



Public Environmental  
Mitigation Plan

# **Environmental Mitigation Plan for Sunrise Wind 2**

**Version 1.0**

**Prepared pursuant to [contract number, date (TBD)]**

**with**

**New York State Energy Research and Development Authority**

Albany, NY

**Prepared by**

**Bay State Wind LLC**

437 Madison Avenue, Suite 1903

New York NY 10022

**Sunrise  
Wind**

Powered by  
Ørsted &  
Eversource

**October 20, 2020**

## Record of Revision

<b>Revision Date</b>	<b>Description of changes</b>	<b>Revision on pages</b>
[date]	[Original issue]	[page(s)]

Communication Officers, Contact Information, Links		
Name/Title	Role	Contact Information

**Links to project information:**

Project website: <https://us.orsted.com/Wind-Projects>

# Table of Contents

1	Environmental Mitigation Plan Summary.....	1
1.1.	Overall philosophy and principles.....	1
1.2.	Overall approach to incorporating data and stakeholder feedback.....	1
1.3.	Existing guidance and best practices that will be followed .....	2
2	Communications and Collaboration Approach.....	7
2.1.	Overview and communication plan objectives.....	7
2.2.	Communication officers/positions, responsibilities, and contact information .....	7
2.3.	Identification of stakeholders .....	8
2.4.	Participation in stakeholder and technical working groups .....	9
2.5.	Communication methods and tools by phase .....	10
3	Supporting Other Research.....	11
3.1.	Support of collaborative research .....	11
3.2.	Handing/processing requests .....	11
3.3.	Data availability.....	11
3.4.	Proposed restrictions .....	12
3.5.	Financial commitment for third party research.....	12
3.6.	Proposed or existing commitments/collaborations .....	12
4	Proposed Mitigation of Impacts to Marine Mammals and Sea Turtles.....	14
4.1.	Baseline characterization.....	14
4.1.1.	Available information.....	14
4.1.2.	Data being collected .....	18
4.2.	Species at risk.....	19
4.3.	Potential impacts and mitigation measures by phase.....	20
4.4.	Monitor for potential impacts during each phase.....	23
4.5.	Strategies for developing alternate protocols .....	24
5	Proposed Mitigation of Impacts to Birds and Bats .....	26
5.1.	Baseline characterization.....	26
5.2.	Species at risk.....	29
5.3.	Potential impacts/risks and mitigation measures by project stage.....	30
5.4.	Monitor for impacts during each phase .....	33
5.5.	Strategies for developing alternate protocols .....	34
6	Proposed Mitigation of Impacts to Fish, Invertebrates and their Habitats .....	35
6.1.	Baseline characterization.....	35

6.1.1	Available information.....	35
6.1.2	Data being collected .....	40
6.2.	Species at risk.....	42
6.3.	Potential impacts/risks and mitigation measures by project stage.....	43
6.4.	Monitor for impacts during each phase .....	44
6.4.1	Pre/Post monitoring to assess and quantify changes.....	45
6.4.2	Addressing data gaps .....	46
6.5.	Strategies for developing alternate protocols .....	46
7.	Project Decommissioning .....	47
7.1.	Potential impacts on marine wildlife, birds, bats, and fisheries.....	47
7.2.	Approach for decommissioning plan and coordination with stakeholders.....	47
8.	Additional Considerations.....	48
8.1.	Additional mitigation strategies and EMP refinement .....	48
8.2.	Process for updating the EMP.....	48

## 1. Environmental Mitigation Plan Summary

### 1.1. Overall philosophy and principles

*This section should describe the overall philosophy and principles the Developer will follow to avoid, minimize, restore, and off-set potential environmental impacts.*

- The developer is a joint venture between Ørsted and Eversource. Ørsted has a vision of a world that runs entirely on green energy. As one of the world's largest green energy developers, sustainability is deeply rooted in what Ørsted does and its identity as a company. As part of its overall philosophy, Ørsted has built our sustainability targets around the UN's Sustainable Development Goals and assisted with writing the UN Sustainable Ocean Global Principles. Our annual Sustainability report can be found here - [https://orsted.com/-/media/annual2019/Sustainability\\_report\\_2019\\_online-readable-version.pdf](https://orsted.com/-/media/annual2019/Sustainability_report_2019_online-readable-version.pdf)
- All energy infrastructure is built in a unique environment where we aim to do our utmost to protect the natural ecosystems. It is central that we manage environmental impacts on these ecosystems well to acquire permission to build wind farms. In 2018, our organization adopted a new offshore wind biodiversity policy - (<https://orstedcdn.azureedge.net/-/media/WWW/Docs/Corp/COM/Sustainability/Orsted-Offshore-Wind-Biodiversity-Policy.ashx?la=en&rev=be32532eb16a4b20b1f86eed77050e92&hash=D309C9DA9A633E1C47D168ACBD254797>).
- The policy is built on our organization's long-term experience and understanding of the biodiversity challenges of building offshore wind farms.



