



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

April 18, 2023

Ms. Karen J. Baker
Chief, Office of Renewable Energy Programs
Bureau of Ocean Energy Management
United States Department of the Interior
45600 Woodland Road
Sterling, Virginia 20166

RE: Comments on the Draft Environmental Impact Statement for the SouthCoast Wind Project,
Docket No. BOEM–2023–0011

Dear Ms. Baker:

We reviewed the Draft Environmental Impact Statement (DEIS) regarding the Construction and Operations Plan (COP) submitted by SouthCoast Wind Energy, LLC (SouthCoast Wind or developer). The SouthCoast Wind Project includes a proposal to develop Lease OCS–A 0521 located about 26 nautical miles (nm) (48 kilometers) southeast of Martha’s Vineyard and 20 nm (37 kilometers) south of Nantucket. SouthCoast Wind proposes to construct and operate up to 147 wind turbine generators (WTGs) in 149 positions in the Leased Area and up to 5 offshore substation platforms, with export cables making landfall in Falmouth and Somerset, Massachusetts.

In response to the February 17, 2023, Notice of Availability, we conducted this review as a cooperating agency with legal jurisdiction and special expertise over marine trust resources and fishing operations and fishing communities, including resources protected by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and section 7 of the Endangered Species Act (ESA) under which we also serve as a consulting agency. NOAA’s National Marine Fisheries Service (NMFS), through its Office of Protected Resources (OPR), is also an action agency for this project to the extent that it provides Incidental Take Authorizations (ITA) under the Marine Mammal Protection Act (MMPA). If NMFS OPR determines the document is sufficient, it will rely on and adopt your Final EIS (FEIS) to satisfy our agency’s independent legal obligations to prepare an adequate and sufficient analysis under the National Environmental Policy Act (NEPA) in support of the proposal to issue the ITA for the proposed project. If NMFS OPR determines that the EIS is insufficient to support a determination under the MMPA, it would need to conduct an independent NEPA analysis to evaluate the impacts of a proposed ITA, which would unfortunately add significant time to the permitting timeline. We look forward to continuing to collaborate with you on the SouthCoast Wind EIS in order to facilitate an efficient process.

In our dual roles as both a cooperating and adopting agency, we provided comments on November 18, 2022, during an interagency review of the Preliminary DEIS (PDEIS). While we appreciate that a number of our comments were addressed, other comments we provided during the cooperating agency review, in particular with respect to the analysis of impacts from the Project on our NOAA trust resources and fishing operations, are not reflected or resolved in the



current version of the DEIS. Below, we provide details about those concerns so that we can continue to work together to resolve these issues in the FEIS. Additional comments and examples are included in the attached table (Attachment A).

North Atlantic Right Whale

One of our most significant concerns involves the potential impacts of the construction and operation of this project on endangered North Atlantic right whales. As described in previous correspondence, Nantucket Shoals and adjacent waters are a biologically important area for right whales and a primary winter foraging aggregation area for right whales (see for example, Quintana-Rizzo et al. 2021, Davis et al. 2017). Use of this area has increased significantly since 2010 as right whale habitat use has shifted (Quintana-Rizzo et al. 2021, NMFS 2022). Without the implementation of robust and effective mitigation measures, it is our view that significant impacts on North Atlantic right whales may occur from project construction and operation due to direct impacts on North Atlantic right whales during construction, long-term impacts to foraging as a result of project operations, and potential mortality or serious injury from vessel strikes over the life of the project. The DEIS preliminarily concludes that the proposed mitigation measures are not sufficient to avoid vessel strike on North Atlantic right whales. BOEM concludes in the DEIS that vessel strike of a North Atlantic right whale cannot be ruled out even with SouthCoast Wind's proposed avoidance, minimization, and mitigation measures (AMMs). The death of a single North Atlantic right whale would have population level consequences; therefore, impacts of vessel traffic are considered major in the DEIS. As such, BOEM should require additional mitigation measures that would minimize risk of vessel strike such that it would not be expected to occur; any such measures should be clearly described and their impact and effectiveness analyzed in the FEIS.

We have previously expressed concern about the operational impacts of the project on North Atlantic right whales. Those concerns remain. We continue to encourage BOEM to more fully evaluate the available literature to assess the impacts of the presence of structures and operation of WTGs on ecological conditions that support right whale foraging in Southern New England and to develop measures to avoid and minimize these effects from the SouthCoast Wind project. While we agree that there is some uncertainty and more research is needed, the DEIS does not fully evaluate the extent of all potential impacts in the Presence of Structures section for the proposed action (Alternative B, section 3.5.6.5). The DEIS does not recognize the importance of Nantucket Shoals and surrounding waters as a primary foraging habitat for North Atlantic right whales and does not fully address the potential effects of the action, including the approximately 30-year operational period, on North Atlantic right whale prey, foraging behavior, and health and fitness of individual right whales. As currently written, the impact determination for Presence of Structures focuses on reef effects and accumulation of ghost gear. It does not provide any conclusion related to oceanographic or wind wake effects on the abundance or distribution of prey, or the effects on North Atlantic right whale foraging within the SouthCoast Wind project area or the surrounding waters of Nantucket Shoals. We consider these issues and effects to be significant, requiring focused attention and evaluation in the FEIS.

Nantucket Shoals Alternative (Alternative D)

BOEM has included Alternative D, which considers the removal of up to six turbine locations at the northern end of the lease as an alternative to reduce impacts to North Atlantic right whales.

However, as acknowledged in the DEIS, this alternative would have no appreciable reduction in impacts on North Atlantic right whales as compared to the proposed action (which the DEIS describes as a major impact). We agree with BOEM’s determination that Alternative D would provide no meaningful difference for North Atlantic right whales from the proposed action and recommend that BOEM not carry this alternative forward for full evaluation (i.e., include in the FEIS as considered but not carried forward). NMFS provided a recommended alternative that would have precluded development of WTGs within a 20-km buffer of the Nantucket Shoals 30-meter isobath, which was not carried forward by BOEM based on the determination that it was not economically feasible. NMFS recommends that BOEM works with NMFS to identify and analyze an alternative that would meaningfully reduce impacts of the project, including considering the removal of a greater number of turbine positions in the northern portion of the lease area. We also request that you revisit the “Preclude the Development of WTGs within a 20-kilometer buffer of the Nantucket Shoals 30-meter isobath” and the “Eliminate up to 17 WTGs in the northeastern portion of the Lease Area” alternatives.

MMPA Comments

In order to issue an Incidental Take Authorization (ITA) under the MMPA, NMFS OPR needs to make a determination that the authorized take will have a “negligible impact” on the stock. Many studies spanning marine mammal taxa and sound source types show noise exposure may result in behavioral disruption including avoidance and foraging cessation (see for example, Southall et al. 2021, Duarte et al. 2021, Goldbogen et al. 2013). Persistent disturbance of foraging can accrue to impact reproduction and survival, especially for unhealthy animals with limited energy reserves (Keen et al. 2021, McHuron et al. 2021, Pirotta et al. 2023). For populations with low abundance, high mortality rates, and low reproductive rates, impacts to reproductive success or survival of any individuals can adversely impact populations.

As you are aware, NMFS OPR has proposed pile driving-related mitigation measures for SouthCoast to mitigate the impacts from construction related noise adequately for NMFS to be able to make a negligible impact determination. Also, we continue to work with SouthCoast to identify and include measures that would adequately reduce the risk of vessel strike such that zero strikes are expected, which is also necessary in order to make negligible impact determination. Last, we remain concerned about the impacts of installing and operating wind turbines in North Atlantic right whale feeding habitat and how that will impact right whale foraging success. As we have clearly articulated to SouthCoast, additional habitat mitigation may be necessary prior to the issuance of any final rule and will be informed by the ESA section 7 consultation and public comments on the proposed rule. NMFS OPR will continue to work with you on these issues and, in particular, discuss both how the NEPA process may be affected and how the additional mitigation measures can be incorporated into and analyzed in the FEIS.

ESA Comments

We remain concerned about our ability to reach a “no jeopardy” conclusion in the pending ESA consultation for this project without incorporating mitigation measures designed to avoid and minimize impacts of construction and operation on North Atlantic right whales into the proposed action for consultation. We are currently reviewing the March 2022 draft biological assessment (BA) to determine if all of the information necessary to initiate consultation has been provided. The DEIS and BA should be consistent when addressing effects to North Atlantic right whales

and drawing conclusions related to exposure to stressors, including the risk of vessel strike; they currently are not. We look forward to working with you to incorporate any needed mitigation measures designed to avoid and minimize impacts of construction and operation on North Atlantic right whales throughout the ongoing ESA consultation to help BOEM ensure that the project is not likely to jeopardize the continued existence of the species.

Fisheries Habitat Impact Minimization (Alternative C)

We appreciate the consideration of a land-based alternative for the export cable corridor and we consider this to be the environmentally preferred alternative for the export cable route. Avoiding the Sakonnet River through a land-based cable route would reduce impacts to aquatic resources, including important estuarine habitats and designated Habitat Areas of Particular Concern (HAPC) for juvenile Atlantic cod. The DEIS does not recognize or discuss the potential differences in anticipated impacts of construction within an estuarine environment compared with an offshore environment. Further, the DEIS references outstanding surveys for the cable route that are necessary to evaluate how this alternative compares with the proposed action. The document appears to suggest, without supporting evidence, that cable installation within an estuarine environment would have the same effects as cable installation offshore and suggests that impacts to EFH, finfish, and invertebrates from avoiding construction in the Sakonnet River would “not [be] measurably different” from the proposed action. However, the DEIS does not consider the unique features and value of the estuarine environment or how impacts of the project may vary along the alternative cable routes. Rather, the analysis appears to discount the reduction in impacts to estuarine environments and associated fisheries that would be anticipated from the selection of the land-based alternative. We recommend that this analysis be revised to evaluate these unique estuarine features as further survey information becomes available.

Approach to Analysis

In many sections of the DEIS, there is little to no detailed analysis of the action alternatives or an evaluation of the differences in impacts between the action alternatives. The analysis for each of the action alternatives does not include consideration of the actual design parameters of the proposed action, nor where these parameters are specifically located within the project area. The analyses are also very general and depict the lease area and surrounding waters as indistinguishable from any other parts of the continental shelf. This approach does not allow the reader to understand or identify any meaningful distinctions between the impacts of each of the action alternatives, nor does it include a comparison of the impacts of the action alternatives to each other (beyond the affected footprint of the alternative), which is a key component of the EIS needed to inform decision making. The analysis remains solely focused on acreage of area impacted and does not consider other important factors, such as the location and resources present in the affected area. Effects from the different alternatives will vary depending on the location of where the impact producing factors occur. However, those variations in impacts are not captured in the DEIS and the analysis inaccurately assumes that fewer acres impacted is better without an assessment of potential trade-offs between alternatives. For example, under Alternative F, the DEIS does not discuss the trade-offs between the installation of fewer cables and the long-term impacts to fish stocks from larval impingement associated with operation of the open loop cooling system of an HVDC converter station. This trade-off analysis may vary depending on the habitat types being impacted by cable installation and the location of the converter station, but that is not discussed in the DEIS. We recognize that the EIS is a tool to

inform decision making for this project; however, the DEIS does not currently include the analysis and justification necessary to inform decisions related to alternatives and/or measures to reduce project impacts.

Missing Information

We recommend additional information be included in the FEIS to ensure BOEM can fully evaluate impacts from the proposed action. Throughout the DEIS, it is acknowledged that there are several outstanding surveys that have not yet been completed. We understand that the presence of glauconite is creating construction feasibility issues for some projects and the collection of geotechnical cores necessary to identify these constraints is occurring late in the process. It is unclear if these studies have been conducted for this lease area and how the results of these surveys may affect construction feasibility or foundation selection. Similarly, information on benthic characteristics to identify where and to what extent cable preparation activities will take place (trenching, sand wave clearance, boulder relocation, cable protection, etc.) is lacking and should be included in the FEIS. Finally, the FEIS should include an evaluation of the most recent fishery data, including fishing operations within state waters by state permitted vessels and impacts to shoreside support services, to fully evaluate potential impacts and ensure proposed mitigation/compensation measures reflect all fishery operations and impacts. This information is needed to allow for a complete and thorough evaluation of each alternative in the FEIS.

Mitigation Measures

The DEIS contains sections where BOEM is relying on mitigation measures to reduce impacts, but does not specify which of these measures, if any, are factored into the impact determination. In addition, assumptions about the success of mitigation measures are made despite a lack of evidence or adequate detail regarding specific mitigation measures (e.g., fisheries and scientific survey impact mitigation). We recommend the FEIS address the anticipated impacts of the proposed action, mitigation measures that are considered to be part of that action, the effectiveness of these measures, the expected impacts if mitigation methods are applied, and the likelihood that such measures will be required and implemented. We ask that BOEM clarify if additional measures may be implemented upon COP approval, but were not factored into the impact analysis.

NOAA Scientific Surveys

We continue to have significant concerns related to the major impacts offshore wind development will have on our NOAA scientific surveys. The DEIS does not include any discussion on how these major impacts will be mitigated at the project level other than referencing the ongoing BOEM/NMFS survey mitigation efforts. However, the mitigation strategy is not currently resourced and does not set requirements or standards with which projects must comply. In order to minimize the major adverse impacts expected on scientific surveys, we recommend mitigation measures be required and implemented before development moves forward, consistent with our joint survey mitigation efforts. We will continue to work with you to ensure these details can be included in the FEIS.

Conclusion

We acknowledge and appreciate the improvements that have been made to the SouthCoast Wind DEIS since our cooperating agency review of the PDEIS. However, we continue to have

outstanding concerns as highlighted in this letter and in our attached technical comments. We are committed to achieving the Administration's goals of expeditiously developing renewable offshore wind energy in a manner that is sustainable and conserves marine resources. We urge you to consider these comments and those in the attachment and address these significant issues prior to issuing the FEIS. We would be happy to discuss further any of our recommendations and to work with you to align and address the issues raised in this letter. If you have any further questions, please contact Sue Tuxbury (susan.tuxbury@noaa.gov).

