement for an OSRO for offshore wind farms? Likewise, does BOEM require a regional OSRO as the proposed project will be concurrently developed with the other lessees?

An equally important concern that could cause potential harm to marine mammals are the intakes and discharges related to cooling offshore wind conversion stations for Ocean Wind 1 alongside the intakes and discharges from other offshore wind projects.[61] This has not been given enough attention considering that the lifetime of the Project is 25-30 years. The Draft EIS acknowledges that potential effects are likely and include: altered micro-climates of warm water surrounding outfalls, altered hydrodynamics around intakes/discharges, prey entrainment, and association with intakes if prey are aggregated on intake screens from which marine mammals scavenge. However, it concludes that these long-term impacts would be localized and low in intensity, as the number of offshore substations is small. What were the references used to determine this conclusion? One of the most recent reports by BOEM (BOEM, 2022) on offshore wind substations, specifically HVDCs, states that innovations in cooling systems are being studied and developed,[62] but so far, no new systems are tested and available for use on a commercial scale. Are there similar studies that the Draft EIS used to make this assessment?

[60] DEIS at 3.15-55.

[61] DEIS at 3.15-28.

[62] *See* Bur. Ocean Energy Mgmt., Supporting National Environmental Policy Act Documentation for Offshore

Underwater Noise

In the present scenario, the biggest threat to marine mammals in the geographic analysis area is underwater noise from proposed offshore-wind-related activities, the science of which is unknown, or known only in parts from studies being done in Europe. The DEIS does not address all the risks and impacts from underwater noise and is incomplete.

Table J9 in the Draft EIS (Appendix J, J-13) ("Number of Marine Mammal Level A and Level B Takes Requested for Impact Pile Driving of WTG 8-/11-meter Monopiles for the Effective Period of the Letter of Authorization (5 Years Total)") shows that, if approved, Ocean Wind 1 will result in Level B Harassment of 5,492 marine mammals that include low-, mid-, and high-frequency cetaceans (LFC, MFC, HFC) and phocid pinnipeds (PW). This Level B harassment includes fifty-seven takes of highly-endangered whale species, including twelve (12) North Atlantic right whales. This will also result in Level A Harassment Takes of 77 marine mammals.

Table J10 in the Draft EIS (Appendix J, J-15) ("Number of Marine Mammal Level A and Level B Takes Requested for Impact Pile Driving of Either OSS Scenario (Three 8-/11-meter Monopiles or Three Jacket Foundations Composed of 16 2.44-meter Pin Piles Each) for the Effective Period of the Letter of Authorization (5 Years Total)") shows that, if approved, Ocean Wind 1 will result in Level B harassment of 211 or 1,423 marine mammals and a Level A harassment of 3 or 19 marine mammals including a minke whale, respectively.

The Draft EIS, however, does not take into account the significance of these impacts on marine mammals and fails to account for cumulative impacts and their harm from other projects in the geographic analysis area and in the NY/NJ Bight. Finally, Clean Ocean Action incorporates by reference our concerns regarding Ocean Wind 1's impacts on the North Atlantic right whale as articulated in the multiple comments we have submitted on Incidental Harassment Authorizations for this project to NMFS, as well as the comments COA submitted on the 5-Year ESA review that the agency recently performed for the North Atlantic right whale.

Underwater Sound and Marine Mammals

Marine mammals use underwater sound as a primary means of communication, navigation, prey detection and predator avoidance. Human activities already generate sound and contribute to the general background level of noise in the sea, but Ocean Wind 1 will exacerbate this issue dramatically. Sound sources from the project include pile driving, dredging, cable laying, drilling, the operation of offshore wind turbines, and the use of explosives in construction and decommissioning. Continuous noise sources include vibratory pile driving, vessel traffic, some HRG surveys, turbine operations, and dredging. Source levels vary depending on the diameter of

Wind Energy Development Related to High Voltage Direct Current Cooling Systems (2022), https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/HVDC%20Cooling%20Systems%20White%20Paper.pdf.

the pile and the method of pile driving (impact or vibropiling). By way of reference, the frequency spectrum for all activity ranges from less than 20 Hz to more than 20 kHz, with most frequencies occurring around 100 - 200 Hz.[63]

Marine mammals are acoustically diverse, with wide variations in ear anatomy, hearing frequency range, and amplitude sensitivity. In general, larger species, such as baleen whales, hear better at lower frequency ranges (7Hz-35 kHz) than smaller species such as porpoises (150 Hz-160 kHz) and dolphins (275 Hz -160 kHz).[64] (Table 3.15-1, DEIS)

Underwater noise associated with offshore wind activities has the potential to generate underwater noise that could result in the following adverse effects on marine mammals:

- Physiological effects (injury and mortality, Temporary or Permanent Threshold shifts - TTS and PTS)
- Disturbance (behavioral effects)
- Acoustic masking.

NOAA's 2018 "Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts" includes preliminary findings of a 2017 study on acoustic thresholds for harbor porpoises, and also notes that these findings were recent and would be included during its Version 3.0 revision.[65] And yet, the Draft EIS never refers to this study by Kastelein et al. from NOAA's technical guidance.

Noise Impacts from Impact Pile Driving on Marine Mammals

In the geographic analysis area, offshore wind activities that could cause underwater noise are impact pile driving (installation of WTGs and OSS), vibratory pile driving (installation and removal of geophysical surveys (HRG surveys and geotechnical drilling activities)), detonations of UXO, vessel traffic, aircraft, cable laying or trenching, and dredging during construction and turbine operation. Decommissioning activities related to noise are likely similar to those outlined for construction activities.

The biggest threat to marine mammals from this Project will be underwater noise from Impact Pile Driving activities. The installation of WTG foundations into the seabed involves impact pile driving, which can produce high SPLs in the underwater environment and may affect marine

[63] *See* OSPAR Commission, Overview of the Impacts of Anthropogenic Underwater Sound in the Marine Environment (2009).
[64] DEIS at 3.15-1.
[65] See National Marine Fisheries Service, *2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0)*, NOAA Technical Memorandum NMFS-OPR-59 (2018), https://media.fisheries.noaa.gov/dam-migration/tech_memo_acoustic_guidance_(20)_(pdf)_508.pdf.

mammals. Marine mammals could be exposed to noise from impact pile driving activities in three different ways:

1. Concurrent exposure to noise from two or more impact hammers operating simultaneously
2. Non-concurrent exposure to noise from multiple pile-driving events within the same year
3. Exposure to two or more concurrent or non-concurrent pile-driving events over multiple years.

These impacts would vary in extent and intensity based on the scale and design of each project, as well as the schedule of project activities.

The DEIS describes pile driving (PD) impacts from (i) other offshore wind activities (Section 3.15.3.2) and (ii) Proposed Action (Section 3.15.5).

PD impacts - Other offshore wind activities

The DEIS states the following:

> Construction of offshore wind facilities is expected to occur intermittently over an 8-year period in lease areas that are anticipated to be developed in the marine mammal geographic analysis area. Noise from pile driving would occur during installation of foundations for offshore structures.[66]

The DEIS continues, "Impact pile-driving activities from other offshore wind development projects are likely to exceed PTS and TTS thresholds for all marine mammal functional hearing groups."[67]

The Draft EIS states: "In the planned activities scenario (see Appendix F), the construction of up to 3,109 (Appendix F shows an estimate of 3,159) new WTG and OSS foundations in the geographic analysis area would create underwater noise and may affect marine mammal species in the area (see Section I.5.1 of Appendix I)". This seems to be an incorrect reference/typographic error, it is not found). In the proposed Project, how high will the SPL be from the installation of these WTG foundations?

The DEIS states that "Considering the number and extent of projects planned in the geographic analysis area, some individual fitness-level impacts are expected to result from impact pile-driving activities. These impacts would be further reduced with implementation of project-specific measures required as conditions of compliance with the ESA, MMPA, and other federal regulations. Some behavioral avoidance and masking effects are still considered likely; however,

[66] DEIS at 3.15-19.
[67] *Id*. at 3.15-20.

those effects are not expected to result in significant behavioral responses leading to longer-term consequences to individuals or populations."

PD impacts from Proposed Action

The DEIS states the following:

The Proposed Action for Ocean Wind I involves installation of 98 monopiles for WTGs and 48 pin piles (or three monopiles) for OSS.

For each location, an impact hammer (IHC-4000 or IHC-S-2500 kilojoule impact hammer) will be used with an expected penetration depth of 50 meters.

Installation of a single monopile is expected to take 9 hours (1 hour pre-clearance period, 4 hours piling, and 4 hours moving to the next location). Up to two piles are expected to be installed per 24-hour period. Concurrent monopile installation at more than one location is not planned.

For the OSS, a piled jacket foundation is being considered. This would involve installing 16- by 2.44-meter-diameter piles as a foundation for each OSS foundation using an impact hammer (IHC-S-2500 kilojoule impact hammer or similar) to an expected penetration depth of 70 meters. Alternatively, a single monopile like the ones used for WTGs may be used for each OSS. Each pin pile takes approximately 4 hours to install and a single OSS foundation is expected to take 6 days to install.

For installation of both the WTG and OSS monopile foundations, 24-hour-per-day pile driving is expected to occur.

The Proposed Action would constitute about 584 hours of active pile driving (404 if monopiles are used, assuming OSS monopile installation is identical to that for WTGs).

The DEIS acknowledges that the most impactful IPFs associated with the Proposed Action are underwater noise from impact pile driving, which could cause temporary impacts during WTG construction (98 days over 2 years); and increased vessel traffic, which could lead to injury or mortality from vessel strikes.

The DEIS also includes 3.15.9, which is a very brief section on proposed mitigation measures. A review of the impacts and the proposed mitigation measures clearly shows that, despite using references and studies to model and estimate likely impacts of pile driving, the DEIS does not adequately address the complex nature of the impacts on the various categories of marine mammals that inhabit the geographical analysis area, nor does it thoroughly address the impacts to highly endangered North Atlantic Right Whale. This will cause significant harm.

COA comments on Pile Driving Impacts in DEIS

Per the Draft EIS, BOEM prepared a Biological Assessment (not cited correctly, had to search the web) for the potential effects on NMFS federally listed species, which found that the Proposed Action may adversely affect marine mammals (BOEM 2022). This document also states that consultation with NMFS under Section 7 of the ESA is ongoing. Indirectly, this is an admission that the impacts to marine mammals from the Project and Proposed Action could be more adverse. The DEIS does not state what these consultations are, and if and how the public will have a timely opportunity to review those and offer recommendations.

The DEIS merely states that individual fitness-level impacts are likely. But it does not quantify what these impacts are, and which species would be impacted. Additionally, it merely states that these impacts would be further reduced with implementation of project-specific measures required as conditions of compliance with the ESA, MMPA, and other federal regulations. This is a very simplified assumption and could be erroneous to conclude. At present, there are not enough regulations to monitor underwater noise.

As per the Draft EIS, the Proposed Action does not have any plans for concurrent monopile location at more than one location. Will this be upheld? The reason for this concern stems from the subsequent statement in the DEIS, which is provided below.

The DEIS states: "It is likely that concurrent pile driving may be considered appropriate or desirable if scheduled to avoid critical periods when sensitive or particularly vulnerable populations (e.g., North Atlantic right whales) are present in high densities, and thus result in increasing the (i) geographical extent, (ii) sound intensity of exposure, (iii) greater potential for TTS and PTS effects for marine mammals present." However, the Draft EIS does not factor this in the assessment and investigate the likely harm from such activities in the project area. Concurrent pile driving will cause serious harm and its impacts are not clearly quantified and needs to be avoided.

The DEIS also acknowledges a potential scenario of multiple planned construction activities, due to which it is likely that some individual marine mammals would experience two or more impact pile-driving noise exposure days within the same year. COA reiterates that this could cause serious harm to vulnerable populations and must be avoided at all costs.

The Draft EIS states that "due to the observed avoidance behavior of several marine mammal species during impact pile-driving activities, certain marine mammal species (MFC, HFC, and pinnipeds) are less likely to be exposed to underwater noise for sufficient duration to cause PTS and TTS." This cannot be true. The Draft EIS does not specify how these conclusions were drawn for a large group of species and what type of pile driving activities were used to derive these assumptions.

The Draft EIS acknowledges that studies that examine the behavioral responses of baleen whales to pile driving are absent from the literature. It further states that behavioral avoidance of other impulsive noise sources have been documented and could be used as a proxy for impact pile

driving. The Draft EIS refers to a 1986 study (Malme et al. 1986) that investigated migrating gray whales' responses to seismic exploration in the Bering Sea as a proxy. Gray whales have not been sighted and its relevance to the marine mammals at potential risk in the Project is not accurate. This renders the Draft EIS flawed and incomplete for its assessment on pile driving/noise impacts.

Pile-driving activities cause avoidance behaviors in most marine mammal species. It is true and there is scientific evidence to support this. For example, harbor seals abundance is significantly reduced up to 25 km from the piling activity, equating to a mean displacement of 440 individuals (Russell et al., 2016)

Another marine mammal monitoring (Ampela et al., 2014) in Puget Sound during active construction (pile driving) and baseline conditions showed that harbor seals were the most frequently observed marine mammal on construction days (n=782 sightings) and baseline survey days (n=197 sightings). These species appeared to be attracted to PD, and often moved towards the construction area when pile driving was initiated. Given the population of harbor seals in the Project area, this is a serious risk under the Proposed Action.

The DEIS refers to a study conducted in the North Sea on impacts of pile driving on porpoises: "Results from Brandt et al. (2011) indicate an overall reduced abundance of harbour porpoise during the 5-month installation period of the piles, with the authors postulating that this was either a direct (e.g., sensory disturbance, communication masking) or indirect (reduced prey availability) effect of pile-driving noise". The Project and its vicinity experience harbor porpoises throughout the year and such extended reduced abundance during the course of this Project and also with other proposed activities could pose a serious risk to porpoises and its associated ecosystem, and has not been discussed in detail.

Behavioral responses to changes in the acoustic environment could impact the health and vital rates of protected species or have top down effects on ecosystems and thus are critical to understand for decision makers, especially when proposed actions, such as the development and operation of offshore wind facilities, will increase sound levels. Bottlenose dolphins in the Mid-Atlantic Bight are not habituated to elevated ambient sound levels as evidenced by their altered habitat use (Fandel et al., 2022).