Sincerely,



Michael Pentony
Regional Administrator

Attachment

cc: Genevieve Brune, BOEM
Brian Hooker, BOEM
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Tim Timmerman, EPA
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Cheri Hunter, BSEE
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Michael Snyder, NYDOS
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Jeffery Willis, RICRMC

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Attachment A – NOAA Fisheries Technical Comments on the SouthCoast Wind DEIS

EIS Section	PDF Page	Comment
Global Comments		
Global	Global	Cumulative Effects of Alternative A (No Action) - All anticipated IPFs should be fully analyzed for all resources. There are varying levels of concluding statements for each IPF under the cumulative effects of Alternative A (No Action) across the resource sections. Without a clear concluding statement (including minor, moderate, or major; beneficial or adverse) for the impacts of each individual IPF, it is difficult for the reader to fully understand the makeup of the overall impact conclusion for the cumulative effects of the No Action alternative.
Executive Summary		
List of Tables	6	Table ES-1 and ES-2 should be listed here.
List of Tables	12	Figure ES-1 should be listed here.
		Please add the following sentence that has been dropped, "In addition, NMFS has an independent responsibility to comply with NEPA and will rely on the information and analyses in BOEM's final EIS after independent review to fulfill its NEPA obligations.", preceding the following sentence: "NMFS intends to adopt the Final EIS if, after independent review and analysis, it determines the Final EIS to be sufficient to support the authorization."
ES.1	22	The first sentence mentions the NEPA regulations, but cites the U.S. Code for NEPA itself. The proper citation would be: (40 CFR 1500-1508).
ES.4.4	30	NMFS has proposed several changes to Alternative D in the cover letter that accompanies this table. However, if Alternative D remains as is, this Executive Summary section should present a description of the alternative. The discussion of the modeling conducted appears misplaced, and does not describe the alternative. Accordingly, please remove sentences 3 through 6, specifically the following words: "However, modeling of the full build out of the entire southern New England lease areas indicates that minor, local changes to the physical hydrodynamic features may occur on the western side of Nantucket Shoals adjacent to the BOEM lease areas (Johnson et al. 2021). Based on best available science, BOEM believes there is a lack of conclusive evidence that the removal of proposed turbine locations in the northeastern portion of the Lease Area would measurably lessen these minor impacts on the hydrodynamic features. If the potential hydrodynamic effects are consistent with the modeling of the southern New England lease areas and other hydrodynamic studies of wind facilities in the North Sea, the effects would be local to the immediate vicinity of the turbine array and not extend to Nantucket Shoals. If the potential hydrodynamic effects are as extensive as potential wind wakes that could extend tens of kilometers under stable conditions, which has not been demonstrated, then the removal of turbines would not remove this potential range of effects from extending far enough from the turbine array to overlap with Nantucket Shoals. Nonetheless,..." NMFS has made the same comment in Chapter 2, where the same language appears.
ES.5	33	Please change to the title of the table to reflect that it accurately reflects that impacts do include mitigation.
ES.5	37	The footnote for the table indicates that light green is used for boxes that are "negligible or beneficial to any degree" but there is no light green shown in the table. Recommend removing this from the footnote to eliminate confusion.
Chapter 2: Alternatives		

EIS Section	PDF Page	Comment
2.1	50	In the fourth paragraph, there is no consultation under the MMPA. NMFS suggests correcting the sentence by replacing it with: "Consultations under ESA Section 7 and the Magnuson–Stevens Fishery Conservation and Management Act (MSA), as well as the submission for and issuance of other necessary permits and authorizations under applicable statutes, including the MMPA, may result in additional measures or changes to these measures."
2.1	50	Please modify the fourth paragraph to indicate that the applicant-proposed mitigation measures listed in Table G-1 will be included in the proposed action, and that additional mitigation and monitoring measures that BOEM may require are listed in Table G-2. (See Appendix G, pp 1-2).
2.1	50	NMFS advises that if any mitigation measures are analyzed in the impact analysis, and they influence the impact determinations and selection of an alternative, those measures must be mandatory in the preferred and selected alternative for a proper impacts analysis.
2.1.4	67	NMFS has proposed several changes to Alternative D in the cover letter that accompanies this table. However, if Alternative D remains as is, this section should present a description of the alternative. The discussion of the modeling conducted appears misplaced, and does not describe the alternative. Accordingly, please remove sentences three through six, specifically the following words: "However, modeling of the full build out of the entire southern New England lease areas indicates that minor, local changes to the physical hydrodynamic features may occur on the western side of Nantucket Shoals adjacent to the BOEM lease areas (Johnson et al. 2021). Based on best available science, BOEM believes there is a lack of conclusive evidence that the removal of proposed turbine locations in the northeastern portion of the Lease Area would measurably lessen these minor impacts on the hydrodynamic features. If the potential hydrodynamic effects are consistent with the modeling of the southern New England lease areas and other hydrodynamic studies of wind facilities in the North Sea, the effects would be local to the immediate vicinity of the turbine array and not extend to Nantucket Shoals. If the potential hydrodynamic effects are as extensive as potential wind wakes that could extend tens of kilometers under stable conditions, which has not been demonstrated, then the removal of turbines would not remove this potential range of effects from extending far enough from the turbine array to overlap with Nantucket Shoals. Nonetheless,..." NMFS has made the same comment on the Executive Summary, where the same language appears.
2.1.4	69	The caption for Figure 2-7 incorrectly states that Alternative D is the removal of six WTGs. The correct language is: "up to six WTGs." This error also appears in Sections 3.5.3.7 and 3.5.6.7.
2.1.6	76	Please provide more detailed information about Alternative F including information on the habitat types and species of importance in the Muskeget Channel, how much area of seabed disturbance would be avoided, as well as locations (maps) of the HVDC converter OSPs and planned offshore export cable routes.
2.2	78	In the row of Table 2-3 for the alternative, "WTG generation capacities that analyze different deployment ranges of WTG MW generation capacities," the justification for dismissal states that the developer has 1,275 MW in existing offtake agreements. Earlier in the document in sections ES.2 and 1.2, it is stated that the developer has PPAs for 804 and 400 MW - for a total of 1204 MW. Please clarify the reason for the numerical difference, or explain the difference between PPAs and offtake agreements.

EIS Section	PDF Page	Comment
2.2	79	In the row of Table 2-3 for the alternative, "Preclude the development of WTGs within a 20-kilometer buffer of the Nantucket Shoals 30-meter isobath," the justification for dismissal states that the developer has 1,275 MW in existing offtake agreements. Earlier in the document in sections ES.2 and 1.2, it is stated that the developer has PPAs for 804 and 400 MW - for a total of 1204 MW. Please clarify the reason for the numerical difference, or explain the difference between PPAs and offtake agreements.
2.2	79	In regards to the "Preclude the development of WTGs within a 20-kilometer buffer of the Nantucket Shoals 30-meter isobath" alternative in Table 2-3, the text notes that only 2/3 of full geotechnical surveys have been completed and due to the positions impacted by the 20-km buffer SouthCoast is not able to analyze and design foundations in time in the remaining 1/3 of the lease area to meet the deadlines in their Massachusetts PPAs as rationale for why the alternative was rejected. Additionally, the rationale also states that 53 WTGs would be eliminated by the 20-km buffer but NMFS analysis shows that 49 WTGs would be removed. At 15-MW per WTG, this is 60 MW that should be accounted for in the text. Lack of complete survey coverage in a timely fashion should not preclude feasible alternatives from consideration. The text also states that SouthCoast's primary goal includes interconnecting at POIs that have a maximum capacity of 1,200 MW. This goal can still be achieved with the 20-km buffer as there would still be a suitable number of positions left to fulfill their 1,200 MW PPA with MA. Lastly, the rationale also notes that SouthCoast is competing for PPAs with NY, RI, and MA. However, SouthCoast did not compete for RI or NY in either recent RFP. MA has not issued their RFP yet, but notably Commonwealth Wind (which previously withdrew from its MA PPA) will also be bidding against SouthCoast, among others. Thus it is conceivable that SouthCoast may be selected for the MA PPA, but it is not certain and this also has implications for other projects (i.e. Commonwealth Wind) and that rationale should be applied consistently across the NEPA process. Given this, the rationale provided is not adequate justification for dismissal of an alternative as SouthCoast Wind can technically meet their PPA with MA and their goal of interconnecting with a POI with 1,200 MW capacity.
2.2	79	In the row of Table 2-3 for the alternative, "Preclude the development of WTGs within a 20-kilometer buffer of the Nantucket Shoals 30-meter isobath," the NMFS letter was focused on right whales and not sea ducks and other aquatic species (although the alternative could benefit other species).
2.4	87	Please confirm that Table 2-4 represents impacts "with no mitigation." Section 2.1 states that mitigation proposed by the applicant is included in the proposed action and the analysis under Chapter 3 utilizes the implementation of mitigation when determining impact levels. If the levels in Table 2-4 do not represent the findings in the later analysis please indicate that and provide a rationale. Please ensure the title of the table on the following page reflects any changes.
2.4	90	In the row for "3.5.6 Marine Mammals," in the boxes for the Proposed Action and other action alternatives, the summary text states that there are "potentially beneficial impacts." Please classify the level of these impacts as negligible, minor, moderate, or major for the Proposed Action and each action alternative. See similar comment for section 3.5.6.

EIS Section	PDF Page	Comment
2.4	90	Alternative F: Consider noting that this could have a potential beneficial impact to harbor seal pupping on Muskeget Island.
Section 3.1-3.3 (IPFs, Mitigation, and Definition of Impact Levels)		
3.2	101	After the end of the 2nd sentence (after "in this chapter."), please add language along the lines of: "If any mitigation measures are analyzed in the impact analyses and those measures influence the impact determinations, those measures will be required as part of the alternative." Any mitigation and monitoring terms that influence the impact conclusions and final agency decision need to be committed measures in order for the assumptions and conclusions of the analysis to be accurate. They are not optional measures. This comment has been made previously in other EISs.
3.2	101	Please change the 3rd sentence to read "In addition, other mitigation measures may be required through completion of consultations, authorizations, and permits with respect to several environmental statutes such as the MMPA, Section 7 of the ESA, or the MSA." The MMPA process is not a consultation and the recommended language corrects the sentence.
Section 3.5.2: Benthic Resources		
3.5.2	Global	For each alternative, please provide a separate subheading and complete discussion/evaluation for each IPF. Avoid using one large paragraph with minimal information for each IPF as this provides incomplete and confusing analyses.
3.5.2	Global	It is unclear if the mitigation measures discussed are planned or confirmed to be implemented. Using language such as "may" or "potentially" when discussing implementation of mitigation or minimization measures is misleading. Additionally, potential or possible mitigation measures should not be used as justification for reduced impacts. Only mitigation measures that are committed to by BOEM and the developer during the Project's lifespan should be discussed or used as part of impact evaluations.
3.5.2	Global	Please ensure impact evaluations are specific to the Project and the alternative and do not simply reference information presented for the No Action alternative which is non-specific and encompasses much larger and often much different habitats and species. For example, under Impacts of Alternative B, Accidental Releases IPF, an evaluation of the potential impact of invasive species releases on benthic resources should be provided which are specific to this Project area and this alternative. Simply stating that impacts will be similar to the No Action Alternative does not provide a clear analysis of effects from this specific project, as it does not consider the habitat types and species in this Project area that may be affected.
3.5.2	Global	At this time, concluding: "The impacts resulting from individual IPFs associated with construction and installation, O&M, and decommissioning of the Project under [Alternatives C-F] would be similar to those described under the Proposed Action" is unsupported and the necessary level of information to determine this is not provided. Site survey information and individual analyses for each IPF are missing. Additionally, there are measureable impact reductions to benthic habitats from in these alternatives which would result in different overall impacts from to those of the Proposed Action. Currently, the conclusion that impacts for Alternatives C-F are the same as the Proposed Action is unsupported and dilutes each alternative and bolsters the Proposed Action. All alternatives should receive the same level of robust analysis and consideration under NEPA. Please address.
3.5.2.1	Global	Any identified HAPC should be explicitly identified, mapped, and described in the Affected Environment section, even if it is referenced later in the chapter. This includes in the Lease Area, Sakonnet River, export cable corridors, landfall areas, and any other areas that may be impacted by the proposed action.

EIS Section	PDF Page	Comment
3.5.2.1	180	The "three gravelly samples" observed should include further discussion and identification of location.
3.5.2.3	182	Under Accidental Releases, please provide a source for the following information: "The chemicals with potential to sink or dissolve rapidly are predicted to dilute to non-toxic levels before they would reach benthic resources."
3.5.2.3	190	Presence of Structures IPF: There is significant information lacking on the potential adverse impacts of newly introduced artificial material on benthic communities such as changes in oxygen and nutrient cycling, heterotrophic and autotrophic community structure, and changes to bacterial composition of sediment (Degraer et al. 2020; Tong et al. 2022). The "reef effect" of the proposed structures is currently described as a net benefit, but there is also potential for artificial structures to cause adverse impacts to benthic ecosystems and these topics should be thoroughly addressed and evaluated.
3.5.2.5	195-196	EMF IPF: This section should tie together the EMF levels studied in the cited references with the EMF levels expected by the project. Many of the referenced effects could adversely affect benthic species in the analysis area.
3.5.2.5	196	EMF IPF: There has been much more research on this topic since Exponent 2018 which was previously cited. The text suggests that if the animal leaves the area then it would no longer be affected by EMFs. Which area does this refer to, the entire wind farm and cable corridor? Please clarify.
3.5.2.5	196	EMF IPF: The conclusion that impacts will be "localized, long-term and minor" should be reconciled with the literature cited in this section which provides evidence for large adverse impacts on predator/prey interactions, movement, navigation, avoidance or attraction behaviors, and physiological and developmental processes.
3.5.2.5	197	Cable Emplacement IPF: When discussing impacts to habitat (particularly SAV/eel grass), please include a discussion of amount and location of HAPC that would be impacted by each of the cable emplacement methods.
3.5.2.5	200	Noise IPF: Analysis is insufficient. Please review relevant literature including the following and the references therein: Sole et al. 2023 (doi: 10.3389/fmars.2023.1129057), Hawkins et al. 2021 (doi.org/10.1121/10.0004773); Hawkins and Popper 2017 (doi: 10.1093/icesjms/fsw205); Popper and Hawkins 2018 (doi.org/10.1121/1.5021594).
3.5.2.5	200	Noise IPF: An analysis of noise from G&G activities and turbine operation should be included here. The analysis should include a discussion of both sound pressure and particle motion as well as substrate vibration for all aspects of the project the involve noise.
3.5.2.5	201	Presence of Structures IPF: Analysis is insufficient. This analysis should include a discussion of FAD (fish aggregating device) effects; artificial reef effects; modification of the prey field and diet for upper level predators, the potential for structures to facilitate the establishment and range expansion of non-native species; local and broad scale wind-wake effects on larval transport, etc. Please also include relevant supporting literature to support statements made. There is a growing body of knowledge on these topics and the majority of this information is missing from the analysis.
3.5.2.5	201	Presence of Structures IPF: Wind wakes and their effects on hydrodynamics may extend 10s of km from the wind farm. This could affect larval transport, the thermal environment, primary and secondary production, and other important processes. These impacts should be analyzed, and the following literature should be included in the analysis: Christiansen et al. 2022 (doi: 10.3389/fmars.2022.818501); Daewel et al. 2022 (doi.org/10.1038/s43247-022-00625-0); Dorrell et al. 2022 (doi: 10.3389/fmars.2022.830927).

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3.5.2.5	201	Please provide a citation for the following sentence: "The addition of new substrate could provide stepping stones for invasive species colonization." The work by Coolen et al. 2020 (DOI: 10.1111/mec.15364) would be a strong citation.
3.5.2.6	205	In this section BOEM provides a quantitative, measurable amount of impacts to benthic resources that would be reduced through this alternative. This includes avoidance of impacts to mixed or complex hard bottom, EFH, live crepidula reefs, and crepidula shell hash, all which are important habitats which many species depend on. However, a few paragraphs later BOEM states that "the long-term effects of avoiding construction through these habitats is difficult to quantify, and benthic habitats would likely recover within a few years after construction; therefore, impacts would be temporary." NMFS disagrees that effects would be temporary, as it is contrary to available information on recovery times for complex habitats. Impacts to complex habitats are expected to result in long-term or permanent impacts. The impacts determination language should more accurately represent the information presented and available literature related to recovery of complex habitats.
3.5.2.6	205	In this section BOEM states that "Alternative C-1 and 4 miles [6.4 kilometers] under Alternative C-2) have not been surveyed, and, therefore, the specific benthic resources that would be affected are not known at this time but are anticipated to be similar to the benthic resources found along the Proposed Action's cable corridor given the proximity of the routes." More information should be provided on the anticipated timing of these surveys, including if BOEM plans to incorporate the information into the FEIS. Any currently available information should also be used to further characterize the cable routes. It is also unclear how these cable routes are considered similar to the proposed action if they avoid estuarine habitats.
Section 3.5.4: Coastal Habitat and Fauna		
3.5.4	Global	Please include accidental releases (including marine debris, oil and gas, and invasive species) as part of your impacts analysis for all alternatives.
3.5.4	Global	Under the Noise IPF for each alternative, please provide more information on what type of noise is anticipated from what activities, and when these noise activities are expected to occur.
3.5.4	Global	Please present full descriptions of the BMPs alluded to. For example, under Impacts of Alternative B, Traffic, it states "Mayflower Wind would develop a Vegetation Management Plan and implement best management practices to minimize potential impacts on vegetation communities during construction." The FEIS should outline the BMPs that are committed to by BOEM and the developer.
3.5.4	Global	Cumulative impacts analyses for all alternatives should also consider impacts and damages to marine habitats and fauna within 3 nm of shore and should not be limited to impacts to terrestrial habitats. This includes any cable emplacement, dredging, HDD, etc. Any impact level determinations should be modified to include these habitats if necessary.
3.5.4.1	242	Per the BOEM description, coastal habitat includes flora and fauna within state waters (which extend 3 nm [5.6 kilometers] from the shoreline). However, the current Description of Affected Environment section is lacking identification and/or description of aquatic or marine coastal habitats within this area (e.g., SAV) and the description is currently limited to primarily onshore and terrestrial resources. Please include all coastal habitats that occur within this defined area.
3.5.4.5	255	Land Disturbance IPF: Please provide more specific information on planned HDD operations. Where they will be occurring, how much habitat will be impacted, at what depths will they occur, etc. Additionally, provide further analysis on how these operations may impact marine coastal flora and fauna within 3 nm of shore.

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3.5.4.5	255	Land Disturbance IPF: the DEIS states, "To the greatest extent practicable, construction would take place away from significant fish and wildlife habitats and during times when highly sensitive species are not likely to be present." Please provide more information on these timelines and identify the highly sensitive species to which you are referring.
3.5.4.5	255	Traffic IPF: the DEIS states, "To the extent practicable, construction activities would take place outside of periods when highly sensitive species are likely to be present." Please provide more specific information on these timelines and identify highly sensitive species that may be impacted.
3.5.4.6	257	In this section the DEIS states that, "The types of impacts under Alternative C-1 and Alternative C-2 would be similar to those described for the Proposed Action, but slightly greater due to the larger area of land disturbance in coastal habitats" and that, "In context of reasonably foreseeable environmental trends, the incremental impacts contributed by Alternative C to the cumulative impacts on coastal habitat and fauna would be slightly greater than the Proposed Action..." When determining impacts, it is important to consider not just total area impacted, but the rarity, sensitivity, and importance of the habitats impacted. In this case, although Alternative C does impact more area than the proposed alternative, this onshore area is previously disturbed existing road ROWs which do not provide the same important habitats for managed species as does the habitat within the Sakonnet River which would be fully avoided by this alternative. As such, please ensure that language and impact evaluations accurately represent the cumulative impacts, not just the total area.
3.5.4.7	259	Please provide the same level of analysis for all alternatives including separate evaluations for each potential IPF. There is significant information lacking for Alternatives D, E, and F on Coastal Habitats and Fauna which are currently grouped together. In order to properly evaluate impacts to NOAA trust resources, complete, robust evaluations of potential impacts for are necessary for all alternatives.
3.5.4.8	259	Please provide rationale for why there are currently no mitigation or minimization measures proposed for this section. Various adverse impacts on coastal habitats and fauna are presented, so NMFS recommends adopting BMPs and mitigation measures that can minimize these impacts where possible.
Section 3.5.5: Finfish, Invertebrates, and Essential Fish Habitat		
3.5.5	Global	NMFS biological opinions are not primary literature and should not be used as citations for project impacts. All such references should be replaced by primary literature.
3.5.5	Global	Please provide a clear impact determination (including duration and severity) for each IPF as defined by Table 3.5.5-2. Please provide a distinct subheading for each IPF accompanied by its own complete analysis, rather than lumping several IPFs into one paragraph. Robust evaluations and consideration of IPFs should be provided for all alternatives, not just for the Proposed Action. Additionally, ensure that impact determinations for each IPF are consistent with the best available science, and consistent throughout the document, and match the information provided within the analyses. Again, refer back to impact determination tables at the beginning of the section for a clear definition of each impact level. Similarly, please ensure the language within the evaluations and conclusions are not being used to either dilute alternatives under consideration or bolster the Proposed Action alternative (Alternative B). For example, it is stated that Alternative C would "avoid EFH and HAPC, reduce the total export cable route by 9 miles, and reduce the total offshore export cable route by 12 miles." However, it is later stated that the measures under this alternative "would not have measurably different impacts on finfish, invertebrates and EFH than the Proposed Action"

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		and that "In the context of reasonably foreseeable environmental trends, cumulative impacts of Alternative C would be similar to those described under the Proposed Action." These statements are contradictory. NFMS disagrees that there would not be measurable differences. The quantitative number of miles of benthic habitat (including HAPC and EFH) spared by Alternative C is indeed a measurably different (and reduced) impact, as well as the importance of locations being avoided. Please ensure evaluations are fair and indicative of all information presented, and avoid language that inaccurately equalizes impacts the Proposed Alternative to other alternatives if this comparison is unsupported.
3.5.5	Global	Any mitigation measures that are mentioned within the evaluation of alternatives should be clearly explained and committed to during construction, operation, and decommissioning. Simply stating that mitigation or minimization measures "may" be put into place should not be considered within impacts evaluations. For example, under Accidental Releases it is stated that "any accidental releases are expected to be localized and subject to mitigation to minimize environmental impacts." However, no description or requirement of these mitigation measures is provided. Similarly, a following sentence states, "therefore, with mitigation measures in place, the total volume of contaminants and trash debris from accidental releases would be negligible...". Lower or reduced impacts determinations cannot be justified by a mitigation measure if it is not clear what the mitigation measure fully entails, or whether the developer is committed to implementing the measure. Please ensure all mitigation measures are fully explained and do not discuss actions or mitigations that will not be required of the developer.
3.5.5	Global	Based on our review of the DEIS, it does not appear that all necessary data has been collected to fully evaluate effects of the proposed action and compare those effects with the proposed alternatives. It is unclear when these outstanding surveys will be completed and how BOEM will use that information to inform their decision-making process. For example, site assessment surveys have not yet been completed for the alternative offshore export cable routes. Additionally, under Cable Emplacement and Maintenance in Section 3.5.5.3, it is stated that "Contractors and engineers for Mayflower Wind would perform additional surveys and evaluations of geological conditions of the surface and shallow subsurface layers prior to developing the precise route." On page 3.5.5-50 under Noise it states "The geotechnical surveys would take place prior to construction... The HRG and geotechnical surveys would help identify sensitive habitats (e.g., shellfish, SAV beds) and allow these areas to be avoided to the extent practicable for siting of the WTGs, OSPs, and cable routes." Surveys necessary to identify sensitive habitats should be done prior to the DEIS. It is also unclear if this project has completed geotechnical cores to understand the feasibility of construction in the lease area. This information should be completed earlier in the process and should inform the analysis in the EIS.
3.5.5.1	260	In the 2nd sentence, add "anadromous" in the parenthetical list of life history/habitat groupings.
3.5.5.1	262	American eels are very common in Delaware River/Bay and Chesapeake Bay, not just New England. Please clarify.
3.5.5.1, 3.5.5.3, and 3.5.5.5	264, 293, and 312	Given that project vessels will transit specific waterways that Atlantic sturgeon inhabit (i.e. Port of Virginia/James River) risk of vessel strike may not be extremely unlikely to occur. This text needs to be revised in the EIS to accurately assess the risk of project vessel traffic on listed fish. Risk of vessel strike to Atlantic sturgeon in the James River is of particular concern, particularly during the time of year when spawning adults are entering the river. We recommend that BOEM more comprehensively address the risk of vessel strike in this portion of the action area.

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3.5.5.1	270	In Table 3.5.5.1, please ensure to differentiate the status, harvest trend, stock trend, and biomass of individual stocks (sub-populations) of each species for which EFH exists within the project area. Specifically, more detailed information is needed for separate stocks of cod, yellowtail flounder, haddock, silver hake, red hake, and monkfish. Stock status and associated stock/fishery trends can differ within a species. For example, cod are currently managed as 2 stocks (Georges Bank and Gulf of Maine), but that may increase to up to 5 stocks based on information provided in McBride and Smedbol 2022 (https://repository.library.noaa.gov/view/noaa/48082). Stock status and resource trends for individual stocks can be found using NOAA Fisheries' Stock SMART tool (https://apps-st.fisheries.noaa.gov/stocksmart?app=homepage), the same reference listed in the DEIS.
3.5.5.1	278	Essential Fish Habitat: This paragraph states "Evidence of cod spawning has been observed in an area known as Cox ledge, which lies on the northwest corner of the Massachusetts and Rhode Island wind energy areas. Variations of this proposal would designate the area around Cox Ledge and parts of the wind energy area as an HAPC for cod spawning but would not overlap the Project area. An alternative variation of this proposal would extend the HAPC beyond Cox Ledge to cover all complex habitat in the southern New England wind energy area, with a 10-km buffer around the wind energy area." This statement is incorrect and should be revised in the FEIS. The project overlaps with HAPC for summer flounder, and juvenile cod, and the recently approved HAPC for spawning cod and complex habitats. The NEFMC approved an HAPC that is focused on protecting two elements - 1) complex habitats; and 2) cod spawning activity - from the anthropogenic pressure and development in Southern New England, specifically offshore wind development. To be considered for an HAPC designation, the 2002 EFH regulations (50 CFR Part 600.815(a)(8)(i)-(iv)) requires one or more of the following four criteria to be met: 1) importance of historic or current ecological function for managed species; 2) sensitivity to anthropogenic stresses; 3) extent of current or future development stresses; and/or 4) rarity of the habitat type. As described in detail in the NEFMC's Draft Submission to us dated August 22, 2022, the Council's approved HAPC meets all four of these criteria for the designation of an HAPC for Atlantic cod spawning activity and three of the criteria for the designation of an HAPC for complex habitat. The Council's approved HAPC applies to any area where cod spawning activity is identified (based upon specified criteria) regardless of the habitat type where spawning occurs. This is particularly important to clarify as cod spawn over a variety of habitat types and use different habitat types within aggregation areas. These HAPCs should be accurately described and impacts evaluated in the EIS. Additionally, it should be noted that data collected in adjacent lease areas, and recently presented at the NYSERDA SOS workshop (Van Parijs, S., Dean, M., McGuire, C., Cadrin, S., and Frey, A. 2022, July 26-28. Preconstruction evaluation of Atlantic cod spawning in Southern New England offshore wind areas [Conference presentation]. NYSERDA State of the Science Workshop, Tarrytown, NY, United States) indicated that spawning condition cod were captured in lease areas immediately adjacent to the project area during pre-construction fisheries surveys completed for other projects. The presence of ripe and ripe & running cod in the trawl indicates that spawning occurs within the immediate vicinity of captured spawning condition cod; however, surveys to detect the location of spawning aggregations have not yet been conducted in this area. While surveys have not yet been conducted in this project area, there is data to suggest spawning is occurring in adjacent areas and outside Cox Ledge.
3.5.5.3	280	The citation provided (NOAA 2019) does not appear to support the conclusion about which gear types are the major contributors of the identified bycatch.

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3.5.5.3	282	Impacts to pelagic eggs should be added under adverse effects of accidental releases, not just larvae.
3.5.5.3	284	Clarify what species the distances of EMF detection are based on. Some elasmobranchs demonstrate sensitivity down to 0.5–1000 mVm-1 (Kalmijn 1982; Kilfoyle et al 2018); EMFs of 0.5–100mVm-1 may attract some species, whereas EMFs over 100 mVm-1 are generally avoided (Kalmijn, 1982; Tricas and Gill, 2011). Good discussion in Horodysky et al 2022.
3.5.5.3 and 3.5.5.5	284 and 302	Undersea cables have been shown to affect migratory routes of salmonids (Wyman et al 2018) and swimming rates of telemetered eels (Westerberg and Lagenfelt, 2008). Overhead cables affect migratory behavior in Atlantic salmon and Russian sturgeon (Poddubny et al. 1979). Please consider incorporating these sources.
3.5.5.3	286	Artificial light at night (ALAN) can alter migratory patterns and even food webs via point source (Cooke et al 2017), or general sky illumination (see Mazur and Beauchamp 2006). But shadows of overwater structures can also affect adult migration, larval settlement, feeding, predation risk, etc. (Ono and Simenstad 2014; Sabal et al 2021; O'Connor et al 2019). It doesn't take much light for hormonal changes (Kupprat et al 2020). And the effects can be seen across multiple trophic levels (Bolton et al 2017). Consider incorporating these references.
3.5.5.3	289	Pile driving effects on flatfish and skates/rays is unknown but can be hypothesized as more extreme (they directly contact the benthos over a large surface area, potentially transmitting shock to internal organs) unless they evacuate. Studies in Europe and NE USA show low probability of harm if pile driving is conducted when flatfish are at low abundance.
3.5.5.3	291	Please provide a source for the information presented when describing noise impacts of HRG on finfish and invertebrates.
3.5.5.3	294	Recommend reviewing Christiansen et al (2022) as this research suggests the potential for large-scale hydrodynamic effects.
3.5.5.5	298	Anchoring IPF: please include a discussion of spud can impacts to EFH, unless listed elsewhere or not intended to be an anticipated impact. Use of spud cans for construction vessels could result in long-term impacts to EFH, including the need for backfill and associated potential habitat conversion. If spud cans will be used for this project, the impacts should be included in the EIS.
3.5.5.5	299	Discharges/Intakes - Please provide more information on discharge and intake specifics of the project including where the outflow and inflow pipes will be located and at what depths.
3.5.5.5	299	Under discharges/intakes, please differentiate hake species if possible and note that substantial annual removals of eggs and larvae of stocks in poor condition such as white hake, Atlantic herring, and Southern New England red hake could have long-term impacts to the long-term sustainability of the species and associated fishery. This should be noted here and in Section 3.6.1 of the DEIS (entrainment estimates were not discussed in this section or the potential impacts to individual species or fisheries).
3.5.5.5	300	(1) Clarify if SouthCoast Wind is proposing ventless trap surveys as part of their fisheries monitoring surveys. (2) Any capture/collection of listed species is generally not considered safe, some methods/measures may reduce risk such as shorter tow times and handling times. However, the text does not state what the proposed tow times or handling measures are. The text about trawl survey impacts on listed fish species should be revised to include relevant information about the survey and to accurately assess the risk and impact of the fisheries resource surveys. Additionally, any analysis of impacts of listed fish should be moved to the Alternative B – Proposed Action on ESA-Listed Species subsection.
3.5.5.5	301	EMF IPF: This IPF should contain a discussion about the differences between direct current and alternating current relative to EMF. This is especially pertinent as an HVDC OSP is proposed.

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3.5.5.5	301-302	EMF IPF: Saying that there is a lack of evidence for detrimental population-level effects suggests that such evidence has been sought and not found. In actuality, there have been primarily lab based studies in controlled settings. However, impacts on larval stages suggests the potential for effects that are important to populations.
3.5.5.5	302	EMF IPF: The conclusion for EMF is that “BOEM expects localized and long-term, though not measurable, impacts on finfish, invertebrates, and EFH from EMFs from the Proposed Action.” However, above there are citations for important effects on larval haddock and crustaceans (e.g., Cresci et al. 2022 and Harsangyi et al. 2022). Please reconcile these pieces of text.
3.5.5.5	302	Lighting IPF: There is a lot of literature on how fish interact with artificial light sources. Please review this literature and incorporate it into the analysis. In particular, search term ALAN (Artificial Light at Night).
3.5.5.5	302	Most NE region managed marine fishes do not see red (lack red photopigments); striped bass are a clear exception that does respond visually to red wavelengths (Horodysky et al 2010). Most managed NE region marine fishes that have been studied see yellow wavelengths extremely well (Horodysky et al 2008, 2010, 2013). Flash rates < 60 Hz will be seen by most species as individual flashes, which could be attractive or distractive (Horodysky et al 2022). But lighting also creates shadows, which may serve as movement barriers or obstacles for juvenile fishes (Ono and Simenstad 2014; Sabal et al 2021; O'Connor et al 2019). Consider incorporating this information and references into the analysis in the FEIS.
3.5.5.5	303	Under cable emplacement and maintenance, please provide an estimate of the scale, location, and timing of potential seabed preparation activities, including how any boulders would be deposited and where. If such information is not currently available at this time, please note that and caution that the full impacts cannot be accurately estimated until such information becomes available. This information is necessary to fully evaluate the impacts of cable emplacement activities on EFH and marine species as the location, scale, duration, and seasonality of such activities substantially affect the resulting impacts. For example, the section suggests entrainment impacts would be negligible, but that depends on where the entrainment occurs relative to spawning sites and whether such activities occur during spawning season for species in the affected area. Further, text notes habitat loss and conversion, yet still concludes that impacts are temporary and short-term, which is incorrect, without specifying how much habitat would be converted, the type of habitats affected, and where such impacts would occur. Finally, please note any mitigation measures that would be employed to reduce impacts from cable emplacement.
3.5.5.5	304-309	Noise IPF: Please clarify what the overall conclusion for the impact of noise is. This section ends with a conclusion regarding G&G surveys rather than noise overall.
3.5.5.5	304-309	Noise IPF: The analysis of noise lacks a discussion substrate vibration effects on early life stages. Also missing is a discussion of how noise interacts with behavior and communication (e.g., de Jong et al. 2020, https://doi.org/10.1007/s11160-020-09598-9 ; Siddagangaiah et al. 2021, doi: 10.1002/rse2.231 ; Stanley et al. 2020, doi.org/10.1242/jeb.219683). The discussion on particle motion should additionally include more recent work by Sigray et al. 2022, (doi.org/10.1016/j.marpolbul.2022.113734); Sole et al. 2022 (doi.org/10.1016/j.envpol.2022.119853); Hawkins 2022 (doi.org/10.1121/10.0013994).
3.5.5.5	305	Please clarify why the acoustic radial distance at Location 1 is smaller for behavioral effects at 150 dB than small fish injury at 183 dB. This seems counterintuitive when the distance is larger at Location 2.
3.5.5.5	306	Clarify what "small fish" and "large fish" refer to in Table 3.5.5-5. This information should be included below the table.