DEIS states that impact pile-driving activities from other offshore wind development projects are likely to exceed PTS and TTS thresholds for all marine mammal functional hearing groups. However, it oversimplifies the impacts and states that "due to the observed avoidance behavior of several marine mammal species during impact pile-driving activities, certain marine mammal species (MFC, HFC, and pinnipeds) are less likely to be exposed to underwater noise for sufficient duration to cause PTS and TTS." This contradicts the Ocean Wind 1 COP, which states that temporary noise from pile driving is anticipated to be the most important IPF for

marine mammals and reaffirms COA's concern.[68] The biggest concern is that studies that examine the behavioral responses of baleen whales to pile driving are absent from the literature. But the DEIS states that behavioral avoidance of other impulsive noise sources have been documented and could be used as a proxy for impact pile driving and refers toMalme et al. (1986) study on the responses of migrating gray whales to seismic exploration in the Bering Sea. This type of comparison lacks the required evidence or thoroughness and cannot be applied directly to other cetaceans in the Project Area.

The Draft EIS primarily relies on a comprehensive paper by Southall (Southall, 2021), which is a compendium of several research studies, to estimate likely PTS, TTS and Exposure Ranges to marine mammals. While this is a reasonable approach, it does not completely address the urgent and priority concerns pertaining to ALL marine mammals in the project area and its vicinity. Southall(2021) DOES NOT address baleen whales and the DEIS not addressing this category specifically and relying on supplementary information is a glaring omission. Southall (2021) summarizes some challenges and limitations which are produced below:

- Mysticetes and odontocetes should be considered separately given their different life history strategies. Mysticetes are known to be capital breeders, accumulating energy on feeding grounds and transferring energy to calves in breeding grounds, whereas odontocetes are generally considered income breeders with less discrete feeding and breeding periods occurring throughout the year. Given that anthropogenic activities generally focus on specific habitats within an animal's home range (e.g., feeding or breeding grounds), this may affect their ability to compensate for disturbances.
- Toothed whales and baleen whales show varying levels of sensitivity to mid-frequency impulsive noise sources (i.e., active sonar, pile driving), with observed responses ranging from displacement to avoidance behavior (animals moving rapidly away from the source) decreased vocal activity, and disruption in foraging patterns.

Acoustic masking

Acoustic masking can occur if the frequencies of the activity overlap with the communication frequencies used by marine mammals. Acoustic or auditory masking is a growing and serious threat to marine mammals (Erbe et al., 2016) and studies are increasingly focusing on how acoustic masking can affect reproduction in marine mammals (Nabi et al., 2018).[69]

[68] *See* Construction & Operations Plan, Ocean Wind 1 Wind Farm (2022), https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/OCW01_COP%20Volume%20I_20220614.pdf.

[69] Ghulam Nabi, et al., *The possible effects of anthropogenic acoustic pollution on marine mammals' reproduction: an emerging threat to animal extinction*, 25 Environmental Science and Pollution Research 19338–345 (2018), DOI: 10.1007/s11356-018-2208-7.

Low-frequency cetaceans (LFC) and pinnipeds are more likely to experience acoustic masking than MFC and HFC; however, the impacts are not discussed and could be serious. Underwater sonar activities were observed to result in decompression sickness and fatalities in beaked whales.[70] Impacts of acoustic masking are not given due consideration in DEIS. The highly endangered North Atlantic right whale could also be subject to increasing threats from noise pollution, which has not been discussed thoroughly in the Draft EIS.

Turbine operations growing concerns:

- Offshore WTGs produce continuous, non-impulsive underwater noise during operation, mostly in lower-frequency bands below 1,500 Hz (summarized in Section 3.15.3.2).
- Current and near-term commercially available WTGs likely used for the Project range from 12.4-MW to 14.7-MW WTGs using the direct-drive GE Haliade-X 12-MW WTG.
- SPLs measured from direct-drive WTGs within this size range do not currently exist in the literature and modeling scenarios are limited to two studies with a high degree of uncertainty.
- Effects related to the large direct-drive WTGs to be used for the Project are likely like those outlined for offshore wind activities (without the Proposed Action) and would include behavioral and masking effects. Masking of the low-frequency calls emitted from LFC and phocid pinnipeds in water would be more likely to occur.
- However, without further information regarding larger direct-drive WTGs, the extent of these effects are unknown. In addition, as the modeled values presented in Stöber and Thomsen (2021) extended upward of 177 dB re 1 µPa SPLRMS, exceedances for cumulative TTS thresholds are considered possible.

Turbine operations and the persistent noise from these installations have not been investigated in detail. With changes in turbine capacities, design, emitted noise, research into their impacts is an important priority. This is an urgent priority in the proposed geographic analysis area and its likely impacts on marine mammals including highly endangered species and the DEIS is deficient in not addressing this important impact.

iv. Water Quality (3.21)

BOEM anticipates the impacts on water quality resulting from Ocean Wind 1 will be minor.[71] However, this conclusion is not adequately substantiated by the Draft EIS. To start, this offshore wind energy development project and its geographical analysis area lie predominantly in Atlantic County and Cape May Counties, in the vicinity of Pine Barrens and a large Wildlife Management Area. Any onshore activity related to the project will impact these sensitive and

[70] *Acoustic Pollution and Marine Mammals*, Nature (2014), https://www.nature.com/scitable/spotlight/acoustic-pollution-and-marine-mammals-8914464/.
[71] DEIS at 3.21-5.1.

valued ecosystems, as well as a variety of inland waterways, and the impacts thereof need to be fully investigated.

Likewise, the Draft EIS does not contain any assessment on coastal acidification and its impacts. Coastal and ocean acidification, which refers to the decrease in the pH of coastal and absorb carbon dioxide from the atmosphere, is an emerging and serious climate change concern.[72] Ocean chemistry is being altered by the increasing presence of carbon dioxide and threatening the marine environment. Higher levels of acidification due to anthropogenic inputs of nutrient pollution affect the local waters' buffering capacity and, as a result, a variety of species including corals, clams, oysters, lobsters etc. to name a few.

Additionally, the water quality geographic analysis area overlaps with most, but not all, of the Atlantic Shores South (OCS-A 0499), Atlantic Shores North (OCS-A 0549), and the Ocean Wind 2 (OCS-A 0532) lease areas. Together, these projects will include as many as 468 WTGs, and construction activities will occur for years with possible overlap between each project in terms of timing. The magnitude of water quality impacts must be considered from this perspective in all thoroughness without making simpler assumptions that the Draft EIS describes. Furthermore, according to the Draft EIS, there will be increased vessel activity in the region during construction activities for Ocean Wind 1 that will continue through 2023. Risks and occurrence of surface water exposure to contaminants during routine vessel use and also potential accidental spills are quite high. Increased vessel traffic also increases the risk of collisions and consequent chemical spills.

More specifically, the Draft EIS estimates that up to approximately 1,527,193 gallons of coolants, 2,121,777 gallons of oils, and 471,492 gallons of diesel fuel could be stored within wind turbine foundations at Ocean Wind 1 and the offshore substation within the water quality geographic analysis area. Other chemicals, including grease, paints, and sulfur hexafluoride, will also be used at the offshore wind projects, and black and gray water may be stored in sump tanks on facilities. The Draft EIS describes a modeling study that was conducted to determine the likelihood and effects of a chemical spill at offshore wind facilities and concludes that revealed the most likely type of spill (i.e., non-routine event) to occur is from the WTGs at a volume of 90 to 440 gallons (341 to 1,666 liters), at a rate of one time in 1 to 5 years, or a diesel fuel spill of up to 2,000 gallons (7,571 liters) at a rate of one time in 91 years. The modeling effort was conducted based on information collected from multiple companies and projects and would therefore apply to the other projects in the water quality geographic analysis area. However, it is not clear from the Draft EIS whether these studies are peer-reviewed, comparisons were made with other offshore wind installations elsewhere, or the estimates from this study were compared

[72] *See* Barnegat Bay Partnership, 2019 Water Quality Network Annual Report (2022), https://www.barnegatbaypartnership.org/wp-content/uploads/2022/03/2019-Water-Quality-Network-Annual-Report.pdf.

with those from the oil and gas platforms. In brief, the EIS for Ocean Wind 1 has not established the accuracy of this study strongly enough to rely on it in foregoing further analysis regarding the impact of oil spills from this offshore wind energy development project on water quality.

On a separate note, the Draft EIS states, "All offshore wind projects would be required to comply with regulatory requirements related to the prevention and control of accidental spills administered by USCG and BSEE. Oil Spill Response Plans (OSRP) are required for each project and would provide for rapid spill response, cleanup, and other measures that would help to minimize potential impacts on affected resources from spills." This disclosure, however, begs an important question that is left unanswered by the Draft EIS: Does BOEM have any specific guidance/regulatory requirement for an OSRP for offshore wind farms? Similarly, will BOEM require a regional OSRP since the proposed project will be concurrently developed with the other lessees? The Draft EIS does not provide a draft OSRP for accidental spills, and this is a paramount consideration with respect to the environmental impacts of Ocean Wind 1.

On a related note, the Draft EIS states "Ocean Wind proposes to use an onshore O&M facility in Atlantic City, New Jersey. Construction of the O&M facility would be separately reviewed and authorized by USACE and local authorities, as needed." However, the nexus between Ocean Wind 1 and this proposed O&M facility would appear to suggest that construction of the latter is a connected action and, therefore, must be considered as part of this Draft EIS. On what basis is the O&M facility construction not being submitted with this Draft EIS? The Draft EIS presumptively concludes that the overall impacts on water quality from the Proposed Action would be short term and minor during construction and, to a lesser degree, during decommissioning. During operations, the number of vessels in use would decrease even more, resulting in fewer impacts. How are these conclusions drawn?

The proposed project includes waterways being monitored by NJDEP annually for water quality parameters. Many sites in the project area are impaired and non-attaining for Dissolved Oxygen including Barnegat Bay, Manahawkin Bay, Upper and Lower Little Egg Harbor.

Nearly all water quality assessment units of Barnegat Bay and associated tidal tributaries in the geographic analysis area are listed as 303(D) impaired and do not meet one or more of the designated uses – fish consumption, ecological function, recreation arising from pathogen exceedances, turbidity, oxygen depletion, and organic contaminants including PCBs and pesticides.

It is well known that New Jersey's Waterways suffer from varying degrees of impairment. The most recent 2018/2020 New Jersey Integrated Water Quality Assessment Report reconfirms that the Atlantic Coastal region, which includes the onshore Project area, does not fully support the

designated uses and is largely impaired for water quality.[73] Barnegat Bay is heavily impaired for nutrients and other pollutants, including pathogens.

Coastal waters in the project vicinity includes the Tuckahoe River, which is one of the few blackwater rivers in the northeastern United States and drains a portion of the Pine Barrens, which has been established as the country's first National Biosphere Reserve in 1978. At over a million acres, it spans across seven southern NJ counties and is rich with forests and wetlands.

The Tuckahoe Wildlife Management Area (WMA) comprises 18,205 acres of tidal marsh, shorelines, woodlands, and fields. An important feature of Tuckahoe WMA is its six coastal waterfowl impoundments, totaling 941 acres, which provide critical foraging habitats for New Jersey's waterfowl populations.

In the interest of brevity, immediately below are several more points that BOEM fails to address to evaluate impacts to water quality in the Draft EIS:

1. Potential microclimate effects of wind turbines – Wind turbulence behind turbines and its likely impacts on water quality.
2. Enhanced vertical mixing from turbulence created by turbine rotors increases night time surface air temperature by 0.5 degrees while lowering daytime temperatures by 2-3 degrees. Potential impacts on water temperature must be included in a full and fair analysis of Ocean Wind 1's environmental impacts.
3. Large offshore wind farms could have an impact on the regional microclimate and likely impact the marine boundary layer and downstream impacts.[74]
4. Building arrays of offshore wind turbines off the Mid-Atlantic states could have effects on the annual cycle of ocean water temperatures that are critical to the region's fish and shellfish habitat. In addition to impacts on the Atlantic cold pool and the high regional fishery productivity that it supports, heat absorbed by Ocean Wind 1's steel monopoles will warm the surface water and water column, including local benthic areas, and this may extend to cumulative effects from the heat dissipated by the entire 98-turbine array.[75] This would have significant and serious impacts on the ecosystem, including cumulative impacts.

[73] https://www.state.nj.us/dep/wms/bears/assessment-report20182020.html.

[74] *See* S.K. Seidersleben, *Micrometeorological impacts of offshore wind farms as seen in observations and simulations*, 13 Enviro. Res. Letters 124012 (2018), https://www.nrel.gov/docs/fy19osti/73183.pdf.

[75] *See* Travis Miles, et al, *Could federal wind farms influence continental shelf oceanography and alter associated ecological processes? A literature review.*, SCEMFIS (2020), https://scemfis.org/wp-content/uploads/2021/01/ColdPoolReview.pdf.

5. Similarly, the EIS needs to include a more thorough analysis of the potential impacts of extreme weather events on Ocean Wind 1.

6. The turbines' presence may lead to changes in the surrounding wind speed and surface stress of the water in the turbines' wake, which may lead to increased turbulence and heat fluxes.[76] The turbines' effects on near-surface wind speeds and the warming of near-surface water temperature has even been documented in the context of extreme weather events,[77] but no such interactions are analyzed in the Draft EIS.

D. Affected Environment and Environmental Consequences: Additional Concerns and Comments

v. Birds (3.7)

Over 400 different species of birds, including thirty-four (34) that are listed as endangered or threatened, are found in New Jersey.[78] Many of these species live in the coastal region. The state is also an important stopover for bird migration at various times throughout the year. The coastal area, both onshore and offshore, provides important habitat and resources for birds:

> Every spring, scores of Beach-Nesting Birds return to New Jersey's shoreline. They have just a few months to set up territories, incubate nests, defend chicks and successfully produce the next generation. This is an especially critical task for New Jersey's endangered species, the Piping plover, Least tern and Black skimmer. In addition, special concern species such as the American oystercatcher, Common tern, and occasionally Gull-billed tern and royal tern use the beachfront as nesting grounds.[79]

New locations for birds are also emerging, including one area that is already "one of the most critically important areas for birds in the State of New Jersey."[80] Named "Horseshoe Island," this new location that has attracted "more than 1,360 coastal birds for nesting, foraging, and

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[76] *See* S. Afsharian and P.A. Taylor, *On the Potential Impact of Lake Erie Wind Farms onWater Temperatures and Mixed-Layer Depths: Some Preliminary 1-D ModelingUsing COHERENS*, 124 J. Geophysical Rsch.: Oceans 1736-49 (2019), https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2018JC014577.