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3.5.5.5	308	Noise IPF: Mooney et al. 2020 is incorrectly cited. The information attributed to this reference was cited by Mooney et al. 2020 but was not research conducted by them.
3.5.5.5	308	Noise IPF: Please include a full description of the potential impacts from noise and vibration associated with construction and operations. Operational noise, as noted for marbled rockfish, could also mask acoustic communication for other species such as cod that rely upon communication for spawning. This would occur for the duration of the project and would have a lingering effect unlike temporary masking from ship noise. Pile driving noise may produce a startle or avoidance response that may interrupt social spawning for species like cod and squid that exhibit elaborate spawning behavior. Vibrations within the sediment has also been shown to affect shellfish respiration and feeding as noted in our comments for previous actions. This section should note these impacts.
3.5.5.5	308	Idealized propagation distances for reproductive vocal communications of sciaenid fishes (croakers and drums) are provided in Table 4 in Horodysky et al 2008. These species can hear each other's soniferous lekking from 8-128 m away absent any background noise. Some are offshore spawners in regions sited for wind and should be included herein, as Atlantic croaker (and black drum) are moving north with climate change.
3.5.5.5	309	It is unclear why seasonal restrictions of UXO detonations from December through April will eliminate exposure to Atlantic sturgeon when the species is generally in the ocean at this time. Adults may spawn in rivers from the spring into summer but not all adults move into the river system at this time. This assessment of UXO impacts on listed fish species should be revised to be more comprehensive. Additionally, any analysis of impacts of listed fish should be moved to the Alternative B – Proposed Action on ESA-Listed Species subsection.
3.5.5.5	309	The DEIS does not consider impacts to reproduction/spawning activity from UXO detonation. Specifically, further analysis of impacts to finfish and invertebrate species, particularly those that aggregate to spawn, including Atlantic cod and longfin squid should be analyzed in the FEIS.
3.5.5.5	309	Presence of Structures IPF: Please note that predator-prey interactions may change due to increases to certain structure-affiliated species, which may result in positive and negative impacts to various species. For example, increased structure may attract black sea bass, which could prey on younger lobster, resulting in positive impacts for black sea bass, but negative impacts to lobsters and other prey species.
3.5.5.5	309-310	Presence of Structures IPF: Analysis of the presence of structures is insufficient. This analysis should include a discussion of FAD (fish aggregating device) effects; artificial reef effects; modification of the prey field for upper level predators, the potential for structures to facilitate the establishment and range expansion of non-native species; local hydrodynamic and broad scale wind-wake effects on larval transport, primary and secondary production, planktonic food availability, etc. Please also include relevant supporting literature to support statements made. Other than the COP, there is scant literature provided, grey or peer-reviewed, to support any of the statements made. There is a growing body of knowledge on these topics and the majority of this information is missing from the analysis.
3.5.5.5	310	Please note that while net primary productivity in the entire North Atlantic may not be measurably affected by the presence of structures, localized primary productivity would likely be affected at measurable levels based on the text included in this section and recent literature on this topic. This could have important localized effects on marine species that rely on primary and

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		secondary productivity. Comparing project level effect to the entire North Atlantic due to the Gulf Stream artificially dilutes the potential impacts that may occur within the project area.
3.5.5.5	312	The Impacts of Alternative B – Proposed Action on ESA-Listed Species subsection only briefly assesses noise and traffic impacts on listed fish, however, all other IPFs assessed for finfish in the greater section should also be assessed for listed fish in the subsection. This is especially pertinent for UXOs, fisheries/marine resource surveys, water withdrawals/impingement, and benthic impacts from habitat loss, dredging, and cable laying - both offshore and in nearshore habitats. This information should be consistent with the BA (see comment below). Additionally, mentions to listed fish are intermingled throughout the analysis of IPFs on finfish, inverts, and EFH - to avoid confusion, all IPF impacts on listed fish should be included in the Alternative B – Proposed Action on ESA-Listed Species subsection.
3.5.5.5	312	The EIS should contain a summary of the findings in the BA. The New England Wind DEIS (and our ensuing comments) can be used as a structure to follow for integrating this information. If the BA will not be included as an appendix to the final document, we encourage BOEM to make the BA publicly available on the SouthCoast webpage (not just on the ESA consultation page) so that the information can be easily referenced by the public.
3.5.5.5	312	The rationale for why Atlantic sturgeon will not suffer injury from pile driving even though the distance to injury thresholds are short is not provided in the text. The distance to LE is ~9km and it is unlikely that a sturgeon would stay within this proximity for 24 hours, however, Lpk is 0.14 km and thus a sturgeon could be within that range to pile driving to sustain injury. If information supports that injury will not occur, the EIS should clearly state the rationale for why injury will not occur and include supporting information as part of this rationale.
3.5.5.6	314	Because seabed preparation, trenching, and cable installation and operation would be fully avoided the Sakonnet River, Alternative C would result in fewer impacts to EFH compared to the proposed action. This should be noted in this section. We disagree with BOEM's conclusion that the potential benefits of avoiding cable emplacement within the Sakonnet River would not measurably reduce impacts on finfish, invertebrates, and EFH from both construction and operations/maintenance activities. This conclusion is also contrary to the analysis provided in the text.
3.5.5.6	315	The analysis in the DEIS should consider that shortnose sturgeon may occasionally be present in nearshore coastal waters such as the Sakonnet River as some individuals occasionally make coastal migrations.
3.5.5.7	316	Please note that Alternative D would also reduce impacts to longfin squid. Longfin squid EFH overlaps with the northern portions of the project area, as noted in Guida et al 2017 (Guida, V., A. Drohan, H. Welch, J. McHenry, D. Johnson, V. Kentner, J. Brink, D. Timmons, E. Estela-Gomez. 2017. Habitat Mapping and Assessment of Northeast Wind Energy Areas. Sterling, VA: US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2017-088. 312 p.).
3.5.5.7	316	Please clarify the analysis on whether turbines would have substantial or localized effects on hydrodynamic and atmospheric effects in this section and throughout the DEIS. Reference to Christiansen et al. 2022 on page 3.5.5-55 suggests that hydrodynamic and atmospheric effects have been shown to extend for several 10s of kilometers beyond a wind farm. This contradicts discussions of such effects in other sections of the document (Executive Summary, page ES-9) that suggest only

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		localized effects in referencing Johnson et al. 2021 and North Sea studies (see page 3.4.2-13) and Li et al. 2014 (page 3.5.5-35) indicating impacts up to a kilometer from a monopile.
3.5.5.8	318	Alternative E-2 and E-3 would significantly increase the benthic disturbance and habitat loss of the proposed action. Given that Atlantic sturgeon forage benthically, the impacts of this potential habitat loss should be assessed.
3.5.5.9	318	Please be more clear about the trade-offs inherent under Alternative F in that reductions in area impacted by fewer cables may be at the cost of increased impacts to egg, larvae, and plankton through entrainment. Annual entrainment of millions of larvae for individual stocks of certain species in poor condition and with negative trends (cod, white hake, red hake, and herring) due to HVDC converter stations could result in long-term impacts to those species since it will be operational during the life of the project. Additionally, the trade-off of converter station operation and fewer cables will depend on the habitat type where cables are being installed. For example, cables running through complex habitats are more likely to result in long-term to permanent impacts and elevated scour protection compared with cables that can be fully buried in softer sediments. These trade-off should be further discussed in the analysis.
3.5.5.9	319	(1) Exact terminology should be used to describe proposed project impacts, suggest revising "slightly" to the extent of benthic impacts on ESA-listed fish species that will be reduced through Alternative F and what the impacts of that are. (2) An increase in HVDC converter stations poses potential risks to listed fish species and also prey of protected species, those impacts should be described here.
3.5.5.9	319	The increase in direct current cables and effects of EMF relative to alternating current cables should be discussed as part of this alternative. Fewer cables does not necessarily mean less impact, the type of electrical current is also a factor. See Cresci et al. 2022.
3.5.5.9	319	We recommend the lessee and BOEM consult available data and NMFS experts to determine the location of any HVDC converter station to avoid not just Nantucket Shoals, but also other areas where spawning condition fish are detected and where larvae for specified stocks (see previous comments) are found. ECOMon survey data could be one source to help identify such areas. We also encourage the lessee to consult with NMFS experts about the location that would minimize impacts to such species.
Section 3.5.6: Marine Mammals		
3.5.6	Global	Overall, there is very little mention of project decommissioning and how each of the impacts will affect marine mammals during that phase. Be sure to include this phase of the project under each IPF. As an example, how will the amount of lighting change during decommissioning?
3.5.6	Global	As you are aware, after independent review and a determination of sufficiency, NOAA's National Marine Fisheries Service (NMFS) intends to adopt this FEIS for purposes of fulfilling our independent responsibilities under the National Environmental Policy Act (NEPA) to support our decision of whether to issue an incidental take authorization to SouthCoast Wind allowing the take of marine mammals. To improve the analysis directly related to our action, NMFS recently provided BOEM extensive edits to the Marine Mammals section of Chapter 3 of the Ocean Wind draft PDEIS. NMFS requests all edits provided on the Ocean Wind draft FEIS be incorporated into the SouthCoast Wind FEIS. This includes an additional determination on the effects of the No Action Alternative (i.e., not approving the Construction and Operations Plan) on marine mammals that is comparable to the

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		effect determinations for each Alternative. Further, we recently learned BOEM is developing reusable content directly applicable to the acoustic analysis on the impacts of marine mammals. NMFS requests the opportunity to review this content and that any resulting analysis be incorporated into all FEISs, including SouthCoast Wind. Given the substantial changes likely to occur, we also request the opportunity to review the SouthCoast Wind FEIS again prior to it being published.
3.5.6	321	Please explain why the marine mammal geographic analysis area is limited to "the majority of movement ranges" and does not encompass all movement of all analyzed species. Because this GAA is the basis for the quantity and location of the activities listed in "Planned and ongoing activities," which is a major component of the cumulative effects analysis, an explanation for this approach is important. NMFS has also identified this issue in other ongoing offshore wind EISs.
3.5.6.1	323	The DEIS references Appendix B for "summary table of species included in the analysis," but the values in Table B-7 (Species information) are outdated, based on Hayes et al. 2020 and 2021. The right whale abundance value in the table is 368, which is inconsistent with the abundance values referenced elsewhere and the best available science. Please update Table B-7 with information from the publicly available draft 2022 SARs.
3.5.6.1	323	Please indicate the species for which abundance and density values were derived from Palka et al. (2017). Abundance values are available in the draft 2022 SARs and density values are available using the Duke habitat-based cetacean density models. Please clarify why it was necessary to use Palka et al. (2017) values, given the availability of these other data sources.
3.5.6.1	323	At the end of the middle paragraph, please note that the New England Aquarium aerial surveys have continued to the present day.
3.5.6.1	323	At the last paragraph on the page, please correct the description of the AMAPPS survey coverage area. Most of the AMAPPS shipboard surveys have been concentrated further offshore, but aerial surveys regularly cover that area, with some shipboard surveys focused directly in the wind energy areas.
3.5.6.1	323	Aside from the Duke University modeling, the AMAPPS program AMAPPS has also conducted density models. Please cite the appropriate papers and website with regards to these efforts (for example, https://apps-nefsc.fisheries.noaa.gov/AMAPPSviewer/), could also cite Chavez et al 2019 DOI: 10.1038/s41598-019-42288-6)
3.5.6.1	324	Please clarify the difference between the modeled density peaks of sperm whales. Two different months/time frames are given with two different values. It is not clear if these were from the same time frame and there were two different peaks, or if the second value was reporting on a different time frame or model.
3.5.6.1	324	Please update with more recent AMAPPS survey data (beyond 2010-2013) in the Threatened and Endangered Marine Mammals section. There have been several AMAPPS surveys since 2013. https://www.fisheries.noaa.gov/resource/publication-database/atlantic-marine-assessment-program-protected-species .
3.5.6.1	324	Please consider including an explanation earlier in the text in this chapter about why Nantucket Shoals is important and how it relates to the project area (i.e., the lease area and ECCs) and GAA.
3.5.6.1	325	Please revise the following text for clarity: "highest number of days of acoustic detections in the winter and spring; with 22 to 67 days of acoustic detections from November to February and again from March to April." It is not clear how "22 to 67" relates to the months in this text.

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3.5.6.1	325	The draft 2022 SARS (Hayes et al., 2023) provides a NARW abundance estimate of 338. Please correct the statement "2022). The draft 2022 NMFS stock assessment report gives a population estimate of 365 NARWs (Hayes et al. 2022)."
3.5.6.1	325	Listed "NAWR UME up to 92 individuals." Please correct the acronym to NARW.
3.5.6.1	325	Please update the NARW UME values to reflect the most current information immediately prior to publication of the FEIS.
3.5.6.1	325	The final sentence of the NARW population estimate paragraph states that NARW population size is fewer than 350 individuals and cites NOAA Fisheries. Earlier in the paragraph, there are two models discussed, one reporting a population estimate of 336 individuals, and one reporting a population 365, the second being above 350. Please either remove the statement that there are fewer than 350 individuals or clearly state the number/estimate that you are moving forward with. This is repeated on PDF page 354.
3.5.6.1	325-326	Consider different citation other than Palka et al. (2021) for acoustic detections.
3.5.6.1	326	Please specify whether the peak density value (NARW/nm ²) in November and December was the same as the density from January to May. If not, provide the value.
3.5.6.1	326	Please include the fact that NARW residency time in the MA and RI/MA WEAs from December through May tripled to 13 days during the two study periods, 2011-2015 to 2017-2019 (Quintana-Rizzo et al. 2021).
3.5.6.1	326	At the end of the paragraph beginning "Thus, NARW observations....," please add "Right whales have been observed feeding in this area in all seasons in southern New England."
3.5.6.1	326	In the last sentence of the first paragraph, please remove reference to a spring breeding period, which is incorrect.
3.5.6.1	326	Please note that right whale critical habitat has not been updated since 2016, and right whale habitat use, particularly in southern New England has shifted significantly in recent years.
3.5.6.1	327	Please update the humpback whale and minke whale UME values to reflect the most current information immediately prior to publication of the FEIS.
3.5.6.1	329	In the MMPA ITA application, SouthCoast Wind did not include harp seals as a species likely to occur in the project area. Please consider removing references to harp seals.
3.5.6.1	331	Please remove the equations in Table 3.5.6-5 and references to the equations used to calculate thresholds based on effects observed in 50 percent of exposed animals. Neither NMFS nor SouthCoast consider these equations when estimating the number of animals that might be exposed to UXO detonations or any related mitigation. Retaining the equations in the DEIS may be confusing for readers. This is an example of the text that was revised for the Ocean Wind EIS, which should be revised here based on those updates (see global comments for Section 3.5.6).
3.5.6.3	335	Please consider creating a bullet point that provides more detail about the site assessment surveys using HRG equipment. Simply saying "site assessments" does not provide enough information.
3.5.6.3	336	Please add UXO detonations to the list of offshore wind activities that could generate underwater noise, and discuss the potential impacts of UXO detonations later in the text.
3.5.6.3	337	Please revise "This act" to say "The MMPA."
3.5.6.3	337	Need to add earlier that Level A harassment may also include "other non-auditory injury not leading to serious injury or mortality." This becomes important for the UXO discussion that needs to be added.

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3.5.6.3	337	Need to revise text in parentheses to say "(and other non-auditory injury not leading to serious injury or mortality)." This parenthetical addition, a response to a comment on the PDEIS, presently makes is sound like this words in the parentheses are describing PTS, but the correction is meant to indicate that UXO detonations, part of offshore wind activities, could cause different forms of Level A harassment, including gastrointestinal or lung injury.
3.5.6.3	337	As commented on for the PDEIS, we still suggest that it is important that the "Physiological effects" section include more extensive discussion on mortality, serious injury, and stress. Please include.
3.5.6.3	337	The following sentence should be edited: "While experiencing either TTS, the hearing threshold rises, and a sound must be louder to be detected." This also describes PTS, so please add "or PTS" after TTS.
3.5.6.3	341	The concluding statement that "seals are likely to exhibit no detectable response or mild orientation responses to impact pile-driving activities" is not supported by the previous examples. All citations above show that seal abundance was greatly reduced during pile driving activities in radii up to tens of km. Seals were all were found to return after construction ceased, but all exhibited a behavioral response to pile driving activities.
3.5.6.3	345	The potential for overlapping UXO detonations from nearby projects being unlikely is not a conclusion that can be drawn by the previous sentence stating that the number and location of detonations are unknown.
3.5.6.3	346	Please provide more detail as to why the impacts for NARW would be minor and impacts for all other marine mammals in the low-frequency hearing group would be moderate.
3.5.6.3	346	This section is missing an assessment of entrainment risk of marine mammal prey from the HVDC OSP(s). Please add a section relative to this risk. Heated effluent is assessed under Accidental Releases, though these releases are regular as opposed to accidental. Consider revising this.
3.5.6.3	346	The phrase "...the models would be distinguishable relative to natural variability in oceanographic conditions..." does not properly characterize the issue. There are cases where effects may be different than natural variability. Even if the magnitude is within the range of inter-annual variability, the direction, spatial changes, and consistency of these changes may not be. Please revise.
3.5.6.3	347	Daewel et al. (2022) does not show that impacts on primary productivity are not expected to be different than natural variability and instead reports that spatial patterns are likely to change.
3.5.6.3	347	The discussion of the Golbazi et al. 2022 paper is misleading, please revise. When quoting that "...meteorological changes at the surface...will be nearly imperceptible...", this is primarily referencing the difference in air temperature just above the water's surface, which was the primary focus of the paper. The focus of the paper is not on oceanographic impacts. These studies do not necessarily cast doubt on the oceanographic conclusions from Daewel et al. 2022 as stated in the draft BA because the Daewel study focuses on atmospheric effects rather than hydrodynamic or oceanographic effects.
3.5.6.3	347	In the last sentence on the page, please note that primary productivity could decrease also.
3.5.6.3	348	At the end of the first full paragraph, the description of the scale of impacts could be appropriate if discussing the impacts of the turbine structures directly (not the extraction of wind energy from the system). The use of the term "hydrodynamic" is not always used consistently in the document as meaning impacts from a static feature (i.e., turbine structure) on water and currents.

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3.5.6.3	349	Please provide an updated source for percentage of NARW that show evidence of entanglement. One example would be the NOAA Fisheries North Atlantic Right Whale Page (https://www.fisheries.noaa.gov/species/north-atlantic-right-whale) that states "NOAA Fisheries and our partners estimate that over 85 percent of right whales have been entangled in fishing gear at least once."
3.5.6.3	350	Appendix D indicates that ongoing and planned offshore wind activities will likely include mitigation measures similar to those that have been proposed by this applicant and by the cooperating agencies. This includes vessel speed restriction. Please modify the analysis under the "Traffic" section to accurately represent the assumptions regarding mitigation made in Appendix D, which are used to influence the impact determinations of Alternative A.
3.5.6.3	353	When analyzing the potential impacts from Port Utilization, it appears that this IPF is being conflated with Vessel Traffic (and Noise, to some extent). Please clarify how port utilization itself, excluding vessel traffic, would impact marine mammals. If the actual IPF of concern regarding port utilization activities is vessel traffic, then perhaps port utilization vessel traffic should be included in the Vessel Traffic IPF.
3.5.6.3	354	The text: "From 2013 to 2017, the minimum rates of human-caused mortality for sei whales, fin whales, and NARWs were calculated at 1, 2.35, and 6.9 individuals per year, respectively," is outdated. Please revise with more recent information.
3.5.6.4	356	Please explain how HRG surveys are considered a measure to minimize impacts on marine mammals. NMFS disagrees that this statement in the DEIS is true.
3.5.6.4	356	The phrase "until the PSO has reported no marine mammals in the respective shutdown zone" should be revised to say "until the PSO has reported no marine mammals in the respective clearance zone."
3.5.6.4	356	Please incorporate consideration of the proposed vessel speed rule when discussing vessel speed.
3.5.6.4	357	NMFS and BOEM have yet to determine whether nighttime pile driving will be allowed. Please revise this phrase to account for the possibility that nighttime pile driving may not be approved by NMFS.
3.5.6.4	357	Please add "and UXO detonations" after "pile driving" in the phrase "avoiding pile driving activity between January 1 and April 30."
3.5.6.5	357	In the MMPA ITA application, SouthCoast Wind proposed using vibratory pile driving to install most foundation piles. Please remove "if used."
3.5.6.5	358	"Each WTG requires 1 monopile or 4 to 8 pin piles" does not align with what SouthCoast proposed. Each WTG foundation would require installation of 4 pin piles, if piled jacket foundations are installed. OSP foundations may require more than 4 pin piles. Please correct this here and throughout as appropriate.
3.5.6.5	358	Please correct the phrase "with each pin pile or monopile requiring 4 or 2 hours of driving to install, respectively." This is not the timing SouthCoast proposed in their MMPA ITA application. Instead, SouthCoast assumed each monopile would require up to 20 minutes of vibratory pile driving and 4 hours of impact pile driving. Each pin pile would require up to 90 minutes of vibratory pile driving and 2 hours of impact pile driving. In addition, there would be a 2-4 hour period after vibratory pile driving when the hammer would be changed from vibratory to impact.
3.5.6.5	358	SouthCoast is no longer considering potential installation of 11-m monopiles and 2.9-m pin piles (the "Realistic" scenario) in their MMPA ITA application, but is still considering installation of 16-m monopile foundations and 4.5-pin piles for piled jacket

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		foundations. Please update the DEIS to reflect the most current maximally impactful construction scenarios SouthCoast is considering (included in the MMPA ITA application).
3.5.6.5	358	Please specify that the phrase "where potential injurious" refers to PTS.
3.5.6.5	359	Please consider removing references to the results of modeling for the "Realistic" scenario (including Tables 3.5.6-11 and 3.5.6.-12 and 3.5.6.-13), as it is no longer being considered by SouthCoast as a potential construction scenario.
3.5.6.5	359	Please clarify if Tables 3.5.6-8 through 3.5.6-13 include Level B ER95% values to the behavioral threshold based on NOAA (2005) or Wood et al. (2012).
3.5.6.5	359-360	The title for Tables 3.5.6-8 through 3.5.6-13 are incorrect. Please revise. Level A values relate to PTS (injury) thresholds and Level B values relate to the behavioral threshold for impact pile driving. The tables present values for both thresholds but the table titles only mention behavioral thresholds.
3.5.6.5	361	Please discuss how it was determined that: "These effects are considered moderate for LFC, HFC, and pinnipeds and minor for MFC."
3.5.6.5	361	SouthCoast did not produce a "Protected Species Mitigation and Monitoring Plan," but did provide a "Marine Mammal and Sea Turtle Monitoring and Mitigation Plan." Please correct in text.
3.5.6.5	361	This paragraph "Mayflower has proposed measures...." is focused on mitigation and monitoring measures. Discussion of critical habitat does not belong here. In addition, although the project area does not include critical habitat, it does include core NARW core feeding habitat. In a separate paragraph, please include a discussion of the possible avoidance and displacement of NARWs due to pile driving.
3.5.6.5	361	Please describe what conservative approach was implemented when determining the magnitude of effects.
3.5.6.5	362	Please clarify that SouthCoast would install Scenario 1 or Scenario 2, but not both.
3.5.6.5	362	Please specify size of WTG monopiles modeled for Scenario 1 (9/16-m).
3.5.6.5	362	The sentence beginning "Results of the modeling..." should either be added to the Scenario 1 bullet as well, or moved out of the Scenario 2 bullet in to a separate sentences below the bullets for both Scenarios. In addition, those results should also provide behavioral exposures, not just PTS exposures. Please correct.
3.5.6.5	362	Replace "takes" with "harassment" throughout the document. There is no term "Level A and Level B take" defined in the MMPA or implementing regulations.
3.5.6.5	362	SouthCoast is only requesting Level A harassment and Level B harassment for Scenario 1, which resulted in the larger exposure estimates (versus Scenario 2).
3.5.6.5	362	The sentence beginning "Level A takes" includes two different concepts that should be treated separately (i.e., implementation of mitigation/monitoring vs. distances to thresholds). Please revise.
3.5.6.5	362	Level A harassment and Level B harassment exposures do account for a seasonal restriction on pile driving and UXO detonations from Jan 1 - April 30, so it not correct to say that Level A harassment or Level B harassment takes do not account for any mitigation.
3.5.6.5	362	The FEIS should provide ER95% values for impact and vibratory pile driving and animal exposure estimates for at least Scenario 1, which was deemed the most impactful in the MMPA ITA application. Ideally, the DEIS should provide this

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		information for both Scenarios included in the ITA application so the public can evaluate the data and clearly see which modeled Scenario is most impactful.
3.5.6.5	363	Disturbance from exposure to HRG equipment noise is expected to minimal because the ensonfied zones are small, not just because the vessel and whale are moving in relation to each other. Please include the results of acoustic modeling and exposure estimates for HRG surveys.
3.5.6.5	363	In the sentence beginning "UXOs have the potential....," please revise to say behavioral disturbance, injury (PTS), mortality, and serious injury. PTS and serious injury are different concepts.
3.5.6.5	363	Please specify that a noise mitigation system will be used during pile driving and UXO detonation.
3.5.6.5	363	SouthCoast requested Level A harassment take of 3 species incidental to UXO detonation and 1 species incidental to pile driving. Please add "for some species" after "eliminate potential Level A harassment." Please include the results of acoustic modeling and exposure estimates for UXO detonations.
3.5.6.5	364	Please remove references to bubble guns. SouthCoast did not propose to use this type of equipment.
3.5.6.5	364	When discussing potential impacts from operational WTGs, it's unclear if the "minor impacts" would be from masking (which would follow the topic in the previous paragraphs). Please specify how operational WTGs would impact marine mammals, and identify which hearing group(s) would likely be most impacted and why.
3.5.6.5	365	Clarify the amount of vessel traffic for each phase. For example, will 15-35 vessels be transiting each day from regional ports to the lease area during the construction phase?
3.5.6.5	365	Characterizing the proposed action vessel traffic relative to the GAA is an improper scale comparison. Proposed action vessel traffic should be compared relative to the Project Area (lease area, cable route, and main regional ports) where the majority of activity will occur.
3.5.6.5	367	Regarding the uncertainty of oceanographic impacts, BOEM and NOAA have contracted with the National Academy of Sciences to evaluate potential impacts on marine mammals from potential oceanographic changes, particularly right whales. We recommend the findings of this study are incorporated into the FEIS if the timing aligns.
3.5.6.5	367	Please change "prey aggregations" to "disruption of prey aggregation mechanisms."
3.5.6.5	368	Baumgartner and Mate 2003 and Baumgartner et al. 2017 are cited incorrectly in the text and should be revised. These references support that copepods need to be organized into dense layers but they do not say that the Shoals prevents this nor can this be inferred due to it being a well-mixed environment. While it is true that Nantucket Shoals is generally well mixed, the strong currents could also serve to aggregate prey along ephemeral frontal boundaries, either on the Shoals themselves, or along the edges of the tidal jet running along the western side of the Shoals.
3.5.6.5	368	Please clarify which studies are being referred to by the phrase "those studies."
3.5.6.5	369	The gear utilization section does not reflect the fisheries survey plan developed for the project (i.e. pot/trap surveys are missing). This section should be updated to describe the surveys that will occur and risk to marine mammals. The use of PAM systems should also be assessed in the EIS and not refer readers to the BA.
3.5.6.5	369	Please describe the proposed impact avoidance and minimization measures that would reduce entanglement and bycatch risks during trawl surveys.

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3.5.6.5	370	NMFS is not aware of a reference that supports the sentence stating that ESA-listed whales would have a disproportionate impact as a function of decreased genetic diversity. Please include a citation or delete this sentence.
3.5.6.5	370	Suggest revising this section for clarity and accuracy relative to the ESA. The EIS should contain a summary of the findings in the BA. The New England Wind DEIS (and our ensuing comments) can be used as a structure to follow for integrating this information. If the BA will not be included as an appendix to the final document, we encourage BOEM to make the BA publicly available on the SouthCoast webpage (not just on the ESA consultation page) so that the information can be easily referenced by the public.
3.5.6.5	371	This conclusion says marine mammal vessel strikes will occur, which is inconsistent with SouthCoast Wind's MMPA ITA application.
3.5.6.5, 3.5.6.6, 3.5.6.7, and 3.5.6.8	371, 373, 375, and 377	In the subsection entitled "Conclusions," ("Conclusions of Alternative D" and "Conclusions of Alternative E" for the latter two), it is stated that there are "potentially beneficial impacts." Please classify those impacts as negligible, minor, moderate, or major. This comment has also been made on Table 2-4, in which the same language appears.
3.5.6.7	373	Please clarify what scenario(s) these ranges (from 588–882 hours to 564–846 hours) are based on. In additional, please account for the fact that SouthCoast intends to use both vibratory and impact pile driving.
3.5.6.7	373	The analysis of impacts from the Presence of Structures for Alternative D is lacking. Please include discussion of additional literature beyond the Johnson et al. reference.
3.5.6.7	375-378	The description of impacts in this section tend to focus on the reductions of turbines with respect to the whole rather than the specific turbine locations that are being removed. For example, overall vessel traffic would not significantly decrease, but vessels that do not have to travel to the specific locations closest to the Shoals during construction, O&M, and decommissioning would decrease the risk to NARW who are known to use the area. The same is true for reduction of pile driving noise. While the total hours of noise is not significantly decreased, pile driving activities closest to the shoals will decrease, removing what is likely to be the closest source of pile driving noise to the NARW and thus a higher risk. While a reduction of 6 turbines is important, that is not the main focus of this alternative, which is the specific location of the removed turbines. More detail is needed to accurately determine the level of change that this alternative is expected to have on impacts to marine mammals.
3.5.6.9	378	Please correct the statement that: "NARW occurrence around Nantucket Shoals is greatest in the fall and winter." As noted previously, NARW occurrence in that area is greatest in the winter and spring.
3.5.6.9	378	Please revise the sentence about implementing a real-time monitoring system to make it clear that aerial imagery cannot detect and localize NARW calls.
3.5.6.9	378	NMFS recommends that BOEM consider NARW habitat-use data, including sightings of 3 or more NARWs triggering Dynamic Management Areas, when determining time/area closures (see Attachment B). Clapham and Pace (2001) indicate that NARWs in group sizes of 3 or more are apt to remain in an area for an extended period of time, likely engaged in foraging behavior. Thus, including this type of sighting data for the SouthCoast project area informs our understanding regarding the way NARWs are using the specified habitat.
Section 3.5.7: Sea Turtles		