[77] *See* Tsung-Yu Lee, et al., *Impacts of offshore wind farms on the atmospheric environment over Taiwan Strait during an extreme weather typhoon event*, 12 Scientific Reports 823 (2022), https://www.nature.com/articles/s41598-022-04807-w.pdf.

[78] New Jersey Wildlife, N.J. Scenic (last accessed Aug. 22, 2022), http://www.newjerseyscenic.com/nj_wildlife.html.

[79] *New Jersey's Endangered and Threatened Wildlife*, N.J. Dept. Envmtl. Prot. (June 23, 2022), https://dep.nj.gov/njfw/wildlife/new-jerseys-endangered-and-threatened-wildlife/.

[80] Frank Kummer, *A new island emerges at the Jersey Shore, and boaters are angry it's been closed to protect birds*, Philadelphia Inquirer (May 13, 2022), https://www.inquirer.com/news/brigantine-new-jersey-horseshoe-island-conservation-migrating-birds-20220513.html.

roosting" is located south of Little Egg Inlet by Little Beach Islands off Brigantine, NJ (see map; credit John Duchneskie, The Philadelphia Inquirer). The island is a feature that is not found anywhere else in the state. It has been found that Horseshoe Island:

> provides habitat for a number of species, including 470 endangered least terns, making it the largest colony of the species in the state. It also provides roosting habitat for 80 red knots, which are federally threatened and state endangered. It also provides nesting or roosting habitat for other state endangered or species of special concern including six pairs of breeding American oystercatchers, 380 black skimmers, 50 common terns, 24 royal terns, 10 piping plovers, and other species, including brown pelicans, whimbrels, and ruddy turnstones.[81]

With regard to Ocean Wind 1, the risks to bird species are many: mortality risk from encounter with blades, habitat conditions, offshore and onshore habitat loss and alteration, displacement of food sources, avoidance of areas for foraging & nesting, noise, vibrations, vessel traffic, spills, new lighting, and reduced fitness and "energetic costs of longer flight paths (especially for migrating shorebirds and ducks)."[82] The species of birds at Horseshoe Island and in the geographic analysis area – including Brigantine and Atlantic City as well as inland – will be adversely impacted by the onshore and offshore development associated with the Proposed Action. In fact, the Draft EIS identifies birds as experiencing "potential unavoidable impacts" specifically due to the "displacement and avoidance behavior due to habitat loss/alteration, equipment noise, and vessel traffic."[83] Yet, BOEM assesses the impacts to birds as "moderate." In the Draft EIS, BOEM fails to provide important information about how the agency assesses the impacts to birds as "moderate" when also stating birds will experience "unavoidable impacts." These determinations are inconsistent with each other.

Regarding additional risks and impacts to birds, the brief reference to the use of European studies about birds affected by offshore wind projects does not reveal how birds were impacted.. Also, other estimates of birds killed by wind turbines show that approximately 538,000 birds are killed each year by wind turbines in the U.S., not the 320,000 annual average that the Draft EIS

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[81] *Id.*

[82] Charles H. Peterson, *Risks to Birds and Wildlife from Offshore Wind Farms: BOEMRE NC Task Force*, Univ. N. Car. (2011), https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/RiskBirdsWildlifeOffshore.pdf.

[83] DEIS at L-1.

suggests.[84] Also, the Draft EIS does not explain how BOEM lighting guidelines will help minimize impacts on birds.[85] This underscores the lack of studies about the impacts to birds and the potential risks to birds from the Proposed Action.

Also, the Draft EIS notes if new structures in the ocean attract increased prey for some birds, then surely there will be more birds around the wind turbines, therefore increasing the amount of birds at risk of colliding with turbines.[86] As such, the construction and placement of thousands of offshore wind turbines (cumulatively speaking) will impact the bird populations in and outside of the geographic analysis area of the Proposed Action.

Regarding impacts to birds from potential spills in the ocean and coastal areas from the supporting vessels during construction, operations, and maintenance, as well as the materials expected to be stored and used at substations and turbines, "Ocean Wind committed to preparing and implementing waste management plans and hazardous materials plans which would minimize the potential for spills and identify procedures in the event of a spill."[87] Ocean Wind is set to "prepare waste management plans and hazardous materials plans as appropriate for the project"[88] and claims that plan would minimize potential for spills, but there is no plan in place. When is that plan expected for public review? It would seem to be appropriate for inclusion in the Draft EIS or Final EIS. Also, cumulatively speaking, the quantity of these stored materials and the impacts from them are much higher, as is the case with the thousands of gallons expected to be onsite for the multiple offshore wind projects in the region.[89] Nevertheless, the Draft EIS fails to consider the cumulative impact of such spills on birds.

The Draft EIS's analysis is similarly errant with respect to the impacts of onshore development associated with the Proposed Action on bird species. For example, the document does not specify or estimate how many trees (or acreage of trees) the Applicant plans to cut down for the building of onshore substations.[90] However, these actions will not only have an impact on local erosion and flooding, but will also impact the birds that use the trees for habitat, nesting, safety from predators, and food.

Also, the DEIS acknowledges uncertainties too often in the section, making Clean Ocean Action challenge the finding of "moderate" impacts to birds. The DEIS admits to uncertainty due to "habitat use and distribution that varies for seasons, species, and years," as well as offshore wind

[84] Joel Merriman, *How Many Birds Are Killed by Wind Turbines?*, American Bird Conservancy (Jan. 26, 2021), https://abcbirds.org/blog21/wind-turbine-mortality/.
[85] DEIS at 3.7-9.
[86] *Id*. at 3.7-9.
[87] *Id.* at 3.7-16.
[88] *Id.* at H-3.
[89] *Id.* at Table F2-4.
[90] *Id.* at 3.7-15.

"being in its infancy."[91] Specifically, the DEIS states, "there will alway be some level of uncertainty regarding the potential for collision risk and avoidance behaviors for some of the bird species that may be present within the offshore portions of the geographic analysis area." Further, uncertainties were also cited due to BOEM's use of data mortality rates from onshore wind farms.

With all the deficiencies and inconsistencies presented in the discussion to the impacts on bird species, Clean Ocean Action challenges BOEM's designation of "moderate" impacts on bird species and maintains BOEM failed to complete a comprehensive analysis of the impacts to birds onshore and offshore from the Proposed Action. A pilot-scale project would allow for studies to be performed to evaluate the true potential impacts of a full-scale industrial project, especially for endangered birds.

vi. Coastal Habitat and Fauna (3.8)

Activities related to Ocean Wind 1 will negatively impact the wildlife and fauna that can be found within the acres facing disturbance. To this end, the Draft EIS identifies five (5) species that are classified as endangered or threatened and can be found within the overall onshore project area:

- the American chaffseed;
- the Knieskern's beaked-rush;
- the seabeach amaranth;
- the sensitive joint-vetch; and
- the swamp pink.[92]

The document goes on to explain that while a sixth species–the State-list Bobcast–is unlikely to be present within the onshore project area due to existing development, individuals among the species may experience stress and negative physiological effects. Nevertheless, the Draft EIS dismisses any potential impacts to the species on the basis that "the species can habituate to human presence,"[93] a conclusion we reject due to the lack of any scientific support.

Not only is the Draft EIS lacking a comprehensive analysis regarding the foreseeable impacts of onshore development from Ocean Wind 1 on these species, but it is also largely silent with respect to the impact of Ocean Wind 1 on the monarch butterfly as well. The monarch butterfly is an iconic and easily recognizable insect for which New Jersey, including its coast, provides a crucial migratory route between Canada and Mexico.[94] Although the monarch butterfly was not

[91] *Id*. at D-2.
[92] *Id.* at 3.8-3.
[93] *Id.* at 3.8-11.
[94] *Monarch Migration Made Easy*, Cherry Hill Township (Spring 2019), https://www.chnj.gov/1138/Monarch-Migration-Made-Easy.

listed as "endangered" or "threatened" under the Endangered Species Act at the time of the Draft EIS's publication, the International Union for the Conservation of Nature ("IUCN") has since designated the species as "endangered."[95] As such, the Draft EIS's analysis concerning monarch butterflies–which is largely limited to acknowledging that the species may use open fields near construction and operations activities where milkweed can be found–is woefully inadequate. BOEM cannot allow Ocean Wind 1 to move forward as proposed without a full accounting of the extensive steps that will need to be taken to avoid, reduce, and mitigate impacts on monarch butterfly habitat.

Next, with respect to Ocean Wind 1's eventual decommissioning, the Draft EIS indicates that Ocean Wind intends to abandon the onshores cables from the project in place.[96] Despite this plan, however, the document presumes that these cables will not have any impacts on the wetlands where they will be abandoned or on the species that reside therein, including the protected species identified above. The Draft EIS never analyzes potential environmental effects–either negative or positive–of abandoning the onshore cables associated with Ocean Wind 1 at the end of the project's life-cycle. The cables' continued presence may have profound effects on local ecosystems and communities, particularly due to interactions with electromagnetic forces ("EMF") from the cables.

Furthermore, the Draft EIS's analysis relies on flawed logic that ultimately prevents the document from fulfilling its purpose. More specifically, the Draft EIS provides, "In context of reasonably foreseeable environmental trends, [Ocean Wind 1] would contribute an undetectable increment to the combined noise impacts on coastal fauna from ongoing and planned activities including offshore wind, which would likely be minor."[97] However, federal courts have rejected this line of reasoning when relied upon by an agency during environmental reviews in the past. Most recently, the United States Court of Appeals for the Ninth Circuit decided in 2021 that the U.S. Army Corps of Engineers ("USACE") could not conclude that aquaculture activities' effects on the environment were insignificant or minimal on the basis that "other sources caused even greater harm to the aquatic environment than aquaculture [...]."[98] The same principle must apply here. Until it includes a complete analysis of the impacts that Ocean Wind 1 will have on coastal fauna, as opposed to summarily describing them as negligible against the baseline of impacts from other activities expected to occur, the EIS for this project is deficient and cannot support the decision to move ahead with the industrial-scale development proposed for Lease Area OCS-A 0498.

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[95] *Migratory monarch butterfly now Endangered - IUCN Red List*, Intl. Union for the Conservation of Nature (July 21, 2022), https://www.iucn.org/press-release/202207/migratory-monarch-butterfly-now-endangered-iucn-red-list.
[96] DEIS at 3.8-13.
[97] DEIS at 3.8-11.
[98] *Coal. to Prot. Puget Sound Habitat v. U.S. Army Corps of Eng'rs*, D.C. No. 2:16-cv-00950-RSL at 4, https://www.centerforfoodsafety.org/files/2021-02-11-ecf-71-1--memorandum_71986.pdf.

Finally, in spite of the variety of risks and harms identified above, the Draft EIS concludes that the overall impact of Ocean Wind 1 on coastal habitat and fauna will be minor and does not propose any measures to mitigate Ocean Wind 1's anticipated impacts on thereupon.[99] This is plainly unacceptable. BOEM must exercise its authority and discretion to protect precious coastal resources from irreversible harm by not allowing Ocean Wind 1 to proceed until specific and binding mitigation measures for coastal habitat and fauna are identified for this development. Again, a pilot-scale project here would allow for studies to be conducted to evaluate the true potential impacts of a full-scale industrial project, especially for endangered species.

viii. Cultural Resources (3.10)

The offshore region of New Jersey is rich with cultural resources, including popular dive sites and a treasure trove of both maritime and terrestrial history. According to the Professional Association of Diving Instructors, "It is estimated that there are over 5,000 shipwrecks on New Jersey's coast, from vessels that are hundreds of years old to more modern wrecks."[100] Diving is also a contributor to the New Jersey tourism industry. There are natural features and archaeological resources, structures, and features, as well as historic properties in the area of the Proposed Action.

The DEIS acknowledges "the Lease Area and two export cable corridors have a high probability for containing shipwrecks, downed aircraft, and related debris fields."[101] The cultural resources identified for review in the Draft EIS include:

- "onshore landfall locations - 8 archaeological resources, 10 historic structures
- offshore cultural resources - 16 submerged landform features ('ancient submerged landforms') (13 in lease areas and 3 within 2 export cable corridors), 19 potential submerged cultural resources identified with remove-sensing studies (12 in lease area, 7 in 2 export cable areas), both known and potential shipwrecks
- offshore visual area - seven historic districts and 34 individual historic properties
- onshore visual area - three historic properties."[102]

The Draft EIS determines impacts to cultural resources from the Proposed Action will be "moderate." Clean Ocean Action finds fault in this assessment. If the Draft EIS itself states impacts from the No Action Alternative will be minor to major, how could less impacts be associated with the Proposed Action (e.g., moderate) from additional structures and infrastructures added? This shows an inconsistency in the Draft EIS.

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[99] DEIS at 3.8-14.

[100] *Explore Diving in New Jersey*, PADI (last accessed August 14, 2022), https://www.padi.com/diving-in/new-jersey/.

[101] DEIS at 3.10-4; Ocean Wind 1, COP Volume III at F-1 (2022).

[102] DEIS at 3.10-4.

The DEIS describes impacts on cultural resources in the geographic analysis area as "permanent" and "adverse." The Draft EIS states:

> Construction of offshore wind projects could result in impacts on cultural resources on the seafloor caused by anchoring in the geographic analysis area. The placement and relocation of anchors and other seafloor gear such as wire ropes, cables, and anchor chains that affect or sweep the seafloor could potentially disturb marine cultural resources and ancient submerged landforms on or just below the seafloor surface. The damage or destruction of submerged archaeological sites or other underwater cultural resources from these activities would result in the ***permanent and irreversible loss of scientific or cultural value and would be considered major impacts (emphasis added)***.[103]

Yet, the mitigation measures required by BOEM of offshore wind developers are lacking in the DEIS. As stated by BOEM, offshore wind developers are required "to conduct geophysical remote sensing surveys of proposed development areas to identify cultural resources and implement plans to avoid, minimize, or mitigate impacts on these resources." However, there are no mitigation plans or details included in the Draft EIS. BOEM claims that as a result of conducting the surveys, "impacts on marine cultural resources from anchoring and gear utilization are considered unlikely and would only affect a small number of individual marine cultural resources if they were to occur, resulting in long-term, localized, adverse impacts."[104] This statement is inappropriate and premature without knowing the results of the surveys.