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3.5.7	Global	The EIS frequently says that impacts will be "temporary and localized" but does not provide any context of the extent and duration of offshore wind projects and associated activities. Without this context it is misleading and the greater detail should be provided to explain to the public what "temporary and localized" means in this context. This is especially problematic as project activities may occur 24/7 for a number of consecutive years as project construction starts for more and more projects. In general, this section lacks any geographic consideration of where activities will occur relative to sea turtle habitat use.
3.5.7.1	380	Please provide a citation for the following sentence: "The individual hawksbill sea turtles that have occasionally been documented in and near the southern New England area have been stunned by exposure to unusual cold water events and subsequently transported northward into the region by the Gulf Stream."
3.5.7.1	383	Winton et al. 2018 could also be included here (https://www.int-res.com/abstracts/meps/v586/p217-232/)
3.5.7.1	383	Text from Dodge et al. 2014 should also be cited with Bailey et al. (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0091726)
3.5.7.2	386	Suggest including "habitat" in the impact level definitions so it would read "Impacts on sea turtles and their habitat..."
3.5.7.3	386	Throughout this section, please ensure to insert an impact conclusion consistent with the impact definitions in Table 3.5.7-2. It appears ESA terminology is used sporadically throughout rather than the NEPA impact definitions.
3.5.7.3	388	Fisheries use is listed as an ongoing activity that contributes to impacts on sea turtles. Please provide information on how fishing activity is currently impacting sea turtles to present a full description of baseline conditions.
3.5.7.3	388	Site assessment (geotechnical and HRG) should be added to the list of ongoing offshore wind activities.
3.5.7.3	389	The list of activities described as "planned activities other than offshore wind" are all offshore wind related IPFs (including accidental releases, EMF, light, new cable emplacement and maintenance, port utilization, noise, and the presence of structures). Please revise.
3.5.7.3	389	A citation is needed for the following sentence: "The amount of trash and debris accidentally released during planned offshore wind activities would likely be miniscule compared to trash releases associated with ongoing activities, including land-based activities and commercial and recreational fishing."
3.5.7.3	390	EMF levels that cables give off should be cited here to add context to what sea turtles can detect. A difference should also be noted about the EMF levels relative to alternating current and direct current cables and how they may impact sea turtles differently.
3.5.7.3	391	It is not accurate to say that sea turtle nesting does not occur north of Virginia, though rare there have been documented nests in New York. See https://www.nps.gov/gate/learn/news/rarest-sea-turtle-nests-on-queens-beach.htm
3.5.7.3	392	The statement that "Any behavioral responses to offshore lighting are expected to be localized and temporary" lacks context and is misleading. During construction, project activities will occur 24/7 year-round for multiple years that will produce intense lighting that may attract or deter sea turtles at times when they are in their highest densities in the northeast. The text should be revised to accurately depict project activities.
3.5.7.3	393	The approximate geographic extent of potential dredging should be included here and mention that dredging may occur inshore and offshore. A greater rationale is needed as to why entrainment will not occur. Additionally, impacts to sea turtle prey are not considered and should be acknowledged given a few species forage benthically.

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3.5.7.3	394	NMFS has adopted the Navy thresholds as our own (see: https://www.fisheries.noaa.gov/s3/2023-02/ESA%20all%20species%20threshold%20summary_508_OPR1.pdf). Thus, it is inaccurate to indicate we (NMFS) have no thresholds. Please instead say "NMFS has adopted the U.S. Navy PTS and TTS thresholds...." This should be revised throughout.
3.5.7.3	395	A citation is needed to support the following sentence that energetic impacts will be small: "Foraging disruptions related to project installation would be temporary and localized to within the wind energy area during construction. This displacement would result in a relatively small energetic consequence that would not be expected to have long-term impacts on sea turtles." There is no consideration for the extent and duration of proposed project activities thus without this context the text is misleading. There is also no consideration of injury and the risk it may occur. This should be discussed in relation to the TTS and PTS thresholds and why BOEM does expected noise levels to remain less 204 dB re 1 µPa ² s in the context of exposure modeling. This section is also missing consideration of vibratory pile driving and should be included.
3.5.7.3	396	Section 3.5.7.5 states that the project area was screened for UXOs and the risk was determined to be low to moderate throughout all of the Lease Area, and a relatively equal ratio between Low and Moderate within the ECCs. Please provide the source for the conclusion that impacts for other planned project would be similar to those of the Proposed Action. Overall the UXO section is very sparse and does not contain any relevant information about the risk to sea turtles relative to UXO clearance activities. The range of UXO activities (lift and shift, low order deflagration, detonation, etc.) should be included and the risk to turtles should be assessed for each one. Given that sea turtles spend much of their time submerged, they are at greater risk of not being detected by PSOs than marine mammals.
3.5.7.3	397	The operational noise section only considers WTGs at the turbine level scale and does not discuss wind farms or WEAs as a whole as low frequency point sources of continuous noise. The text should be included to assess this potential impact to sea turtles given the large geographic extent of planned projects and the operational lifespan. Additionally, impacts relative to sea turtle habitat use in general should be considered, not just impacts to prey. If prey is going to be mentioned, it should be in the context of foraging. If entire wind farms deter sea turtles due to the low frequency noise, they will not be able to just move to a different area given that many wind farms overlap with sea turtle habitat.
3.5.7.3	398	Please add that the aforementioned shifts in vessel traffic have the potential to change the risk of vessel strike to sea turtles.
3.5.7.3	399	The Port Utilization section is lacking information. Port expansions can disturb benthic habitat which would impact sea turtle foraging to a small degree. It could also require dredging which would lead to sedimentation and may also directly impact sea turtles with entrainment. Though port modifications may undergo their own NEPA analysis, the impacts should still be considered and summarized here, if they are tied to the project and other reasonably foreseeable wind projects considered in this analysis.
3.5.7.3	399	The impact determination for gear utilization is inaccurate, impacts would be detectable and measurable as turtles may be incidentally caught. This determination should be changed to minor.
3.5.7.3	401	(1) The characterization that "some authors have suggested..." is an inappropriate characterization of the best available science and should be revised. (2) While net primary productivity in the entire North Atlantic may not be measurably affected by the presence of structures, localized primary productivity would likely be affected at measurable levels based on the text included in this section and European studies. This could have important localized effects on sea turtles that rely on primary and secondary

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		productivity. Comparing project level effect to the entire North Atlantic due to the Gulf Stream artificially dilutes the potential impacts that may occur within the project area. (3) When quoting that "...meteorological changes at the surface...will be nearly imperceptible...", this is primarily referencing the difference in air temperature just above the water's surface, which was the primary focus of the paper. The focus of the paper is not on oceanographic impacts.
3.5.7.4	403	(1) OSPs/HVDC converter stations should be added to the list of variances. (2) Benthic impacts should also be added to the impacts under foundations.
3.5.7.4	404	Many of the mitigation and monitoring measures proposed by SouthCoast are specific to marine mammals and may not be effective to sea turtles. Please revise this list with context about the effectiveness of measures for reducing risk to sea turtles.
3.5.7.5	404	This section is missing an assessment of entrainment risk of sea turtles and prey from the HVDC OSP(s). Please add a section relative to this risk. Heated effluent is assessed under Accidental Releases, though these releases are regular as opposed to accidental. Consider revising this.
3.5.7.5	405	(1) Please provide a source to support the statement that there is no direct harm to sea turtles from heated effluent water or entrainment. The negligible determination needs to be supported. (2) Clarify at what scale prey would not be impacted.
3.5.7.5	405	This section is missing project specific details. Please add specific fuels, amounts, and risk of accidental release added to the environment by the proposed project rather than referring to the COP. This can be a simple table of amounts per WTG and OSP.
3.5.7.5	405	(1) This section does not mention any possibility of cables that are not able to be buried to the proposed depth or what happens when cable crossings occur. Please provide an estimate for the amount of cable that will not be able to be buried to the proposed depth and what additional actions will be taken to minimize the impact of EMF to sea turtles in these sections. (2) The EMF levels that cables give off should be cited here to add context to what sea turtles can detect. A difference should also be noted about the EMF levels relative to alternating current and direct current cables and how they may impact sea turtles differently.
3.5.7.5	405	The Lighting IPF section contains no mention of nighttime construction activities occurring and the light that will be produced as part of those activities. That risk should be acknowledged and any impacts should be assessed.
3.5.7.5	406	The primary prey species of leatherbacks are jellyfish and salps (soft-bodied open ocean species) not bottom dwelling crustaceans and mollusks. Please correct.
3.5.7.5	407-408	(1) Clarify if vibratory installation and removal of sheet piles for cofferdams is part of the proposed action. Vibratory installation of WTG foundations should also be mentioned here. (2) The information about bubble curtains and noise attenuation systems should be revised and Bellman et al. 2020 should be cited. The applicability of the studies to the proposed action should also be acknowledged (i.e. focus of study, type of project, location, etc.). (3) Multiple models are mentioned in the last paragraph of page 3.5.7-29, please clarify what the proposed action is and suggest adding a table depicting the modeling scenario.
3.5.7.5	409	Add a citation for what density inputs were used for the exposure modeling for both tables on this page.
3.5.7.5	409	Clarify what is meant by "due to the spacing between individual work areas." Suggest providing the spacing as sound propagates/radiates so it could travel to these areas between the distance. Overall this text lacks context and project specific information of the proposed action.
3.5.7.5	410	(1) The following sentence is unclear, please revise: "WTGs for the Proposed Action are considered minor but long-term for individual sea turtles that are exposed pile-driving noise that leads to PTS." (2) Please provide examples of and information on

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		the behavioral changes that are expected from noise. The impact to sea turtles should be explained. (3) In regards to operational noise, the wind farm as a low frequency point source should be considered in the context of sea turtles avoiding the entire area.
3.5.7.5	411	No project-specific UXO exposure modeling for sea turtles is reported. This is inconsistent with past projects. Please revise this section with project-specific exposure modeling. As presented, it is unclear how applicable the references cited are to the proposed action.
3.5.7.5	411	(1) Sea turtles can only detect and flee from a vessel going less than 4 knots, see Hazel et al. 2007. This paper should be cited and this caveat should be acknowledged. (2) Please provide the specific speed restrictions and also the speeds project vessels will travel to give context to the impact determination and how the mitigation measures reduce impacts (or not).
3.5.7.5	412	It should be noted that visual monitoring for sea turtles is difficult given their small size and limited time spent at the surface, the implications of this should be noted relative to the effectiveness of mitigation measures.
3.5.7.5	412	Clarify why vessels will travel at slow speeds in the lease area. The vessel speed(s) should also be noted here. While risk is lower within the lease area due to slower vessel speeds, strike is still possible.
3.5.7.5	412	(1) Please provide more information about the proposed fisheries surveys including the frequency, duration, tow speed, amount of gear, soak time, etc. (2) Clarify if any other surveys besides trawl surveys will occur. (3) The text states that trawl surveys could lead to potential capture of loggerhead and Kemp's Ridley. Leatherbacks and greens are not mentioned. Please provide a source that the survey has no risk to leatherback or green sea turtles or include them in the list of species that could be potentially captured as a result of project monitoring.
3.5.7.5	412	(1) The text is missing an assessment of GBS/suction buckets and their impacts, both benthic and pelagic. (2) The section ends with no impact determination and just says there is uncertainty. This uncertainty should be acknowledged and the range of impacts to sea turtles should be described relative to their habitat use in the project area and surrounding waters. This is especially pertinent to leatherbacks and their prey, as noted previously. It is also unclear how the impacts to marine mammals applies to sea turtles as these species have different foraging strategies and prey.
3.5.7.5	413	Suggest revising this section for clarity and accuracy relative to the ESA. The EIS should contain a summary of the findings in the BA. The New England Wind DEIS (and our ensuing comments) can be used as a structure to follow for integrating this information. If the BA will not be included as an appendix to the final document, we encourage BOEM to make the BA publicly available on the BOEM SouthCoast project webpage (not just on the ESA consultation page) so that the information can be easily referenced by the public.
3.5.7.5	414	(1) The text assumes all other wind farms are built. The proposed action should also be considered in context of the current installed/under construction projects and what the impacts of adding this project are. (2) Please include the cumulative impact of hydrodynamic effects on sea turtles.
3.5.7.6	415	(1) Clarify if the Sakonnet River is being referred to as the Project Area here or the actual Project Area, the text is unclear and sea turtle sightings in the Project Area are not uncommon - "however, sightings of sea turtles in the Project area are..." (2) It is unclear how this alternative is not different than the proposed action given that in-water (and thus sea turtle impacts) would be avoided under this alternative. The last sentence of the first paragraph should be revised. (3) The increase in direct current cables and effects of EMF relative to alternating current cables should be discussed as part of this alternative. Fewer cables does not

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		necessarily mean less impact, the type of electrical current is also a factor. See Cresci et al. 2022. (4) The increase in entrainment risk to sea turtles and their prey would increase under this alternative, this should be discussed. It is also unclear how the impacts would be the same as the proposed action as more HVDCs would be operating thus risk would increase. (5) Overall the trade-offs of this alternative (less cables, more HVDC OSPs) and their risk to sea turtles is unclear. Please clarify.
3.5.7.6	416	Clarify how the impact would be the same as the proposed action when the text on the page above says some impacts would be reduced (also the number of HVDC converter stations would increase, so not all impacts would be reduced).
3.5.7.8	417	There is no appreciable differentiation between the sub alternatives here. The lack of noise is significant in E-2 and E-3 due to less pile driving, however, the benthic (and foraging) impacts to some sea turtle species is greater. This should all be discussed and the trade-offs and associated risks analyzed. More detail is required in this section. The differences in the construction of each pile as well as their presence in the water column for each of these alternatives are large and would therefore create differences in the level of impact to sea turtles. Please expand on each type of pile to give a complete picture on how these impacts are not expected to have a measurable difference on impacts to sea turtles.
Section 3.6.1: Commercial Fisheries and For-Hire Recreational Fishing		
3.6.1	Global	Whenever possible and relevant to the discussion, please insert figures and tables from the COP instead of simply referencing them. This would enable the reader to more easily interpret the data and appreciate the implications and impacts of the proposed action. For example, on page 3.6.1-32 of the DEIS, the text references Figures 2-17, 2-18, and 2-20 when discussing fishing activity along the export cable corridor and COP Figures 11-22 and Tables 11-16 through 11-18 regarding prime recreational fishing areas referenced on page 3.6.1-33. These images are important to the discussion of the proposed action and should be replicated in this document.
3.6.1	Global	Social and cultural impact assessments on fisheries and fishing communities are not included in any sections of the EIS, including 3.6.2 Cultural Resources, 3.6.1, Commercial & For Hire fishing or 3.6.4 EJ. Please include based on cooperating agency review comment with the resources and methodologies provided by NMFS.
3.6.1	Global	Please include an evaluation of shoreside impacts. NMFS provided resources for a summary of shoreside businesses that could have impacts from the project and cumulative impacts. Please see prior comments from other project EIS reviews as well as the SouthCoast cooperating agency EIS review with these resources, which include summaries by business type, number of employees, and revenue. See Gaichas et al. 2018 (https://www.frontiersin.org/articles/10.3389/fmars.2018.00442/fullMethodologies) Section 3.2.4 for methodologies and data sources that could be applied here.
3.6.1.1	434 and Global	Please ensure that the most recent available data are used to evaluate fishery impacts consistent with our recommendations for fishery impact analysis (https://media.fisheries.noaa.gov/2022-02/Socioeconomic-InfoNeeds-OSW-GARFO.pdf). VMS data used in this DEIS dates to August 2019. More recent VMS data are available and data through 2022 should be used to inform the FEIS. Also, please ensure the FEIS includes fishery data based on our January 2023 data request response and for vessels issued only state fishing permits or HMS permits (available from NMFS Southeast Fisheries Science Center). Outdated data from the COP are sometimes referenced instead of the more recent information available for GARFO permitted vessels. Further, it is not enough to just note that state and HMS fishery data are not included in specific tables without making an effort to

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		acquire and include such data (see footnote a in Table 3.6.1-9 and other similar tables). This is particularly important in assessing impacts to port communities (see Table 3.6.1-4 and 3.6.1-8). Without state data, port landings and revenues are underrepresented, which suggests that impacts would also be underestimated. Fishery data for vessels issued federal permits do not include all state waters fishing activity and would underrepresent the potential fishery impacts from the proposed action.
3.6.1.1	441	Please insert a figure representing the Regional Fisheries Area identified on page 3.6.1-8. Consistent with the figure of the geographic analysis area, a figure depicting this more focused area is needed to ensure the reader knows the smaller area used to contextualize analysis in this section.
3.6.1.1	441	Please define what the inshore waters of Southern New England and the Gulf of Maine represent. Please clarify if the term inshore is being used to describe specific GARFO statistical areas or distance from shore.
3.6.1.1	446	Please discuss some of the limitations of relying solely on fishery revenue while analyzing the impacts of potential development. Particularly in Southern New England, the interrelatedness and reliance of some fisheries on one another for bait such as the skate fishery and the mixed lobster/Jonah crab/rock crab fishery can conflate and amplify potential impacts for entities that rely on such fisheries. Some fisheries, particularly skates and herring, are low-value, but high volume fisheries that are often left out when discussing fisheries based on revenue alone (e.g., over 600,000 lb. of herring was landed from the lease area in 2010 (one of the highest totals in any year and in aggregate), but it does not appear in the top 10 fisheries impacted because of the low revenue associated with such landings.
3.6.1.1	449	Please remove the column describing the number of years a species appeared in the top ten species list based on revenue. As noted in the previous paragraphs, the high value of scallops can affect the list of top species based on revenue. Revenue does not always represent significance of an impact, as landings volume can produce additional revenue and benefits to communities through processing and other support services that is not reflected in this analysis. Therefore, this column is misleading and could result in underestimating the importance of impacts to a particular fishery.
3.6.1.1	455	Please define what the level of revenue reliance of federal permit holders fishing in the Lease area constitutes significance.
3.6.1.1	456	Please add a column listing the total number of federally permitted vessels fishing in the lease area annually to provide greater context to reviewers.
3.6.1.1	467	Please note that the landing and revenue data calculated for the export cable corridors only represents vessels issued a federal fishing permit and is, therefore, an underestimate of the likely fishery landings and revenue that could be affected along these cable corridors. State data should be included to more accurately and completely describe the potential impacts to fisheries along the export cable corridor.
3.6.1.3	468	Please insert a discussion of current regional trends referenced in the 2nd paragraph of this section as Section 3.6.1.1 did not discuss regional trends. Instead, it presented historical landings and revenue data without evaluating why landings or revenue changed over time. If the analysis of the no action alternative presumes certain trends would continue, the DEIS should explicitly discuss what trends would be expected to continue. This was an issue that the Technical Working Group advising BOEM's draft fishery mitigation guidance briefly discussed, including suggestions for identifying trends in both landings and biomass, as documented in Attachment A of the draft guidance (https://www.boem.gov/renewable-energy/reducing-or-avoiding-impacts-offshore-wind-energy-fisheries).

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3.6.1.3	470	Under the Anchoring IPF, please clarify if this includes the impacts of spud cans used to fix the position of construction vessels and the potential need to backfill holes left by such spud cans, unless that is discussed under the presence of structures IPF. This could result in direct and indirect impacts to fishing operations through habitat conversion and gear snags.
3.6.1.3	470	Under the Cable Emplacement IPF, please include a discussion of seabed preparation (leveling, boulder clearance, trenching, and cable laying itself), which could result in fishery operational disturbance as such activities will occur over a prolonged period, including several months between each activity. This would increase the scale and nature of the impacts and would likely result in overlapping construction impacts within areas of multiple adjacent wind projects such as NJ, NY, and RI/MA areas. Also, sedimentation and smothering of sessile species will be an impact that should be mentioned here and in the evaluation of other project alternatives, particularly for sessile organisms and those with benthic life stages (longfin squid egg mops). Finally, the seasonal impact of such operations should be identified for species with social spawning behavior (cod, squid, etc.) that would have indirect impacts on fishing operations.
3.6.1.3	470	Under Noise, please note that spawning activities may also be disturbed by noise associated with construction activities. Disruption of spawning due to startle or other behavioral responses (masking communication in cod) may have longer-term impacts for certain area-specific spawning aggregations (cod) or those with short lifespans that only spawn once (longfin squid). This section should summarize the geographic distance for which noise-induced mortality and behavioral changes would be observed, even if contained in Section 3.5.5 for the reader to fully appreciate the broader geographic implications of noise impacts under the no action alternative.
3.6.1.3	471	Under the Presence of Structures IPF, please note that predator/prey relationships would change as a result of structures, vessels may be displaced to other areas, and clarify if vessels would be directly or implicitly excluded from operating in areas. A recent Notice for Mariners suggested that scour protection was being put in place for Vineyard Wind 1 area months in advance of the actual placement of turbines and that vessels should avoid fishing in those areas for an extended period of time. While this is not a formal exclusion zone, it effectively becomes one if vessels are dissuaded from disturbing scour protection for months before cables are buried, if they are buried at all (some projects indicated cables won't be buried and will allow for natural sedimentation to cover cables).
3.6.1.3	476	Please insert an appropriate caveat regarding the completeness of HMS and state fishery landings/revenue in GARFO logbook data and provide more information about the methods used to derive exposure estimates in this table. As we have commented in previous project EISs, GARFO logbook data, the source for this table, does not fully capture HMS, lobster, and state-managed fisheries (such as menhaden) and represents only a subset of catch/revenue data for each fishery. Please request additional HMS data from the NMFS Southeast Fisheries Science Center and state data from relevant agencies to integrate such data into future tables. Additional detail regarding how this table was created would help readers understand how the estimates were calculated and enable validation by our fishery experts.
3.6.1.3	478	Under Impacts of the No Action Alternative, please add "other offshore development" to the last sentence describing the causes of the major impact conclusion. As noted in this section, offshore wind projects may result in major impacts to fishing operations. This should be reflected in this conclusion as well.

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3.6.1.5	480	Under Cable emplacement and maintenance, please revise impacts to long-term to permanent and describe any mitigation or proper remedial action that would be taken to ensure no measurable effects on commercial and for-hire fisheries consistent with a "moderate" impact as defined in Table 3.6.1-22, or revise the impact conclusions to major. Boulder relocation, sand wave clearance, and other activities would disturb measurable quantities of the bottom and could result in gear damage/loss and reduced fishery catch. Moving boulders, grapnel runs through complex habitats, and other seabed preparation activities, including leveling and trenching that may be necessary to achieve target cable burial depth, would result in long-term impacts, not short-term impacts. The level of impacts will be reflective of the habitat present, but that is not reflected in the document or the impact conclusion.
3.6.1.5	482	Under the Noise IPF, please update references to behavioral and injury impacts to species based on more recent sources than Kirkpatrick et al. 2017, such as tables included in other project EISs and further discuss potential impacts on species that exhibit social spawning behavior that could be disturbed. Those tables, as referenced in our comments on those other projects, indicate that noise from pile driving in particular could induce behavioral responses in individual species up to and potentially more than 11 km away from the source of the noise. This should be reflected in this section, particularly considering that several adjacent projects could be conducting pile driving activities that may compound impacts to local and regional fisheries. Cod and squid have elaborate social spawning behavior (see previous EIS comments for citations) that could be disturbed by behavioral responses to pile driving noise. If disturbed, spawning success could be reduced, which would have indirect impacts to fishery operations. While this was briefly discussed for G&G surveys, please note the potential noise impacts from pile driving on spawning behavior in this section.
3.6.1.5	485	In the first paragraph on this page, please include reference to the fact that up to 50 vessels engaged with construction activities may be simultaneously operating in the project area during peak periods of construction, as noted earlier under the Port Utilization IPF. This will negatively impact commercial fishery operations and exacerbate congestion and space use conflicts.
3.6.1.5	488	Under the Presence of Structures IPF, please update the text to reflect the most recent data that are available from 2021, include an estimate of potential impacts to shoreside support services and communities due to changes in vessel landings patterns, and update the party/charter analysis based on updated information. For example, on page. 3.6.1-55, the text notes the highest percentage of total annual revenue attributable to the lease area was 20 percent in 2018. Updated data currently available indicates the highest percentage is 48 percent in 2020. Consistent with our "Information Needs to Assess Fisheries Socioeconomic Impacts from Offshore Wind Energy Projects" document (https://media.fisheries.noaa.gov/2022-02/Socioeconomic-InfoNeeds-OSW-GARFO.pdf), please ensure the FEIS includes the most recent data available (2021) from our January 2023 data request response. Although this section notes qualitative impacts to seafood processors, distributors, and shoreside support services, it does not attempt to estimate such impacts based on the potential for changes to fishery landings amounts or patterns. A quantitative analysis of shoreside/community impacts should be included in the DEIS and FEIS consistent with recommendations and methods outlined in BOEM's draft fishery mitigation guidance (see Appendix A of that document). Finally, the text references analysis in Kirkpatrick et al., 2017 to assess party/charter vessel impacts. However, that analysis was based on data from 2012. The FEIS should utilize the same approach using more recent data to characterize impacts to the party/charter fleet in the absence of non-confidential federal logbook data.

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3.6.1.5	489	Please revise the impact conclusion at the bottom of the first full paragraph to moderate to be consistent with Table 3.6.1-22. As noted in this section, gear damage/loss is expected, along with potential displacement effects to those that operate in this area. Therefore, measurable impacts would occur. The gear loss compensation policy would help offset, but not eliminate, such impacts, which is consistent with "moderate" impacts under Table 3.6.1-22, not "minor" impacts which don't require mitigation measures. Finally, although it is generally estimated that up to 10 percent of any offshore project's cables may require additional cable protection if target burial depth cannot be reached, the DEIS notes that we will not know definitively how much cable protection is necessary or the extent and location of necessary seabed preparation activities until project-specific surveys are completed. Therefore, there is still uncertainty as to the degree and nature of potential impacts from boulder relocation, seabed preparation, and cable protection measures. This should be noted in this section of the FEIS.
3.6.1.5	489	At the bottom of the last full paragraph on this page, please note that while habitat conversion may not result in changes to species biomass significant enough to affect total quotas, the presence of structures will likely result in the exclusion of scientific research surveys that inform stock assessments for many of the fisheries affected by this project. This will result in increased uncertainty in survey indices and resulting stock assessment conclusions. Existing fishery management council risk policies and harvest control rules dictate that more conservative quotas be set if there is increased uncertainty in stock assessments. Therefore, the presence of structures will likely affect fishery quotas for species reliant on existing fishery surveys, resulting in indirect negative impacts to associated fisheries. This should be noted in the FEIS.
3.6.1.5	490	Under the Traffic IPF, please rectify different estimates of the number of construction vessels in the project area during peak operations. During previous discussions, the DEIS notes that up to 50 vessels would be operating within the lease area during peak operations. This differs from the 35 maximum vessels listed here. Please correct either discussion with the correct estimate of traffic within the lease area.
3.6.1.5	491	In the discussion of the cumulative impacts, please ensure that impact conclusions are consistent with the impact definitions listed in Table 3.6.1-22 and discussions in previous text in this section. Even though the project specific contributions to cumulative impacts of a particular IPF may be relatively small, the EIS lists measurable impacts resulting from project activities due to listed IPFs. For example, the text indicates port utilization impacts would be spread out along the entire Atlantic seaboard, not recognizing that vessels affected by this project operate out of multiple ports and could be affected by multiple projects contributing to greater, not fewer, impacts to commercial fisheries coastwide. Therefore, many of the cumulative impacts discussed here should be greater than the impact conclusions for the proposed action itself (i.e., more than minor and likely at least moderate for most IPFs) based on the definitions in Table 3.6.1-22. Otherwise, the EIS would appear to be diluting the impacts of this action simply by comparing them to impacts within the region as a whole, which is inappropriate for evaluating the impacts of this proposed action.
3.6.1.5	493	Please justify or remove conclusions that the major impact conclusion is primarily driven by climate change and regulated fishing effort. There is minimal discussion of such impacts in this section to support this conclusion.
3.6.1.6	494	Please include estimates of aquaculture revenue and commercial and recreational fishing effort within state waters, including trips, landings, and revenue, that would be maintained by routing export cables onshore under Alternative C. This is needed to

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		not only evaluate the potential impacts avoided (benefits) of this alternative, but it could also serve as a means of estimating impacts from running the export cable up the Sakonnet River under Alternative B, which was not included in Section 3.6.1.5.
3.6.1.8	495	In the analysis of Alternative E, please provide or reference discussions of noise-induced behavioral effects from the use of smaller pin piles under Alternative E-2. This will help characterize the extent of potential behavioral effects to compare between the proposed action and Alternative E.
3.6.1.9	496	Please insert a discussion of the details of potential converter stations (location, scale, height in water column of intake/outlet pipes, and flow rate) and associated impacts under Alternative F. Such converter stations would have direct long-term impacts on fishery resources in the form of entrainment and changes to local water temperature that will have indirect and long-term impacts on commercial and recreational fisheries. Entrainment in the converter stations will result in direct mortality to eggs and larvae and may reduce egg distribution and future recruitment to the fishery. While the relative impact may be localized and may not result in population level effects, it could lead to less certain stock assessments by altering the stock-recruitment assumptions for certain species. These impacts should be noted here and not excluded from this discussion given these converter stations are not included under the proposed action.
3.6.1.10	497	Please summarize or replicate Tables 11-10 through 11-12 in Volume II of the COP in this section to enable the reader to understand the potential impacts to the commercial fishery, including the inter-annual variability of fishery revenue. Please ensure that compensation amount used to support this mitigation measure is based on the most recent fisheries data available through 2021 that we provided in January 2023 and include impacted vessels fishing in state waters with state permits. Because the compensation amount listed in the COP tables does not reflect the latest data or state fishery operations that may be affected and that BOEM's draft fisheries mitigation guidance has not been finalized, it is premature to conclude that the compensation measure would be sufficient to reduce impacts from major to moderate. Given that the text itself indicates the compensation scheme "could mitigate 'indefinite' impacts," it is not guaranteed that income losses would be mitigated as proposed. Therefore, the original impact conclusions should remain as "minor to major." This is supported by conclusory text at the bottom of page 3.6.1-65.
Section 3.6.6: Navigation and Vessel Traffic		
3.6.6.1	616	Please use the more recent information available when evaluating fishing vessel traffic patterns using vessel monitoring system data. The DEIS notes the use of 2016 VMS data. Such data are outdated and do not fully reflect more recent data available from the NOAA Office of Law Enforcement. Further, as we recommend in our fisheries socioeconomic impact analysis information needs document, please use data for more than 1 year, as fishing regulations, market and fuel prices, and other factors alter vessel operational and transit patterns.
Section 3.6.7: Other Uses (Marine Minerals, Military Use, Aviation, Scientific Research and Surveys)		
3.6.7.9	356	Thank you for referencing the NOAA and BOEM Federal Survey Mitigation Program throughout this section. Please add that individual survey mitigation plans have not been developed and funding is not currently available to support survey mitigation plans to date.
Section 3.6.8: Recreation and Tourism		

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3.6.8	676	Please provide an up to date analysis based on Kirkpatrick's detailed methodology for recreational private angler exposure. The data reported in Kirkpatrick is outdated, but can be replicated with updated data. Data is publicly available through MRIP. See section 3.1.4.2 and 3.1.4.2 for methodologies. https://espis.boem.gov/final%20reports/5580.pdf
Section 4.1: Unavoidable Adverse Impacts of the Proposed Action		
4.1	724	In the first line of the text, the correct reference is 40 CFR 1502.16(a)(2).
Section 4.3: Relationship Between the Short-term Use of Man's Environment and the Maintenance and Enhancement of Long-term Productivity		
4.3	730	In the first line of the text, the correct reference is 40 CFR 1502.16(a)(2).
Appendix B: Supplemental Information and Additional Figures and Tables		
B.3	26	Please update the values in this table based on the draft 2020 NMFS SARs (Hayes et al., 2023), including NARW abundance.
Appendix D: Planned Activities Scenarios		
D	Global	NMFS has concerns about the structure, content, and usage of Appendix D. Please indicate whether the list of activities in Appendix D has been developed for this specific project, or if this same list of activities was developed and is being included for all OSW projects in the Atlantic, regardless of project location, scale, or project-specific details.
Attachment 1	138	Please remove the second sentence at the top of page D-33 that reads: "The content of these tables has been vetted by cooperating agencies to the EIS and therefore has been included in whole for their use in impact and cumulative analyses, and for ease in reference by the reader." This language suggests that the exact content of the tables that now appear in Appendix D were copied in their entirety from another document which had been "vetted" by the cooperating agencies at some point. NMFS, in its cooperating agency role, has not vetted the content of these tables. While NMFS has approved of tables that appeared in previous EISs and follow a similar approach and contain similar elements (i.e., South Fork Wind and Vineyard Wind), the content and variables of the tables in Appendix E are different than what was "vetted" by NMFS in those previous instances. NMFS has identified this issue in other recent reviews of offshore wind EISs from BOEM and maintain our concern regarding the use of this language.
Appendix F: USACE 404(b)(1) Analysis		
F	211-220	Throughout Appendix F on the pages indicated, in the headings, text, and tables, Alternative C is referred to as the "Habitat Minimization Alternative." The correct name is the "Habitat Impact Minimization Alternative" and this should be corrected throughout Appendix F.
Appendix G: Mitigation and Monitoring		
G	222	In the fourth paragraph, after the conclusion of the first sentence, please add the following sentence: "If a mitigation measure was analyzed in the impacts analysis for the selected alternative and that measure influenced the impact determination for a particular resource, that measure will be included as a term and condition." NMFS maintains its position that any mitigation and monitoring terms that influence the impact conclusions need to be committed measures or proposed as part of the action in order for the assumptions and conclusions of the analysis to be accurate. This issue has been identified and commented on in other offshore wind EISs in development.
G.1	235	It is not clear what "limit duration of pile driving activities" means. Please clarify how SouthCoast would limit duration of pile driving activities.