The Draft EIS also notes the unavoidable damage that will occur to submerged landform features: "Offshore construction would result in geographically widespread and permanent adverse impacts on portions of these resources…[T]he magnitude of these impacts would remain moderate to major, due to the permanent, irreversible nature." The Draft EIS also states, "impacts from the Proposed Action on nine ancient submerged landforms within the Lease Area cannot be avoided."[105] What are the nine ancient submerged landforms? Are they significant to the ecosystem and marine life? How will these landforms and ecosystems surrounding these forms be adversely affected? The Draft EIS does not address these basic questions.

Regarding inshore impacts to cultural resources, the Draft EIS states: "information pertaining to identification of historic properties within the inshore cable route added to the Project in March 2022 and associated with Oyster Creek landfall locations will not be available until after the Final EIS."[106] How can the public and interested parties as well as BOEM and other appropriate agencies adequately assess the impacts to cultural resources if the information will not be

[103] *Id.* at 3.10-7.
[104] *Id.* at 3.10-8.
[105] *Id.* at 3.10-13.
[106] *Id.* at 3.10-17.

available until after the Draft EIS and the Final EIS? The impacts from inshore cable routes must be identified and evaluated before the Final EIS is complete.

Regarding hazardous materials and trash or debris, accidental releases could affect cultural resources, as well as water quality.[107] The potential for releases, especially with the other wind turbines planned in the region, could be significant and must be assessed more closely in the DEIS considering the materials that are planned to be stored at the turbines and substations. The DEIS notes, "The 98 WTG foundations and three OSS foundations for the Proposed Action alone would include storage for up to 39,690 gallons (150,242 liters) of coolants, 426,671 gallons (1.6 million liters) of oils and lubricants, and 236,216 gallons (894,175 liters) of diesel fuel."[108] While the DEIS dismisses these impacts as "negligible," COA maintains that thousands of gallons of these chemicals and fuels, if released, can have significant impacts on fragile marine and coastal ecosystems as well as cultural resources identified in the Draft EIS. For example, "spilling a single gallon of oil can contaminate as much as one million gallons of water."[109] Also, "spilling a pint of oil in a wetland or lake could cover the surface area of an acre of water."[110] NOAA suggests the impacts on aquatic life can be grave: "In terms of toxicity to water-column organisms, diesel is considered to be one of the most acutely toxic oil types. Fish, invertebrates and seaweed that come in direct contact with a diesel spill may be killed…Small diesel spills can affect marine birds by direct contact."[111] Clean Ocean Action notes that NOAA defines "small diesel spills" as 500-5,000 gallons. The Ocean Wind 1 project includes the storage of 236,216 gallons of diesel fuel. Further, multiply that amount by the other projects in the region, and the potential impacts from spills are greater. The DEIS does not include a plan to address spills and the potential impacts on cultural, as well as marine resources, from the Proposed Action.

Based on the deficiencies and inconsistencies in the DEIS outlined above from the Proposed Action, BOEM should require strict and meaningful mitigation measures to protect cultural resources as conditions of COP approval and in the Final EIS.

ix. Demographics, Employment, and Economics (3.11)

The Draft EIS is also charged with evaluating the socioeconomic impacts of the Proposed Action, yet the document is deficient in such an analysis. The Draft EIS does identify several "irreversible and irretrievable impacts" from the Proposed Action to Demographics, Employment, and Economics. The impacts of Ocean Wind 1 will be experienced by many

[107] The impacts of Ocean Wind 1 on water quality are discussed in greater detail in Section 3.21 above.
[108] DEIS at 3.10-12.
[109] *How Much Used Oil Will Contaminate Well Water?*, GroundwaterGovernance (Mar. 21, 2022), https://www.groundwatergovernance.org/how-much-used-oil-will-contaminate-well-water/.
[110] *Water Contamination - How Far Do Pollutants Reach?*, The 71 Percent (last accessed Aug. 22, 2022), https://www.the71percent.org/water-contamination-how-far-do-pollutants-reach/.
[111] Office of Response & Restoration, *Small Diesel Spills (500-5,000 gallons)*, Natl. Oceanic and Atmospheric Admin. (April 2020), https://response.restoration.noaa.gov/sites/default/files/Small-Diesel-Spills.pdf.

businesses, especially commercial fishing operations, and by extension, the restaurants that purchase landings from these fishing businesses. However, the Draft EIS does not appear to account for the loss of fishing jobs, restaurant jobs, and the rising cost of fuel and materials for commercial fishing vessels and businesses, as well as for the Proposed Action itself.

This contributes to a broader theme: the costs of Ocean Wind 1 have not been fully disclosed. Considering the higher costs associated with offshore wind development, it is imperative that the costs be communicated as part of this analysis to determine the socioeconomic impacts of the Proposed Action. The expected ratepayer impacts of this Proposed Action have not been communicated. The New Jersey Board of Public Utilities ("BPU") initiated a stakeholder process for discussing the ratepayer impacts, but no report has been released yet. How can socioeconomic impacts be assessed and evaluated in a DEIS if the entire cost of the project and associated upgrades and cost of the generated electricity is not disclosed?

Also, the DEIS does not account for the rising costs of materials, supply chain limitations, and the labor shortage that will most certainly increase the costs of the Proposed Action, and therefore, the socioeconomic impacts. In addition,

> "Business growth can be stifled by increasing capital costs as well as infrastructure and logistics issues. Offshore wind turbines are vulnerable to erosion because they are situated in harsh marine climates for decades. Offshore wind turbines are also located miles from the shore, making them difficult to access, particularly in bad weather. As a result, even minor issues would be costly to resolve in terms of maintenance, transportation, and logistics."[112]

How will these increased costs affect the socioeconomic factors?

In sum, the Draft EIS does not adequately identify and evaluate the socioeconomic impacts from the Proposed Action.

x. Environmental Justice (3.12)

It is imperative that the communities within the geographic analysis area be directly consulted and provided full disclosure of all potential health related and ecosystem impacts of all industrial offshore wind projects and associated facilities. COA identifies some concerns below based on the information in the DEIS and urges BOEM to engage local EJ communities in the geographic analysis area on these and other concerns of these communities.

The DEIS claims environmental justice communities will benefit from the displacement of fossil fuel facilities with completion of the Proposed Action (e.g., offshore wind turbines). However,

[112] Nikhil Manrokar, *Offshore Wind Energy Market is Estimated to Surpass USD 135.23 Billion By 2028*, Reports and Data (August 1, 2022), https://www.einnews.com/pr_news/583960938/offshore-wind-energy-market-is-estimated-to-surpass-usd-135-23-billion-by-2028.

the DEIS does not provide evidence that fossil fuel facilities will indeed be closed or displaced in the region or beyond. Also, renewable industrial facilities will have environmental and public health impacts that must be evaluated and accepted by local communities. Indeed, impacts from the Proposed Action will still be experienced by communities in the geographic analysis area. Locally, these impacts include: air emissions, noise, lighting, loss of coastal water access, loss of income, health impacts from vehicle and vessel emissions, as well as traffic and other quality of life impacts.[113] In addition, onshore development can "reduce access to coastal areas and working waterfronts that communities rely on for recreation, employment, and commercial or subsistence fishing." Some of the impacts will be "irreversible and irretrievable," yet the Draft EIS overall finds that environmental justice impacts will be "negligible to minor." This is inconsistent. Also, adding more industrial facilities, including those for renewable energy development, will exacerbate impacts on these already overburdened communities.

The Ocean Wind 1 Draft EIS states, "the geographic analysis area for environmental justice includes the counties where proposed onshore infrastructure and potential port cities are located, as well as the counties in closest proximity to the Wind Farm Area: Atlantic, Cape May, Cumberland, Gloucester, Ocean, and Salem Counties, New Jersey; Charleston County, South Carolina; and Norfolk, Virginia." The community that will be most burdened by Ocean Wind 1 and its impacts is Atlantic City, NJ. This urban coastal city is designated by the State of New Jersey as a "low income and minority" environmental justice community. Atlantic City is the closest municipality to the Ocean Wind 1 turbines and offshore substations, and will host an onshore interconnection point and large O&M facilities. The Applicant's O&M facility will be used as a regional O&M center for multiple Ørsted projects in the mid-Atlantic, including for the Proposed Action, as well as a construction management base. The O&M facility would contain office, warehouse, and workshop space; dockside harbor facilities; and parking facilities. Extensive bulkhead work is required and "approximately 6,448 square feet of open water habitat, waterward of the high tide line, and approximately 7,650 square feet of adjoining wetlands, would be filled behind the proposed bulkhead."[114] Further,

> up to 6 vessels, a maximum length of approximately 98 feet and a beam [width] of 33-36 feet would be based at the site. Two floating dock structures would be installed to allow for vessels to moor at the site. These structures would be offset from the bulkhead by 5 feet and would be 99 feet long and 14.5 feet wide. Twenty 24-inch diameter piles would be installed at the site to secure the floating structures. A movable gangway would be attached to the uplands and would cross over the mean high water line to allow for access to the vessels using these structures. Four vessels would be moored

[113] DEIS at 3.12-11.

[114] Public Notice No. NAP-2021-00187-39, U.S. Army Corps Engrs. Philadelphia District, (November 3, 2021), https://www.nap.usace.army.mil/Portals/39/docs/regulatory/publicnotices/Public-Notice-2021-00187-39.pdf.

> to the floating structures and two vessels would be moored to the bulkhead facing west. Electrical, water, sewage and fuel lines would be run internally inside the floating docks in sealed conduits, to supply the vessels.[115]

This is an extensive port expansion in an already overburdened community. The DEIS also states another O&M facility will be built in Atlantic City for the Atlantic Shores offshore wind facilities. Multiple large scale offshore wind facilities cumulatively in the same region will amplify local and regional impacts.

In the Draft EIS, BOEM takes the indefensible position that "[t]he impacts at specific ports close to environmental justice populations cannot be evaluated because port usage has not been identified." This is an inconsistency as the number of vessels and vessel trips are indeed noted in the DEIS as well as the COP:

> The construction phase of the Proposed Action would generate 20 to 65 vessels operating in the Wind Farm Area or over the offshore export cable corridor route at any given time (COP Volume I, Section 6.1.2.6.5; Volume III, NSRA, Section 5; Ocean Wind 2022). In total, the Proposed Action would generate approximately 3,847 vessel trips during the construction and installation phase (COP Volume I, Section 6.1, Tables 6.1.2-1 through 6.1.2-5; Ocean Wind 2022). On average, the Proposed Action would generate approximately 10 vessel trips per day during regular operations.[116]

A Draft EIS is clearly the appropriate venue for making such evaluations. This Draft EIS, in fact, states that some of "those emissions resulting from ship engines and equipment operating within and near the O&M facilities in Atlantic City would affect environmental justice populations." This reveals another inconsistency in the DEIS.

The Draft EIS identifies "irreversible and irretrievable impacts," including "loss of income or employment for low-income workers in marine industries."[117] According to the Draft EIS, "Atlantic City and Cape May have a high level of commercial fishing engagement and Cape May also has a high level of commercial fishing reliance."[118] Due to high commercial fishing employment, these communities will experience disproportionate impacts from cable emplacement and noise. Also, "future offshore wind activities would have similar contributions as the Proposed Action over a wider area and longer time period. The increased impacts would

[115] *Id*.
[116] DEIS at 3.16-13.
[117] *Id.* at L-5.
[118] *Id.* at 3.12-20.

affect commercial and for-hire recreational fishing and supporting marine businesses, resulting in impacts on employment and income."[119]

The presence of OSW structures will also result in "navigational complexity,…disturbance of customary routes and fishing locations, and the presence of scour protection and cable hardcover, leading to possible equipment loss and limiting certain commercial fishing methods."[120] The Draft EIS admits that if specific fishing operations are unable to find alternative locations, "they could experience long-term, major disruptions." This is unacceptable. Mitigation measures – acceptable to the industries adversely affected – must be proposed and strictly implemented as conditions of the COP and Final EIS.

In sum, communities will be adversely impacted by the Proposed Action and other industrial offshore wind projects and support facilities proposed in the region. Yet, no mitigation measures are included in the Draft EIS. In addition, the DEIS provides no evidence to support the claim that the Proposed Action will displace fossil fuel facilities.

xi. Land Use and Coastal Infrastructure (3.14)

The Proposed Action includes onshore construction of facilities and infrastructure. From land disturbance, port utilization, new large port areas, parking lots, and structures to onshore and inland cabling routes and transmission infrastructure, it is clear that there will be extensive *onshore* impacts from *offshore* wind facilities. The Draft EIS fails to comprehensively identify and address the onshore consequences of the Proposed Actions.

Regarding land disturbance, the Draft EIS states the "removal or disturbance of habitat associated with onshore activities could create long-term irreversible impacts."[121] What is the total land area that will be developed (e.g., number of acres) as a result of the Proposed Action, including all of its development components? Where? When, and for how long will impacts occur from this development? What resources and wildlife will be impacted? The Draft EIS does not address these critical questions.

The communities that will withstand the construction, operation, maintenance, and decommissioning of these offshore wind facilities will be subjected to the impacts for the long-term. The Draft EIS states,

> installation of the cable landfall sites and underground cable routes would temporarily disturb neighboring land uses through construction noise, vibration, dust, and travel delays along the affected roads. These impacts are anticipated to

[119] *Id.* at 3.12-18.
[120] *Id.*at 3.12-20.
[121] *Id.* at L-7.

> last for the duration of construction…The corridors would be maintained through regular vegetation trimming and herbicide application."[122]

The Draft EIS fails to identify and review the environmental impacts from the use of such herbicides in fragile coastal communities and ecosystems.

In addition, the land disturbance outlined in the Draft EIS will have impacts on stormwater collection and management. The Draft EIS states, "Construction of the onshore substation would require a permanent site, including area for the substation equipment and buildings, equipment yards, energy storage, stormwater management, a parking area, an access road, and landscaping."[123] The Draft EIS does not, however, review the impact of adding more impervious cover in shore communities where stormwater runoff and flooding events are frequent occurrences and problems. Will BOEM require green infrastructure to be used in the development of these onshore facilities? To what extent? What types of green infrastructure?

The Draft EIS also notes that "Impacts on land use and coastal infrastructure would be additive only if land disturbance associated with one or more other projects occurs in close spatial and temporal proximity." There are 24 other offshore wind projects or leased areas with associated onshore infrastructure anticipated in this region. It is likely that the impacts on land use and coastal infrastructure will be exacerbated due to the numerous facilities being constructed simultaneously and subsequently operational in the same region.

As another example of land disturbance impacts and a deficiency in the DEIS, BOEM states:

> Portions of the Oyster Creek onshore export cable corridor [are] within lands approved for acquisition by USFWS as part of the Edwin B. Forsythe National Wildlife Refuge; however, as they have yet to be acquired by USFWS, ***these lands do not need to be evaluated for impacts relative to the refuge***.[124]

Why did BOEM not evaluate these land resources in the DEIS? When will the public have the opportunity to assess and understand the impacts to that land area? By not evaluating these lands and the potential impacts on them, any impacts from the Proposed Action will be unknown as the baselines would not be assessed, and impacts may be identified too late. BOEM should require the assessment of the "lands approved for acquisition by USFWS." BOEM is essentially writing a "blank check"' for these lands to be used without public review. It also begs the question, what other lands has BOEM failed to evaluate in the DEIS for impacts related to Ocean Wind 1? Again, BOEM must disclose the total amount and location of lands affected and proposed for use by the Proposed Action.

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[122] *Id.* at 3.14-10.

[123] *Id.* at 3.14-11.

[124] *Id.* at 3.14-11. Emphasis added.

Regarding additional land disturbance, the export cable corridor to Oyster Creek crosses the fragile environs of Island Beach State Park, an area of almost untouched coastal beauty in Ocean County. The NJDEP describes Island Beach State Park as following:

> Miles of sand dunes and white sandy beaches offer habitat to maritime plants and diverse wildlife that is almost the same as it was thousands of years ago. Island Beach State Park contains outstanding examples of plant communities such as primary dunes, thicket, freshwater wetlands, maritime forest and tidal marshes. The state's largest osprey colony, as well as peregrine falcons, wading birds, shorebirds, waterfowl and migrating songbirds are found here. Island Beach is nationally known as a unique resource with over 400 plants identified, including the largest expanses of beach heather in New Jersey.[125]

In the Draft EIS, BOEM maintains that because the State Park has been designated an "Otherwise Protected Area" pursuant to the Coastal Barrier Resources Act, "consultation with USFWS ***is not required*** and the only federal spending restriction is a prohibition on federal flood insurance" (emphasis added). How could this natural coastal habitat along the Jersey Shore not require consultation with an agency whose mission is "conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people"?[126] COA urges BOEM to consult with US Fish and Wildlife Service about the impacts expected at Island Beach State Park from the export cable that will traverse through important habitat en route to Oyster Creek. In addition, mitigation measures must be identified and agreed upon among those interested in protecting the integrity and ecosystem of Island Beach State Park.

Further, the Pinelands region of New Jersey is an incredibly historic and ecologically significant area that must be considered properly and responsibly when it comes to identifying and evaluating the onshore impacts of the Proposed Action. The Draft EIS states:

> Portions of the Onshore Project area are within the New Jersey Pinelands, which feature some of the largest unbroken tracts of Atlantic coastal pine forests in the eastern U.S., stretching across more than seven counties of New Jersey…[P]ortions of the export cable corridors are within the federally designated Pinelands National Reserve (New Jersey Pinelands Commission 2021). The Great Egg Harbor River is a 129-mile river system and was designated as a Wild and Scenic River by Congress in 1992 (USNPS 2016). It is almost

[125] *Island Beach State Park Overview*, N.J. State Park Serv. (Aug. 22, 2022), https://www.nj.gov/dep/parksandforests/parks/islandbeachstatepark.html.
[126] *Mission and Vision*, U.S. Fish & Wildlife Serv. (last accessed Aug. 14, 2022), https://www.fws.gov/about/mission-and-vision.

entirely within the Pinelands National Reserve and drains into wetlands within the reserve.[127]

The DEIS does not identify mitigation measures to address the unavoidable impacts to the Pinelands region as a result of the Proposed Action.

Regarding the presence of structures, where the offshore export cables cross currently undeveloped areas, there would be a permanent conversion of land to utility right-of-way or easement. Specifically for the Oyster Creek cable route, undeveloped land would be permanently disturbed, and roadways associated with a confined disposal facility (CDF) would be disturbed. The Draft EIS fails to identify and evaluate the substances contained in the CDF and what impacts will result from the disturbance caused by the Proposed Action.

Regarding the utilization of ports, the DEIS indicates the ports of Paulsboro, Hope Creek, and Port Elizabeth, NJ, and the Ports of Charleston and Norfolk are included in the project in addition to the landfall locations and onshore substations. The Draft EIS states "Proposed uses at existing port facilities would be consistent with the current land uses occurring at these locations and are not expected to result in changes to land use or zoning." This statement is false. For instance, the proposed port expansion for the Wind Port facility in Lower Alloways Creek included an application by Orsted to NJDEP to redesignate or declassify 150 acres of wetlands.[128] What other changes have been made to land use or zoning in New Jersey to advance offshore wind support facilities?

The Draft EIS also acknowledges that "[i]f multiple offshore wind energy projects are constructed at the same time and rely on the same ports, this simultaneous use could stress port resources and could potentially increase the marine and road traffic, noise, and air pollution in the area."[129] One such area is Atlantic City, which will be home to multiple onshore facilities and activities from the Proposed Action, Ocean Wind 2 and 3, as well as other offshore wind projects (e.g. Atlantic Shores 1 & 2). The Draft EIS acknowledges that Atlantic Shores is also planning an O&M facility for Atlantic City. Therefore, two known O&M facilities for offshore wind will stress port areas and impact the surrounding communities. The DEIS does not account for the impacts from more than one O&M facility in Atlantic City.

In addition, the identified ports are in ecologically sensitive coastal areas and will impact local wetlands in those regions. Meanwhile, scientists recommend that wetlands be protected to combat climate change, improve and maintain water quality, provide natural flood control, and to protect the diversity of species in wetland habitats. Construction for Ocean Wind 1's O&M facility will result in the destruction of 10 acres of wetlands. To add further insult to

[127] DEIS at 3.14-2.
[128] Tom Johnson, *Wetlands no more. NJ redraws map to boost offshore wind project*, NJ Spotlight News (Mar. 25, 2022), https://www.njspotlightnews.org/2022/03/wetlands-pseg-power-150-acres-reclassified-wind-port-project/.
[129] DEIS at 3.14-6.

environmental injury, no mitigation was required. The acquisition of the last remaining waterfront access point for Atlantic City communities for the Ocean Wind 1 Operations and Maintenance port was a missed opportunity to restore wetlands.

The DEIS also fails to identify and consider the cumulative impacts of onshore lands. More generally, what are the cumulative impacts on land resources, both offshore and onshore, of Ocean Wind 1 as it relates to the other 24 offshore wind projects and leased areas for offshore wind off the NY/NJ coast?

Based on the above points, COA strongly disagrees with BOEM categorizing the adverse impacts on land use and coastal infrastructure as "minor." The DEIS fails to include mitigation measures. Clearly, land will be disturbed, sometimes permanently and for the long-term, and communities will be disrupted to build and support the Proposed Action. In sum, the impacts from offshore wind on land resources and areas are not adequately reviewed in the DEIS.

xii. Navigation and Vessel Traffic (3.16)

Clean Ocean Action is deeply concerned about the negative impacts that the Ocean Wind 1 project will have on navigation and vessel traffic. It will clearly lead to unsafe conditions at sea—potentially endangering human life—while simultaneously exacerbating the nation's ongoing supply chain issues.

If approved, Ocean Wind 1 would have significant negative impacts on navigation and vessel traffic off the NJ coast. The first type of these impacts that the Draft EIS considers are those on anchoring. To start, the document describes the harmful effects that Ocean Wind 1 would pose to anchoring of both small and large vessels. "Small commercial or recreational vessels anchoring in the offshore wind lease areas may have issues with anchors failing to hold near foundations and any scour protection," the document observes.[130] Nevertheless, it concludes that "it is unlikely that offshore wind activities would affect vessel-anchoring activities" because of "the small size of the geographic analysis area compared to the remaining area of open ocean, as well as the low likelihood of that any anchoring risk would occur in an emergency scenario[.]"[131] This conclusion cannot be justified by the information that precedes it, and the underlying reasoning is inherently flawed. The analysis cannot presume that the small size of the geographic analysis area compared to the open ocean will necessarily translate into a low likelihood of anchoring risk in an emergency scenario, as this does not take into account the pre-existing frequency risk of emergency scenarios within the geographic analysis area, nor the degree to which the presence of turbines and related infrastructure in the geographic analysis area may increase the risk of emergency scenarios occurring at the site.

[130] DEIS at 3.16-8.
[131] *Id.* at 3.16-8.

Furthermore, with respect to deep-draft vessels, the Draft EIS indicates that "any risk [...] would come from anchoring in an emergency scenario, specifically near the Delaware Bay TSS or in the approach to New York Harbor."[132] In the event of a vessel accidentally dropping anchor on export cables associated with Ocean Wind 1, the consequences could include "damage to the export cable, damage to the vessel anchor or anchor chain, and risks associated with an anchor contacting an electrified cable."[133] The safety risk that such an encounter would pose to all individuals aboard the vessel to which the anchor is attached would be significant, and a damaged export cable could prove to be both environmentally harmful and expensive for ratepayers. However, the Draft EIS lacks any analysis concerning such a scenario or steps that Ocean Wind 1 will take to prevent it from taking place.

In a similar vein, the Draft EIS states that anchoring-related risks from Ocean Wind 1 will be avoided in light of "[o]ffshore wind developers [being] expected to coordinate with the maritime community and USCG to avoid laying export cables through any traditional or designated lightering/anchorage areas."[134] This avoidance plan is woefully inadequate. At the very least, BOEM must exercise the legal authority at its disposal to ensure that such coordination between Ocean Wind 1, the maritime community, and USCG is *required*, rather than merely *expected*.

Human safety may likewise be imperiled by the structures and traffic associated with Ocean Wind 1. Turbines from the project, for example, pose navigational hazards to vessels transitioning in and around the Ocean Wind 1 lease area, particularly by interfering with marine vessel radars and making it more difficult to see other vessels in the area. These risks will only be exacerbated by the reef effect that is anticipated around the turbine foundation, which will likely lead to additional activity from recreational fishing vessels. Plus, in addition to the increased risk of collisions and spills posed by the presence of "slow-moving (or stationary) installation or maintenance vessels,"[135] the Draft EIS identifies a variety of harms likely to result from higher vessel traffic levels that will necessarily flow from the presence of vessels associated with Ocean Wind 1. The increased congestion and navigational complexity "could result in crew fatigue, damage to vessels, injuries to crews, engagement of USCG SAR, and vessel fuel spills."[136] Modeling cited in the Draft EIS even predicts that authorizing Ocean Wind 1 will cause accident frequency to increase by 0.403 accidents per year.[137]

Separate from the risk that Ocean Wind 1 will pose to human safety, the navigational and vessel traffic implications of the project are particularly objectionable in light of the anticipated impact

[132] *Id.* at 3.16-8.
[133] *Id.* at 3.16-8.
[134] *Id.* at 3.16-7.
[135] *Id.* at 3.16-16.
[136] *Id.* at 3.16-9.
[137] *Id.* at 3.16-17.

that it will have on port utilization. Specifically, the Draft EIS concedes, "[O]ffshore wind construction activities may result in competition for scarce berthing space and port services, potentially causing short- to medium-term adverse impacts on commercial shipping."[138] This increased competition for scarce berthing space and port services, it must be noted, would not be occurring in a vacuum. To the contrary, this dynamic would unfold against a backdrop of historically severe supply chain issues and skyrocketing inflation across the nation. Given the importance of the ports of New Jersey and New York to the U.S. economy, particularly by virtue of the volume of ships and cargo that they already handle, Ocean Wind 1 exacerbating competition for berthing space and port services in the area could increase shipping costs, thereby raising the cost of goods and exacerbating inflation nationwide.