EIS Section	PDF Page	Comment
G.1	236	Please replace 'clearance zone' with 'shutdown zone' in the measure, "Mayflower Wind will employ shut-down procedure when protected species are detected in their respective clearance zones in the Project Area" here and throughout the document where appropriate.
G.1	236	Suggest replacing "does not intend" with "would not" in the following measures: "Mayflower Wind does not intend to conduct pile-driving activities from January 1 through April 30."
G.1	236	If a vessel is stationary, the vessel must not engage engines until the NARW has moved beyond 1,640 ft. (500 meters), not 100 m. Please revise.
G.1	237	In their MMPA ITA application, SouthCoast proposed that CTVs be exempt from the 10-knot speed restriction in a DMA, which does not align with the measure in Table G-1. Please clarify if BOEM is requiring all SouthCoast vessels, including CTVs, to travel at 10 knots or less in a DMA.
G.1	237	In the MMPA ITA application, SouthCoast proposed a measure stating: "The PSO team and the APSO team will each have a lead observer (Lead PSO and Lead APSO) with prior experience working as a PSO and/or APSO in the northwestern Atlantic Ocean on similar projects." Please consider adding that here.
G.1	261	When PSOs are monitoring at night, the use of night-vision goggles with thermal clip-ons and a hand-held spotlight is only sufficient during HRG surveys, given the very small Level B harassment zone. If this measure applies to nighttime pile driving, the technology included in this measure insufficient. Please clarify to which activity this measure applies.
G.1	262	Please clarify whether or not BOEM intends to allow nighttime pile driving.
G.1	263	Please clarify how SFV results would be used to estimate effects in a post-construction monitoring report.
G.1	263	"Because of the low probability of a long-term exposure event and for practical implementation reasons...." does not seem like a necessary justification for the zone sizes. Please provide adequate justification for the zone sizes proposed.
G.1	263	Please consult the MMPA ITA application for the actual proposed clearance and shutdown zone sizes. There is a considerable disparity between the sizes included here and the application, which were based on modeling results.
G.1	264	Pile driving would be shut down when a marine mammal enters the 'shutdown zone,' not 'clearance zone.' Please correct the terminology here.
G.2	270	Please clarify how measure NS-1 differs from the applicant proposed measure: "To minimize potential impacts on zooplankton from impingement and entrainment, the northernmost HVDC converter OSP will be located outside of a 10 kilometer buffer of the 30-meter isobath from Nantucket Shoals."
G.2	270	Please clarify if measure NS-3 is suggesting that PAM detections would be shared with NMFS in near real time. If that is not the case, then please revise the sentence for clarity.
G.2	271	Please revise measure NS-3 to correctly state that NARW occurrence around Nantucket Shoals is highest in winter and spring.
G.2	291	Measure BA-15 states that pile driving can only commence 1 hour after civil sunrise and may not be initiated later than 1.5 hrs. prior to sunset. In addition, the measure states that: "Pile driving may continue after dark only when the installation of the same pile began during daylight (1.5 hours before (civil) sunset), when clearance zones were fully visible for at least 30 minutes, and must proceed for human safety or installation feasibility reasons." This is inconsistent with previous measures that address monitoring during nighttime pile driving. BOEM's position on nighttime pile driving is unclear; please specify whether or not

EIS Section	PDF Page	Comment
		BOEM is authorizing nighttime pile driving and present mitigation and monitoring measures that are consistent with BOEM's determination.
G.2	294	Please verify that BOEM would require submission of the SFV and PDM plans 90 days prior to start of pile-driving activities. It is NMFS' understanding that these plans must be submitted 180 days prior to the start of pile driving.
G.2	297	Any reduction in the size of the clearance and shutdown zones for each foundation type must be based on at least 3 measurements submitted to BOEM and NMFS for review. Please add "and NMFS" to this measure.
G.2	299	Please consider requiring that PAM operators must review detections to verify if a NARW has been detected within 5 minutes rather than 15 minutes. If a NARW is detected within the shutdown zone, an additional 10 minute delay in shutdown would lead to increased exposure time of NARWs to pile driving noise.
Appendix J: References Sited		
J.1	477	There are references cited in the Executive Summary. Please add a new section J.1.1 for the Executive Summary and renumber the other sections.

Attachment B – North Atlantic Right Whale Habitat Use Data

As part of our negligible impact determination analyses, NMFS Office of Protected Resources evaluated North Atlantic right whale (NARW) densities (Roberts and Halpin 2022) and Dynamic Management Area (DMA) data to assess the potential impacts on NARWs from pile driving during the SouthCoast project. Using the complement of both datasets allowed us assess both NARW presence and infer behavioral state (e.g., foraging,). We suggest that, when developing proposed time/area closures, BOEM utilize additional data (e.g., DMA or sightings data) beyond density to better define how NARWs are utilizing Southern New England and the SouthCoast Wind project area (i.e., what they are doing while they are there). This approach should be taken for all offshore wind projects in Southern New England.

Density

- We mapped the vibratory ensonified zone (for summer) assuming 1) full buildout (i.e., the entire lease area), 2) a 10-km setback from the 30-m isobath, and 3) a 20-km setback from the 30-m isobath (Figure 1)¹. These latter two setback distances align with an alternative recommended by NMFS and an alternative considered by BOEM staff to reduce potential effects to NARW.
- We calculated monthly (May-Dec) average NARW densities in the impact and vibratory pile driving ensonified zones assuming full build out, which demonstrate that NARW density remains high in May and December (Figure 2).

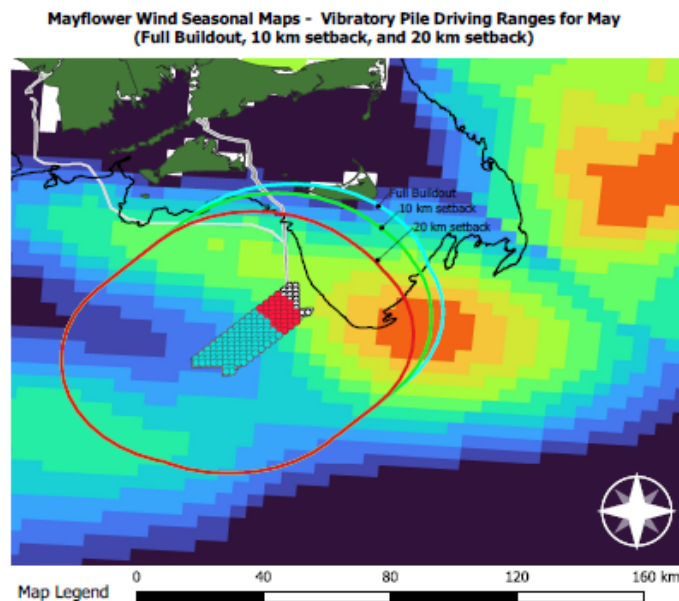


Figure 1. Density map for May with vibratory pile driving ensonified area overlaid for 1) full buildout (aqua), 1) 10-km setback (green), and 3) 20-km setback (red). The white WTG locations align with the 10-km setback. The red and white positions combined align with the 20-km setback.

¹ The difference in the area (km^2) between full build out and the 10-km setback is less than the difference in area (km^2) between the 10-km and 20-km set back due to the configuration of WTG positions on the northeast edge of the lease area, as shown in Figure 1 (i.e., the blue and green lines are closer together than the green and red lines).

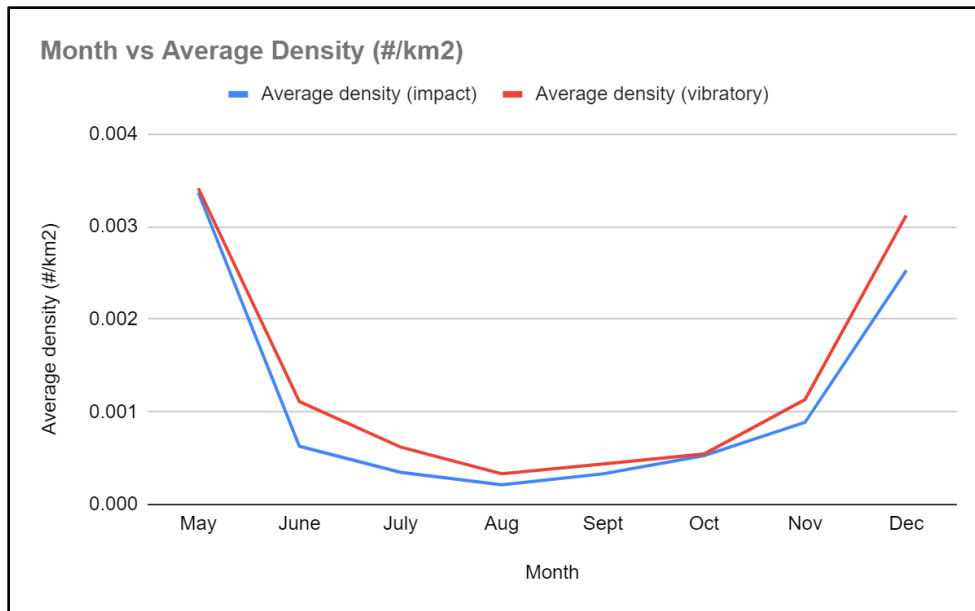


Figure 2. Average densities within impact (blue line) and vibratory (red line) ensonified zones for full buildout (impact: 7.4 km summer; 8.6 km winter (Dec); vibratory pile driving: 42 km summer; 84.6 km winter (Dec))

Dynamic Management Area (DMA) Sighting Data

- To assess behavior within the project area, specifically foraging, we selected DMA sighting data where the DMA area overlaps with the project area that includes the lease area and extends 42-km from the edge of the lease area (representing the summer ensonified distance). We used the 2017-2022 data set, which identifies date of sighting, location, and the number of whales in the sighting that triggered each DMA (Figure 3).
- DMAs in the project area have been established in every month of the year for the past 5 years (although not every month in every year) (Figure 3).
 - A DMA is triggered when 3 or more whales are observed, and this clustering of whales can be inferred as a proxy for foraging (Clapham and Pace 2001).
- Figure 3 and Table 1 provide information about the number of days on which sightings occurred and the number of animals that triggered each DMA in the analyses described above. We analyzed these data to determine which months had the highest and lowest number of days with sightings of three or more whales, and to evaluate the associated group sizes for those sightings (recognizing that three is the minimum reported, since that is what triggers a DMA).
- Although densities are lower in late summer/early fall (Figure 2), the number of days on which three or more whales were sighted, and the number of animals sighted were higher in August through November, and DMAs were recently in place for the entire months of August and September 2019; September, October, and November 2020 and 2021; and September 2022.

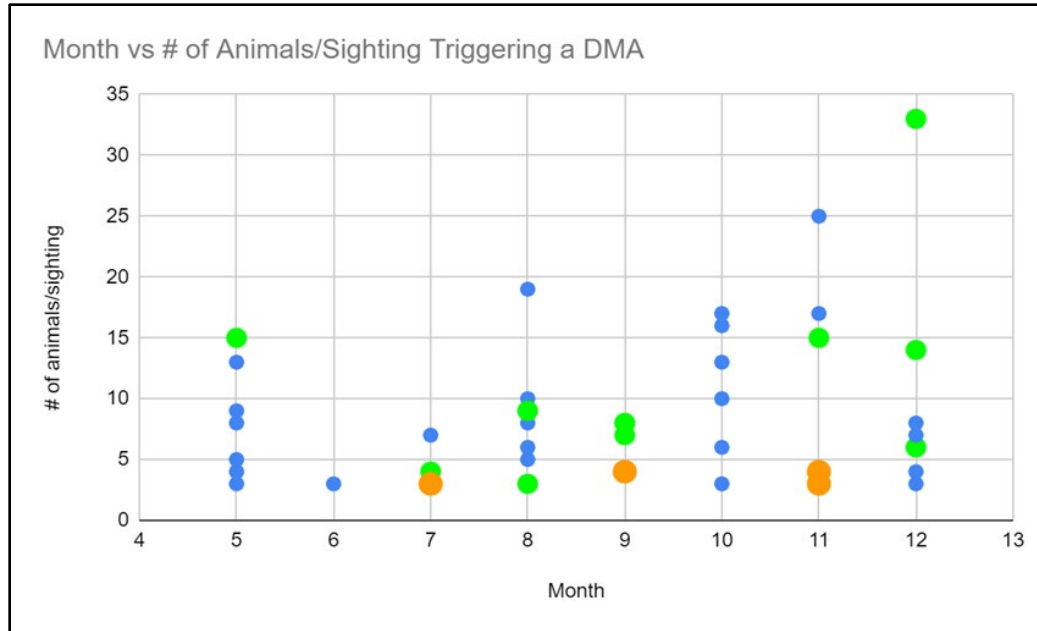


Figure 3. Number of animals/sighting per month (e.g., 5 = May, 6 = June, etc.) triggering a DMA in the SouthCoast Wind Project area (2017-2022). (Note that there were multiple sightings across years of the same number of animals: blue = 1 sighting; green = 2 sightings; orange = 3 sightings). Figure is not corrected for effort (effort is unknown). Note that because this is DMA data, the number of animals/sighting is never less than 3.

Table 1. Number of animals and sightings by month (May-Dec) and year (2017-2022), based on DMA data.

Month	2017		2018		2019		2020		2021		2022		AVERAGE		TOTAL	
	# animals	# sightings	# animals	# sightings	# animals	# sightings	# animals	# sightings	# animals	# sightings	# animals	# sightings	# animals	# sightings	Total animals	Total sightings
May	8	1	0	0	64	7	0	0	0	0	0	0	12.0	1.3	72	8
June	3	1	0	0	0	0	0	0	0	0	0	0	0.5	0.2	3	1
July	10	3	4	1	10	2	0	0	0	0	0	0	4.0	1.0	24	6
Aug	0	0	0	0	38	3	6	1	17	4	9	1	11.7	1.5	70	9
Sept	0	0	0	0	7	1	11	2	16	2	8	2	7.0	1.2	42	7
Oct	0	0	0	0	0	0	24	2	46	3	10	1	13.3	1.0	80	6
Nov	0	0	21	2	28	2	12	3	30	2	3	1	15.7	1.7	94	10
Dec	0	0	79	4	22	2	4	1	0	0	3	1	18.0	1.3	108	8