In sum, Ocean Wind 1 would negatively impact our region with respect to navigation and vessel traffic. On top of the radar interference from turbines, which may potentially imperil search and rescue missions, Ocean Wind 1 will lead to an influx of vessels swarming the area to construct, operate, and maintain the turbines. The increased abundance and density of vessels in the area will not only lead to more accidents at sea, but also more competition at port for limited resources, such as berthing space as fuel, during a time when inflation and supply chain issues are historically severe. In light of these impacts, BOEM should not allow the project to move forward with the characteristics–including the scale–identified in the Draft EIS.

xiii. Sea Turtles (3.19)

The analysis of impacts to Sea Turtles are is included in Appendix G and not in the main body of the Draft EIS as " these impacts are no greater than minor adverse impacts", and impacts of most concern are discussed in the main body of the Draft EIS (Section G.1, DEIS). This is an incomplete and premature assessment to conclude, as all impacts to sea turtles including cumulative impacts arising from this project and other potential projects in the region have not been investigated thoroughly. This has been ably supported in a 2020 report by the Sea Turtle Working Group to New York State Energy Research and Development Authority (NYSERDA, 2020), which acknowledged the following:

- Substantial data gaps at spatial and temporal level in our understanding of sea turtle populations and distributions in wind energy areas
- Substantial data gaps in our understanding of the potential effects posed by Offshore wind (OSW) development to sea turtles
- Need for multiple approaches to understand the cumulative impacts of OSW development on sea turtles
- Need to prioritize research to fill gaps in baseline data on sea turtle distributions, abundance, habitat use, and movements above stressor-specific investigations of effects to turtles, such as artificial reef effects, entanglement, vessel strike, or EMF. This

[138] *Id.* at 3.16-8.

included an emphasis on understanding the environmental drivers of sea turtle presence and movements

- Need to focus in the immediate term (e.g., within the next five years) on improving our understanding of the potential effects of OSW on sea turtles as development proceeds, including the above-listed stressors as well as potential effects from cabling landfall near sea turtle nesting beaches.[139]

The Research and Monitoring Initiative (RMI) established by NJDEP in collaboration with NJ Board of Public Utilities (BPUs) describes its goal as follows: "To pursue a rigorous scientific research approach to uphold the State's mandate to protect and responsibly manage New Jersey's coastal and marine resources while supporting the State's Offshore Wind Economic Development Act, Executive Order 8 and Executive Order 92, and the and the Energy Master Plan, which respond to climate change and protect our environment for future generations.[140] In 2021, the RMI identified sea turtles as one of the highest priorities for research and monitoring during the pre-construction phase to address the following knowledge gap about the species:

1. Collate existing data for sea turtle movement, distributions, and habitat use patterns; conduct beach surveys where possible (i.e., how do these animals use the space?)
2. Conduct tagging on rehabilitated/released sea turtles.[141]

In a recent quarterly update meeting of the New Jersey Department of Environmental Protection ("NJDEP") Offshore Wind Environmental Resources Working Group, which was attended by a COA staff member, the status of this research priority is still not addressed. With so many concerns and data gaps yet to be addressed, the Draft EIS's conclusion that impacts of the Proposed Action or its Alternatives range from negligible to minor as well as minor beneficial cannot be true and needs to be investigated thoroughly The sea turtle geographic analysis area encompasses two large marine ecosystems (LMEs), namely the Northeast US OCS and the Southeast US OCS to capture most of the movement range of sea turtles and their likely occurrence in the Project area. Impact factors to sea turtles include accidental releases including marine debris, vessel strikes, EMF, noise and climate change, all of which can be assessed more thoroughly and specifically by way of a Pilot Project instead of a full-blown industrial expansion in the geographica analysis area.

Section 3.19 of the Draft EIS discusses potential impacts on sea turtles from the Ocean Wind 1, including alternatives, and ongoing and planned activities in the sea turtle geographic analysis area.[142] The geographic analysis area does not include all areas that could be transited by Project

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[139] G. Gitschlag, et al., Sea Turtle Workgroup Report for the State of the Science Workshop on Wildlife and Offshore Wind Energy 2020: Cumulative Impacts. Report to the New York State Energy Research and Development Authority (NYSERDA) (2021), https://www.nyetwg.com/2020-workgroups.

[140] https://www.nj.gov/dep/offshorewind/rmi.html.

[141] https://nj.gov/dep/offshorewind/docs/erwg-slides-20211220.pdf

[142] DEIS at Figure 3.19-1.

vessels, including vessel transits from Europe. This is a serious limitation because impact producing factors (IPFs) for sea turtles describe impacts from vessel strikes and vessel noise.[143] Vessel strikes are also an increasing concern for sea turtles. For example, the percentage of loggerhead strandings attributed to vessel strikes has increased from approximately 10% in the 1980s to a record high of 20.5% in 2004.[144] Sea turtles cannot reliably avoid being struck by vessels exceeding two (2) knots and typical vessel speeds in the geographic analysis area may exceed ten (10) knots.[145] Increased vessel traffic could result in sea turtle injury or mortality. Excluding the European estimate, the Draft EIS states that the Proposed Action would generate approximately 3,847 vessel trips just during the construction and installation phase.

Description of the Affected Environment for Sea Turtles (3.19.1)

According to BOEM (2019), sea turtles that occur on the Atlantic OCS may migrate the entire eastern seaboard, therefore all activities occurring in their migratory range have the potential to contribute impacts. Four species of sea turtles are known to occur in or near the Ocean Wind Project area, all of which are protected under the federal Endangered Species Act (16 USC 1531 et seq.) These include the leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta caretta*), Kemp's ridley sea turtle (*Lepidochelys kempii*), and green sea turtle (*Chelonia mydas*).[146]

There is potential for the four primary sea turtle species identified above to seasonally inhabit offshore waters in the Project area in the spring (March–May), summer (June–August), and fall (September–November) including the area of direct effects during the winter months (December–February). Water temperature is a primary factor influencing sea turtle distribution; sea turtles typically occur in the coastal waters off New Jersey when water temperatures exceed 59°F.[147] However, not all sea turtles leave the area during winter, and there are occasional strandings of sea turtles that become incapacitated or "cold-stunned" at temperatures below 50°F.[148]

In peak summer months, loggerhead turtles' density in the Project Area is estimated to be 26.799 animals per 100 Km2.[149] MARCO's data portal shows above average populations of leatherback and loggerhead sea turtles in summer.[150] Estimating the distribution and relative density of

[143] *Id.* at 3.19.3.1.
[144] NMFS and USFWS 2007.
[145] Hazel et al. 2007.
[146] DEIS at Section 3.19.1, Table 3.19-1.
[147] NJDEP 2010.
[148] *Id.,* citing Mrosovsky 1980.
[149] DEIS at Table 3.19-2.
[150] MARCO, Mid-Atlantic Ocean Data Portal (last accessed Aug. 22, 2022), https://portal.midatlanticocean.org/visualize/#x=-74.40&y=39.13&z=10&logo=true&controls=true&dls%5B%5D=true&dls%5B%5D=0.5&dls%5B%5D=60&dls%5B%5D=true&dls%5B%5D=0.5&dls%5B%5D=4027&dls%5B%5D=true&dls%5B%5D=0.5&dls%5B%5D=4041&

satellite-tagged loggerhead sea turtles using geostatistical mixed effect models reconfirm their abundance, and show that both leatherback and loggerhead directly lie within the project boundaries in summer.[151] The highest likelihood of occurrence for Kemp's Ridley sea turtle is in coastal nearshore areas adjacent to Ocean City and Barnegat Bay where the offshore export cable is anticipated to make landfall, as they seek protected shallow-water habitats.The Draft EIS acknowledges the following challenges related to sea turtles. Yet, the impacts are oversimplified inaccurately without any supporting scientific evidence. This is a grave concern and an urgent priority that can be investigated with a reasonable Pilot Project in the WEA.

- Population dynamics and habitat use of different sea turtle species along the New Jersey shore is still poorly understood.
- Sea turtles in the geographic analysis area are subject to a variety of ongoing human-caused impacts, including collisions with vessels, entanglement with fishing gear, fisheries by-catch, dredging, anthropogenic noise, pollution, disturbance of marine and coastal environments, effects on benthic habitat, accidental fuel leaks or spills, waste discharge, and climate change. Sea turtle migrations can cover long distances, and these factors can have impacts on individuals over broad geographical scales.

The potential impacts may include injury or loss of individuals, but these impacts would not result in population-level effects".

> *"BOEM anticipates the impacts resulting from the Proposed Action would range from negligible to minor adverse impacts and could include potentially minor beneficial impacts. Adverse impacts are expected to result mainly from pile-driving noise and increased vessel traffic. Beneficial impacts are expected to result from the presence of structures.*
>
> *In context of other reasonably foreseeable environmental trends, the incremental impacts contributed by the Proposed Action to the overall impacts on sea turtles would range from undetectable to noticeable."*[152]

Without a thorough analysis of the Impact Producing Factors in near term, short term, and long-term including cumulative impacts and impacts from climate change, the Draft EIS fails to account for all adverse impacts to sea turtles from the Project and simplifies the impacts to be either minor or incremental to the impacts arising from No Action Alternatives.

The geographic analysis area is likely estimated to undergo the following activities from other offshore wind projects (Section 3.19.3.2, DEIS)

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dls%5B%5D=true&dls%5B%5D=0.8&dls%5B%5D=3312&basemap=nautical&themes%5Bids%5D%5B%5D=2&tab=legend&legends=false&layers=true.

[151] Marine Ecology Progress Series 586: 217-232).

[152] Emphasis added.

- Installation of 3,109 WTG and OSS foundations
- Installation of 4,988 miles (8,027 kilometers) of offshore export cable and 5,309 miles (8,544 kilometers) of inter-array cable
- Disturbance of 27,126 acres (110 km2) of seabed for WTG foundations and scour protection, cable emplacement, and anchoring
- Storage of 5,300 gallons (19,041 liters) of diesel fuel, oils, lubricants, and coolant per WTG

With all of this in mind, it is imperative to consider that loggerhead turtles live in three ecosystems: (i) terrestrial zone - the nesting beach where oviposition, embryonic development, hatching, and hatchling transit to the sea occur; (ii) the neritic zone -the nearshore marine environment (from the water surface to the sea floor), where water depths do not exceed 200 m; and (iii) the oceanic zone – the vast open-ocean environment (from the water surface to the sea floor), where water depths are greater than 200 m. Threat analysis matrix for such endangered species must include all life stages occurring in those ecosystems.[153]

Accidental Releases

According to the Draft EIS, "Accidental releases from other offshore wind activities would likely result in minor impacts for sea turtles and are unlikely to result in population-level effects, although consequences to individuals would be detectable and measurable."[154] The document continues, "In context of reasonably foreseeable trends, the Proposed Action would contribute an undetectable increment to the combined accidental release impacts on sea turtles from ongoing and planned activities including offshore wind, which are expected to be minor."[155]

The risk of accidental releases exists during all phases of the Project, and it is unclear how these impacts could only be minor or unlikely to cause population level effects. According to the planned activities scenario provided in Table F2-3 of the Draft EIS, there would be a low risk of a leak of fluids from any single one of approximately 2,946 WTGs, each with approximately 5,300 gallons (19,041 liters) of diesel fuel, oils, lubricants, and coolant stored. The Draft EIS estimates that a release of 128,000 gallons is likely to occur no more often than once per 1,000 years, and a release of 2,000 gallons or less is likely to occur every 5 to 20 years using a BOEM modeling reference.[156]

In the next five years (2022–2027), as per Table F2–Appendix F of the Draft EIS, more than 300 WTG (312) foundations will be installed

[153] Bolten et al., 2021.

[154] DEIS at 3.19-12.

[155] *Id.* at 3.19-23.

[156] See Adriana C. Bejarano, et al., *Environmental Risks, Fate, and Effects of Chemicals Associated with Wind Turbines on the Atlantic Outer Continental Shelf*, Bur. Ocean Energy Mgmt. (2013), https://espis.boem.gov/final%20reports/5330.pdf.

including 101 WTG foundations from this Project. More than 850000 gallons of coolant fluids, and more than 800000 gallons each of coolant fluids and total oils and lubricants will be used in these WTGs. Bejarano et al., 2013 predicted spill scenarios using a selected number of chemicals at three areas (call area in North Carolina, as well as two WEAs in MD and RI/MA). The incident rates were roughly grouped into five categories of probability – very high, high, medium, low, and very low (Table 3.22) that varied from 1 in every month to one in 1000 years. The highest release probabilities (1 time per month) were in the North Carolina Call Area, resulting from vessel collisions causing small releases of up to several hundred gallons, while at all Call Area/WEAs the probability of catastrophic spills (all oils totaling 129,000 gallons and all chemicals totaling 29,000 gallons) would be very low (1 time in ≥1,000 years). Why did the Draft EIS only pick the very conservative estimate of 1 event in 1000 years? This is an extremely conservative estimate and does not examine all risks – from Wind Turbine Generators and Electric Service Platform and all scenarios including natural disaster, vessel traffic, and simple human error.[157] Moreover, how did the Draft EIS arrive at this conclusion: "The likelihood of a spill occurring from multiple WTGs and OSS at the same time is very low and, therefore, the potential impacts from a spill larger than 2,000 gallons are largely discountable"?

The Draft EIS does not appear to address the following data gaps and challenges identified in Bejarano et al. (2013). For instance:

1. What are the types of chemicals and oils used? New products continue to be developed and need to be included in the modeling scenarios?
2. What information is available on toxicity data for these chemicals?

Section 3.19.5 acknowledges that accidental release of trash and debris may occur from Project vessels during construction, operations, and decommissioning. BOEM assumes operator compliance with federal and international requirements for managing shipboard trash but, in the event the stakes are high in the event that an operator fails to comply. Sea turtle ingestion of debris including plastics can be fatal and it is well known that marine debris is a serious problem that is adversely affecting the marine ecosystem. Plastic pollution in our oceans may therefore

[157]https://meridian.allenpress.com/iosc/article/2014/1/869/197950/Potential-Impacts-from-a-Worst-Case-Discharge-from.

soon exceed estimated safe concentrations for many pelagic species.[158] The Draft EIS should further analyze this specific concern rather than assume operator compliance.

Potential Interactions Between Sea Turtles and Electromagnetic Fields (EMF)

The Draft EIS states that EMFs produced by cables have the potential to affect sea turtle migration because they are known to possess geomagnetic sensitivity and use cues from Earth's magnetic field for orientation, navigation, and migration.[159] Loggerhead sea turtles, which are present on both the Atlantic and Pacific Coasts, use magnetosensitivity to navigate during their migration and then reorient to return home.[160] A 2021 Report prepared for NJDEP (Bilinski, 2021) highlights how the navigation behavior of sea turtles is related to interactions between ocean circulation and dynamics in the geomagnetic field.[161] The report describes that results-to-date based on scientific evidence remain inconclusive on the actual impacts (positive or negative) of submarine cables and associated EMFs on marine life including sea turtles and warrant further study.

Sea turtles have a detection threshold of magnetosensitivity and behavioral responses to field intensities ranging from 0.0047 to 4,000 microteslas for loggerhead turtles and 29.3 to 200 microteslas for green turtles, with other species likely similar due to anatomical, behavioral, and life history similarities.[162] In the planned activities scenario, up to 4,988 miles (8,027 kilometers) of offshore export cable and 5,309 miles (8,544 kilometers) of inter-array cable would be added in the geographic analysis area for sea turtles, producing EMFs in the vicinity of each cable during operations (Appendix F, Table F2-1). Submarine power cables in the geographic analysis area for sea turtles are assumed to be installed with appropriate shielding and burial depth to reduce potential EMF from cable operation to low levels.The details are not clearly described. Juvenile and adult sea turtles may detect the EMF over relatively small areas near cables (e.g., when resting on the bottom or foraging on benthic organisms near cables or concrete mattresses). **The impacts on sea turtles from EMFs generated by underwater cables is presently unknown**, but anthropogenic magnetic fields can and do influence migratory deviations.[163]

Cable emplacement

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[158] Egger et al, 2022. https://www.nature.com/articles/s41598-022-17742-7.

[159] DEIS at 3.19.3.2, 3.19-12.

[160] *See* U.S. Offshore Wind Synthesis of Environmental Effects Research, Electromagnetic Field Effects on Marine Life (2022), https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational-Research-Brief-Electromagnetic-Field-Effects-on-Marine-Life.pdf.

[161] *See* Joseph Bilinski, *Review of the Impacts to Marine Fauna from Electromagnetic Frequencies (EMF) Generated by Energy Transmitted through Undersea Electric Transmission Cables*, N.J. Dept. Envmtl. Prot. (2021), https://www.nj.gov/dep/offshorewind/docs/njdep-marine-fauna-review-impacts-from-emf.pdf.

[162] Normandeau et al. 2011.

[163] *See* Peter A. Klimley, et al., *A call to assess the impacts of electromagnetic fields from subsea cables on the movement ecology of marine migrants*, Conservation Science and Practice (2021), https://conbio.onlinelibrary.wiley.com/doi/pdf/10.1111/csp2.436.

New undersea cables required to bring electricity generated from other offshore WTGs onshore would affect seafloor (32,356 acres) and this disturbance would cause increases in suspended sediment (DEIS, Appendix F, Table F2-2), both of which could have more serious impacts than what is stated in the Draft EIS. According to the Draft EIS, the impacts from these cable emplacement methods are variable but typically include suspension of seabed sediments that vary in extent and intensity depending on the project and site-specific conditions. The Draft EIS states the following:

- These impacts would be spatially and temporally localized
- Suspended sediment concentrations due to jet plow would be within the range of natural variability
- Potential impacts to sea turtles from construction activities would be due to increased turbidity and short term (1-6 hours)
- Sea turtles would be expected to swim away from the sediment plume and return to the area once turbidity has returned to background levels.
- **It is expected that mitigation measures would be implemented to minimize and reduce the potential for adverse effects from water quality changes on sea turtles.**
- Dredging for sand wave clearance may be necessary in places to ensure cable burial below mobile seabed sediments, which could result in additional impacts on sea turtles related to impingement, entrainment, and capture associated with mechanical and hydraulic dredging techniques.
- **Given the available information, the risk of injury or mortality of individual sea turtles resulting from dredging necessary to support other offshore wind projects would be minor and population-level effects are unlikely to occur.**

The Draft EIS vastly simplifies the impacts from turbidity and makes a lot of assumptions related to avoidance, and overlooks elevated mortality risks from dredging and cable emplacement activities.

Noise

Per the Draft EIS, underwater noise will be caused by impact pile driving (installation of WTGs and OSS), vibratory pile driving (installation and removal of cofferdams), HRG surveys, detonations of UXO, vessel traffic, aircraft, cable laying or trenching, and turbine operation (other offshore wind activities without proposed action, Sec. 3.19.3.2, 3.19-14). Section 3.19.5 of the Draft EIS acknowledges that underwater noise generated by Ocean Wind 1 may result in potential adverse effects on sea turtles in the Project area including PTS, TTS, or behavioral disturbance. Given the high energy levels of offshore wind energy survey and installation noise sources, it can be concluded that sea turtles could be affected by associated noise.

The Draft EIS also mentions the following serious limitations pertaining to underwater noise:

- The lack of available empirical data on noise threshold levels that impact sea turtles upon exposure;
- Limited data pertaining to behavioral responses of sea turtles and the absence of specific data pertaining to sounds generated from offshore wind activities; and
- Lack of regulatory noise threshold criteria for sea turtles.

Despite these huge data gaps and the potential harm to a highly endangered species from the Project, the Draft EIS erroneously and presumptively concludes that the impacts of noise on sea turtles from other offshore wind activities would be minor. The planned activities scenario involves the construction of 3, 109 WTG and OSS foundations that would result in acute, chronic, and persistent noise during all phases of the Project and would cause potential harm at the species and population level as well as cumulative impacts. However, the Draft EIS additionally concludes without evidence, that in the context of foreseeable trends, which are undefined as such, the combined noise impacts on sea turtles from ongoing and planned activities including offshore wind are expected to be minor. The Draft EIS is deficient in this regard as well.

Specific Comments from Clean Ocean Action

- The scientific community's knowledge of the impacts of sound on sea turtles lags behind other animals, such as whales and dolphins.[164] Data gaps abound with respect to sea turtle interactions. It is important to first understand how they perceive and respond to anthropogenic sounds if methods to reduce potential impacts are to be developed. assessment procedures and subsequent regulatory and mitigation measures are often severely limited in their relevance and efficacy due to the absence of data.[165]
- Where is the documentation which determined the effects of the project noise would only be minor or incremental? The ANSI technical guidance on sound exposure for fish and sea turtles highlights a collaborative effort among various multidisciplinary international and national experts. Was this consulted in this assessment in the Draft EIS?
- The Draft EIS says that effects of different sized monopile diameter would change the level of impact but does not describe how it would impact sea turtles. Further discussion and analysis is warranted.
- The Draft EIS uses Block Island Wind Farm ("BIWF") as the primary reference to conclude that effects of Ocean Wind 1 will be similar in nature to what was observed during the construction of BIWF. As stated in these comments and also during the virtual

[164] Office of Protected Resources, *Sea Turtles in a Sea of Sound*, Natl. Oceanic and Atmospheric Admin. (June 12, 2022), https://www.fisheries.noaa.gov/feature-story/sea-turtles-sea-sound.

[165] *See* A.N. Popper, et al., *Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI*, SpringerBriefs in Oceanography (2014), DOI: 10.1007/978-3-319-06659-2_1.

public hearing sessions hosted by BOEM on Ocean Wind 1, this project varies considerably from BIWF and relying on BIWF alone will result in incomplete analysis of impacts to sea turtles. This is especially true because Ocean Wind 1 will include as many as 98 monopile foundations and other structures dramatically different in scope and scale than the jacket-frame turbines at BIWF. Also, the sedimentation caused by turbulence from currents moving around the monopole were not present in Block Island example.

- Sediment grain size effects are stated to be minor and refers to evaluation studies done in Massachusetts, Rhode Island and Virginia. Were any local studies, such as the seabed characterization of New Jersey's middle and outer shelf,[166] evaluated for purposes of the Ocean Wind 1 EIS?

xiv. Wetlands (3.22)

According to the calculations included in the Draft EIS, allowing Ocean Wind 1 to move ahead with industrial-scale wind energy development at Lease Area OCS-A 0498 will substantially impact NJ's wetlands and, by extension, the many ecosystems and species that rely on them as well.

Wetlands are important features in the landscape that provide numerous beneficial services or functions.[167] Some of these include protecting and improving water quality, providing fish and wildlife habitats, storing floodwaters, providing aesthetic value, ensuring biological productivity, filtering pollutant loads, and maintaining surface water flow during dry periods.[168]

Additionally, the majority of the wetlands in the geographic analysis area are tidally influenced saline marshes, which provide shelter, food, and nursery grounds for coastal fisheries species including shrimp, crab, and many finfish.[169] Saline marshes also protect shorelines from erosion by creating a buffer against wave action and by trapping soils.[170] In flood-prone areas, saline marshes reduce the flow of flood waters and absorb rainwater.[171] Tidal wetlands also serve as carbon sinks, holding carbon that would otherwise be released into the atmosphere and contribute to climate change.[172]

In and around New Jersey's iconic Barnegat Bay in particular, wetlands provide flood protection during storm events and function to sequester a significant amount of the nitrogen and

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[166] *See* John A. Goff, et al., *Seabed characterization on the New Jersey middle and outer shelf: correlatability and spatial variability of seafloor sediment propertie*s, 209 Marine Geology 147 (2004), https://www.sciencedirect.com/science/article/abs/pii/S0025322704001677.
[167] DEIS at 3.22-3.
[168] *Id.*
[169] *Id.*
[170] *Id.*
[171] *Id.*
[172] *Id.*

phosphorus loading to the bay.[173] This is particularly important, as the 2021 Comprehensive Conservation and Management Plan for Barnegat Bay observed that more than twenty-eight (28) percent of Barnegat Bay's salt marshes have been lost to development.[174] Consequently, DEP has affirmed the "significant importance" of stabilizing and restoring existing wetlands, as well as preventing the loss of any more wetlands, in and around Barnegat Bay.[175]

Even though the Draft EIS acknowledges the unique importance of NJ's wetlands, it nevertheless goes on to propose a variety of actions that, if approved, would irreparably harm acres upon acres of wetlands. To start, the document states, "Onshore construction activities would require heavy equipment use and HDD activities, and potential spills could occur as a result of an inadvertent release from the machinery or during refueling activities."[176] Likewise, the Draft EIS notes that water quality within wetlands may be affected by sedimentation from nearby exposed soils. The Draft EIS similarly anticipates significant disturbance of wooded wetland ecosystems from cable burial and maintenance activities. 4.98 acres of long-term disturbance will occur within wooded wetlands, while roughly 0.53 acre of short-term wetland impacts could potentially occur as a result of cable burial at BL England.[177] Additionally, 20.04 acres of short-term and long-term impacts are projected to occur as a result of cable burial at Oyster Creek. As if this were not concerning enough, these widespread disturbances are occurring in addition to the 150 acres of wetlands that Orsted is developing for a Wind Port in Lower Alloways Creek.[178]

The Draft EIS's approach to the mitigation thereof also leaves much to be desired. Notably, the document concludes that "compensatory mitigation would likely be necessary because of unavoidable permanent impacts" from Ocean Wind 1.[179] While the Draft EIS notes that such mitigation measures "would likely include a combination of onsite restoration of wetlands temporarily affected during construction and a wetland enhancement or mitigation banking credit purchase," the document provides no binding assurances about what the mitigation measures required by Ocean Wind 1 will entail. Instead, the Draft EIS merely indicates that "Ocean Wind will identify compensatory mitigation based on the requirements of USACE and NJDEP. Ocean Wind is coordinating wetland mitigation options with state and federal agencies and may identify

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[173] *Id.*

[174] Barnegat Bay Partnership, 2021 Comprehensive Conservation and Management Plan for the Barnegat Bay-Little Egg Harbor Sanctuary 45 (2021), https://www.barnegatbaypartnership.org/wp-content/uploads/2021/10/BBP-CCMP-2021-for-web-FINAL.pdf.

[175] *Phase Two: Moving Science into Action*, N.J. Dept. Enviro. Prot. (Feb. 2, 2021), https://www.nj.gov/dep/barnegatbay/wetlands.html.

[176] DEIS at 3.22-8.

[177] *Id.* at 3.22-8, 3.22-9.

[178] Tom Johnson, *Wetlands no more. NJ redraws map to boost offshore wind project*, NJ Spotlight News (Mar. 25, 2022), https://www.njspotlightnews.org/2022/03/wetlands-pseg-power-150-acres-reclassified-wind-port-project/.

[179] DEIS at 3.22-11, 12.

a mix of banking and onsite restoration, depending on agency preference and availability."[180] This is problematic for two reasons.

First, it is unacceptable that Ocean Wind 1 has not yet identified the concrete steps that it will undertake to mitigate the unavoidable permanent consequences of its activities. This information is critical to the Project's overall environmental impacts, and Ocean Wind 1's wetlands mitigation plan must be subject to public review and comment as a matter of transparency and ensuring that interested parties are not only well-informed, but also able to provide helpful input on aspects of the mitigation plan where appropriate. Second, Clean Ocean Action objects to the implication that Ocean Wind 1's wetland mitigation efforts will largely be left to the developer and, moreover, will ultimately be unnecessarily limited by administrative discretion. The Final EIS must provide clearer commitments regarding Ocean Wind 1's wetlands mitigation plan, and it is imperative that this wetlands mitigation plan ultimately reflects the scientific needs of the impacted ecosystems, rather than artificial constraints.

In sum, activities associated with Ocean Wind 1 will destroy fish and wildlife habitat in sensitive NJ wetlands while impeding natural water filtration and storage functions, disrupting natural carbon sinks, and paving the way for wave action to more quickly erode NJ shorelines. This is particularly troublesome with respect to Barnegat Bay, where the proposed development will disrupt wetlands' ability to filter nitrogen and phosphorus. Moreover, the Draft EIS analysis of Ocean Wind 1's effects on wetlands is incomplete because it does not provide any meaningful commitments regarding mitigation, which will plainly be required.

In addition to demonstrating the inadequacy of the Draft EIS's analysis, Ocean Wind 1's expected impacts upon wetlands are a testament to the need for a pilot offshore wind energy project off the New Jersey coast before rushing straight into industrial-scale development. The implications for the Garden State's wetlands, including those around Barnegat Bay, are substantial and potentially irreversible. A pilot project would improve the quantity and quality of the data upon which industrial-scale OSW in the region can be more safely developed, and also provide more time to determine how the impacts of Ocean Wind 1 and similar offshore wind projects can best be averted and mitigated over the long-term.

2. Items Not Addressed in the Draft EIS

An environmental impact statement ("EIS") is required to provide a "full and fair discussion of significant environmental impacts" from the action or project under consideration.[181] Otherwise, such a document cannot fulfill the National Environmental Policy Act's ("NEPA's") intention of ensuring that federal agencies fully consider environmental repercussions in their decision-

[180] *Id.* at 3.22-9.
[181] 40 CFR 1502.1.

making. The Draft EIS for Ocean Wind 1, however, does not provide this full and fair discussion as required. Instead, the Draft EIS overlooks predictable and significant environmental consequences from this industrial-scale OSW project. COA will first identify these omissions and the importance thereof immediately below in Section 1, before explaining the deficiencies of the material that is covered by the Draft EIS in Section 2 of our comments.

Neodymium and Other Rare Earth Elements

Perhaps the most glaring omission in the Draft EIS is the document's total failure to acknowledge the neodymium and other rare Earth elements ("REEs")–such as praseodymium and dysprosium–that Ocean Wind 1 will require or the impact that procuring this neodymium will have on the environment. Neodymium, praseodymium, and dysprosium are REEs required for offshore wind energy development, among other industrial activities.[182] In fact, the expansion of offshore wind energy development in the United States by 2050 is predicted to require 17,000 tons of neodymium alone–roughly equal to the amount required for 20 million hybrid and electric cars.[183] This eye-popping number is particularly concerning because, like most rare earth minerals, neodymium is mined in China. Consequently, the procurement of neodymium not only frequently involves large fluctuations in price, but also serious environmental and labor hazards as well.[184]

Nevertheless, the Draft EIS does not acknowledge that neodymium, praseodymium, and dysprosium will be required to construct and operate the offshore wind turbines associated with Ocean Wind 1, nor how much of it will be required for the project or what the environmental impacts of procuring these REEs will be. The underlying analysis must capture not only the impacts that the REE mining process will have on the environment in and of itself, but also the environmental repercussions of transporting the REEs from their site of extraction to the Northeast U.S. for use in Ocean Wind 1. In sum, BOEM cannot rely upon an EIS that does not address REE-related impacts to justify its authorization of this OSW project.

Decommissioning

While Ocean Wind 1 will eventually need to submit a decommissioning plan for BOEM's approval at the end of the lease for Lease Area OCS-A 0498, "conceptual decommissioning" of Ocean Wind 1 falls within the purview of both the Draft EIS and the Final EIS. In this regard, however, the Draft EIS is severely lacking. To start, the Draft EIS provides no meaningful analysis regarding what will happen to the reef ecosystems that are expected to form around turbine foundations upon the project's decommissioning. In fact, the analysis reads in full:

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[182] *See* Jishuo Li, et al., *Critical Rare-Earth Elements Mismatch Global Wind Power Ambitions*, 3 OneEarth 116, 116-25 (2020), https://www.cell.com/one-earth/pdf/S2590-3322(20)30298-0.pdf;Timer Fishman & T.E. Graedel, *Impact of the establishment of US offshore wind power on neodymium flows*, 2 Nature Sustainability 332-38 (2019), https://www.nature.com/articles/s41893-019-0252-z.

[183] *Id.*; *see* Maddie Stone, *Offshore Wind Has a Looming Rare Earth Metals Problem*, Gizmodo (Apr. 5, 2019), https://gizmodo.com/offshore-wind-has-a-looming-rare-earth-metals-problem-1833788750.

[184] Stone, *infra* n.181.

"Ocean Wind proposes to leave scour protection placed around the base of the monopile, if used, in place; however, BOEM would most likely require that the scour protection be removed in accordance with 30 CFR 585.902(a)."[185] Even at the conceptual level, clearer commitments regarding the fate of scouring around Ocean Wind 1 turbine foundations must be made in order for the public to understand the reasonably foreseeable long-term consequences of this project on local marine ecosystems.

Uncertainty likewise abounds with respect to the long-term environmental repercussions of cables associated with Ocean Wind 1, both offshore and onshore. While the Draft EIS indicates that onshore overhead cables will be removed or used for other projects at the end of Ocean Wind 1's life-cycle,[186] the document seems to suggest that all underground cables–both onshore *and* offshore–will be left in place after the project's eventual decommissioning. Despite this, however, the Draft EIS never discusses the expected effects of abandoning these significant, heat- and EMF-producing pieces of infrastructure *in situ*. Again, even at the mere conceptual stage, this is information that is vital to the public's understanding of the overall environmental impacts from Ocean Wind 1, including its decommissioning.

Separately, the Draft EIS does not provide any information whatsoever about the disposal of turbine blades. At a time when the generation of single-use waste is becoming a global crisis, the Draft EIS provides no assurances that blades and other materials from Ocean Wind 1 will be reused, recycled, or otherwise disposed of responsibly, let alone a specific plan for doing so. This is particularly problematic because, even though wind turbine blades are not especially toxic, the resulting landfill may contribute to dangerous environmental impacts, including the pollution of land and waterways.[187] Turbine blade waste, in turn, undermines the overall sustainability of wind energy projects.[188]

Even when (or if) Ocean Wind 1 does reveal its plan for the turbine blades, it will almost certainly rely on the assertion that the project will be able to avoid sending the many giant blades it demands to landfills by recycling them. Yet this claim is fatally flawed upon closer scrutiny. To start, some turbine blade manufacturers have recently started claiming that they can now produce recyclable blades, but the blades can be recycled only through a process known as "chemical recycling."[189] To call this process recycling, however, would not be accurate. So-called "chemical recycling" is a process that theoretically breaks down plastic waste into its

[185] DEIS at Exec. Summ. 2-16.

[186] *Id.* at Exec. Summ. 2-16.

[187] Arthur Nelsen, *Surging wind industry faces its own green dilemma: landfills*, Reuters (Sept. 10, 2021), https://www.reuters.com/legal/litigation/surging-wind-industry-faces-its-own-green-dilemma-landfills-2021-09-10/.

[188] *See id*.

[189] See Press Release, *ZEBRA project achieves key milestone with production of the first prototype of its recyclable wind turbine blade*, GE (Mar. 17, 2022), https://www.ge.com/news/press-releases/zebra-project-achieves-key-milestone-with-production-of-first-prototype-of-recyclable-wind-turbine-blade ("Elium® based composite components can be recycled using an advanced method called chemical recycling [...].)

molecular components, to then be turned back into new plastics–thereby supporting a "circular economy."[190] In practice, such results would be an exception from the norm. Instead, two of the three "chemical recycling" facilities that are operational in the U.S. today convert plastic waste into low-grade fuel, and none of the three facilities have been proven to recover plastics for the purpose of making new materials on a commercial scale.[191] All the meanwhile, chemical recycling is a major source of air pollution and greenhouse gas emissions as well. In fact, "chemical recycling" facilities emit three (3) tons of carbon dioxide for every one (1) ton of plastic that they process, and also spew out severely hazardous substances like dioxins, furans, heavy metals, and particulate matter.[192]

In brief, it is imperative for the EIS to more thoroughly account for the inevitable disposal of blades used at Ocean Wind 1, including for blades that need to be replaced during operation and maintenance as well as during decommissioning. Even at the merely conceptual state, this information has considerable consequences for the overall environmental and public health impacts of the proposed OSW project.

Undocumented CO2 Emissions Reduction

Clean Ocean Action supports responsible and reasonable offshore wind, which must include a local pilot-scale project. However, the impacts of offshore wind projects, or any industrial development in the ocean, must be clearly identified and evaluated. Offshore wind energy is not emissions-free. Renewable energy facilities will result in impacts, including emissions that contribute to climate change and affect public health in nearby communities.. The emissions from the activities necessary to prepare, build, operate, maintain, and decommission offshore wind energy facilities should not be discounted, and must be both included and evaluated in the Draft EIS and Final EIS.

The Draft EIS claims the benefits of Ocean Wind 1 will be the reduced exposure to and the displacement of fossil fuel-generated power plants. The Draft EIS claims "the Project would provide beneficial impacts on the air quality near the proposed activities and the surrounding region to the extent that energy produced by the Project would displace energy produced by fossil-fueled power plants."[193] How is this assessed by BOEM? Where is the evidence that offshore wind energy facilities will displace fossil fuel facilities and prove a net reduction in air emissions? The Draft EIS provides no evidence that fossil fuel plants will be taken offline anywhere in the geographic analysis area, let alone in all of New Jersey or the United States, from the completion of the Proposed Action. Further, there is no public commitment by the State of New Jersey, NJ Governor, NJ Department of Environmental Protection ("NJDEP"), or the

[190] Judith Enck, *NJ, Don't believe the hype about advanced recycling*, NJ Spotlight News (July 1, 2021), https://www.beyondplastics.org/news-stories/dont-believe-the-hype-about-advanced-recycling.
[191] *Id.*
[192] *Id.*
[193] DEIS at 3.4-10.

federal government to close or stop building fossil fuel facilities. Without the proof of fossil fuel facilities being displaced by Ocean Wind 1, how are the impacts of the Proposed Action – as outlined in the DEIS and in Clean Ocean Action's comments – justified and acceptable?

Also, the Draft EIS mentions Europe as a cable staging location for the project, but the Draft EIS does not include the impacts of shipping components in the calculations of emissions for the project. Does the Draft EIS include the emissions from the production of turbines and components and the activities associated with extracting and processing materials (e.g., steel, rare earth elements) in the life cycle analysis for the Proposed Action? If not, the Draft EIS and Final EIS must cover these aspects of Ocean Wind 1's environmental impacts.

Despite the unsubstantiated claim of displacing fossil fuel facilities, Ocean Wind 1 will still have local adverse impacts. The new local ports required for vessel activity from the project will add construction and traffic both on- and offshore, as well their associated emissions, plus impacts to water quality and public health in local communities. In addition, with twenty-four (24) other projects and leased areas for offshore wind energy in the region, the Draft EIS does not address the cumulative impacts of emissions from this widespread offshore wind development. According to the Draft EIS, "the largest magnitude air quality impacts and largest spatial extent would result from the overlapping operations activities from the multiple offshore wind projects within the air quality geographic analysis area."[194]

To conclude, the Draft EIS fails to substantiate the claim that the completion of the Proposed Action will displace and close fossil fuel facilities, especially in the geographic analysis area. Additionally, the cumulative impacts from the combined offshore wind projects that are in various stages of development off the mid-Atlantic region must be identified, considered, and mitigated to the fullest extent possible in the Draft EIS and Final DEIS.

Operations & Maintenance Impacts Not Addressed

Of additional concern and importance is operation and maintenance of the turbines. BOEM and Ocean Wind 1 claim that the project will generate over 1,100 MW of electricity. However, this is based on the rated capacity of the wind turbine, rather than the actual output. This information prevents a meaningful analysis of how much fossil fuel usage will actually be displaced by Ocean Wind 1, as the actual output of offshore turbines is around 50% or possibly 60%. For example, three miles off Rhode Island, the Block Island Wind Farm has five 6 MW turbines that are said to produce 30 MW of electricity. However, they actually produced far less, and on average less than 12.5 MW per month according to data from the Energy Information Administration from January 2017 to May 2022.[195] This is approximately less than 42% actual

[194] *Id.* at 3.4-16.

[195] *Electricity data browser*, U.S. Energy Info. Admin. (last accessed Aug. 23, 2022), https://www.eia.gov/electricity/data/browser/#/plant/58035?freq=M&start=201612&end=202205&ctype=linechart&ltype=pin&columnchart=ELEC.PLANT.GEN.58035-ALL-

generation. What is the proven reliability commitment of the energy to be produced by the proposed project? Transparency and accountability is critical as alternatives to fossil fuels are developed. What are the actual reliability factors over time, as studies suggest larger turbines lose efficiency over time? In fact, large turbines (12 MW and above) have been found to lose up to 4.5% efficiency per year which calls into question the reliability for energy production.

Moreover, the turbines are also prone to fires,[196] which can make them dangerous to fishermen, boaters,first responders, and commerce. This is also significant for those ships containing dangerous cargo, as well as the lives of those servicing the turbines and those on the ships and boats.

The DEIS fails to address these concerns regarding operations and maintenance. A carefully developed and implemented pilot project would enable an assessment of turbine reliability and potential risks for fishermen, boaters, and commerce.

3. Conclusions

Clean Ocean Action is not opposed to offshore wind which is developed responsibly and reasonably. However, based on all the above, COA respectfully submits that the Draft EIS is incomplete, inconsistent, and misleading. It fails to present a responsible and reasonable "purpose and need" as required by the National Environmental Policy Act ("NEPA") for the proposed project, as well as fails to evaluate all reasonable alternatives to the proposed Project as required by law. The Draft EIS makes clear that Ocean Wind 1 is being fast-tracked, and the document is written with a clear indication of a positive outcome for the Applicant here. The Draft EIS also makes clear the project will have a range of significant negative impacts to the marine environment and surrounding areas, plus there is a dearth of scientific studies in certain areas critical to assessing the impacts from this project's effects on multiple ecosystems in the region, as well as cumulative impacts. In particular, the Draft EIS fails to consider a true No Action Alternative, which would focus on energy-use reduction through conservation and efficiency, land-based renewables and improvements to transmission, nor a pilot-sized alternative to the massive industrial complex proposed.

Additionally, BOEM failed to consider an "Alternative F" whereby a pilot OSW project is performed off the New Jersey coast before moving ahead with industrial scale development, which unnecessarily forecloses the most effective path for resolving the many outstanding environmental, logistical, and economic unknowns that continue to persist with respect to OSW

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[196] Craig Richard, *Siemens Gamesa and Ørsted probe offshore wind turbine fire at Borssele I & II*, WindPower Monthly (last accessed Aug. 23, 2022), https://www.windpowermonthly.com/article/1731732/siemens-gamesa-orsted-probe-offshore-wind-turbine-fire-borssele-i-ii.

off NJ. Both of these omissions in BOEM's Alternatives analysis must be fully incorporated and addressed in the Final Environmental Impact Statement ("Final EIS") for Ocean Wind 1.

In sum, the impacts of offshore wind development–and Ocean Wind 1 in particular–should be evaluated fairly and completely to ensure transparency about the scope and magnitude of the impacts to the ocean and coastal ecosystems, as well as to prove that this is in fact the safest, fastest, cheapest alternative to reducing carbon dioxide emissions, which is so critically needed to reduce climate change. Despite this, offshore wind appears to be getting a greenlight approach from the federal government without due process and scrutiny.

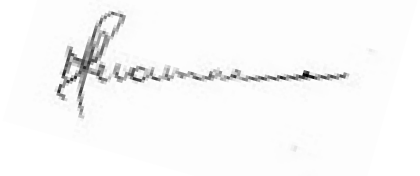
Thank you for your attention to this submission. Should you have any questions or interest in discussing Clean Ocean Action's concerns, please feel free to contact us at your convenience.

Respectfully submitted,

Cindy Zipf
Executive Director

Zachary A. Klein, Esq.
Policy Attorney

Kari Martin
Advocacy Campaign Manager



Swarna Muthukrishnan, Ph.D.
Water Quality Research Director