### 1.2. Overall approach to incorporating data and stakeholder feedback

*This section should describe how the Developer will use research, data, and stakeholder feedback*

*to update the EMP and support decision-making throughout the life cycle of the project (preconstruction, surveys, site design, construction, operations, and decommissioning).*

- The developer shall seek consultation and coordinate with relevant stakeholders.
- The developer shall review existing research and data and seek input from stakeholders regarding data gaps to inform decisions made throughout the Project life cycle.
- The developer shall review and seek input from stakeholders on proposed and conducted survey rationales and methodologies as well as design, construction and operation, and decommissioning plans for the Project.
- To the extent that the timeline allows, pre- and post-construction monitoring shall be designed to improve the understanding of impacts of offshore wind energy development and operations on wildlife.

[REDACTED]

**1.3. Existing guidance and best practices that will be followed**

*This section should present a list of existing guidance documents, publications, tools, and/or plans that will be followed to support the EMP. Include links, if available, for all references.*

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[Redacted text block containing multiple paragraphs of blacked-out content]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]



[Redacted text block containing multiple lines of blacked-out content]

## 2. Communications and Collaboration Approach

### 2.1. Overview and communication plan objectives

*This section should provide an overview of the communication plan and objectives and its importance in environmental mitigation.*

- The developer shall seek methods and processes to allow for a two-way flow of information between key stakeholders and developers, specifically highlighting how the developer uses this feedback to inform their decision making.
- The developer shall provide updates to environmental stakeholders in an appropriate manner that would be easily accessed and widely distributed.



### 2.2. Communication officers/positions, responsibilities, and contact information

*This section will provide a list of communication officers, their role, and name and contact information. The list should provide stakeholders with an understanding of who should be called for a particular issue or question. It will also include links to the project website so readers know where to find additional information.*

Name/Title	Role/Responsibilities	Contact Information
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

Name/Title	Role/Responsibilities	Contact Information
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

Project website: <https://us.orsted.com/Wind-projects>

### 2.3. Identification of stakeholders

*This section should describe the process by which stakeholders relevant to environmental issues will be identified and classified by stakeholder group.*

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted]

**2.4. Participation in stakeholder and technical working groups**

**2.4.1. Communication with E-TWG**

*This should describe the communication and collaboration approach with members of the E-TWG and consultations.*

- The developer shall coordinate with the E-TWG (in accordance with Section 12.04 of the Agreement) and stakeholders to address concerns and mitigate impacts to the wildlife and environmental resources.
- The developer shall dedicate Project-specific technical resources to the E-TWG.
- To the extent practicable, the developer shall work with the E-TWG and shall attend E-TWG meetings and workshops.

[Redacted]

**2.4.2. Communication with other New York State agencies**

*This should describe communication with New York State agencies during each phase of the project.*

[Redacted]

**2.4.3. Communication with other stakeholder and working groups**

*This should describe any relevant participation with other stakeholder groups that would help inform the EMP.*



**2.5. Communication methods and tools by phase**

*This section should describe the communication and outreach methods and tools that will be employed for each stakeholder group during each phase of the project.*

- The developer will continually refine its Community Outreach Plan during each phase of the Project, subject to applicable permitting requirements.

Proposed Outreach Method/Tools	Phase*			
	1	2	3	4
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
*Phase: 1: Survey/Design; 2: Construction; 3: Operation; 4: Decommission				



### 3. Supporting Other Research

#### 3.1. Support of collaborative research

*This section should describe how opportunities for developing or investing in collaborative research with the environmental community to collect ecological data will be identified and undertaken. The description must account for the need to coordinate with members of the E-TWG during data gathering and assessment.*

[REDACTED]

#### 3.2. Handing/processing requests

*This section should describe how requests for coordination with third-party supported scientists will be processed - including providing reasonably-requested Project data and access to the Project area for independent scientists examining environmental sensitivities and/or the impacts of offshore wind energy development on the environment for the purpose of publication in peer-reviewed journals.*

[REDACTED]

#### 3.3. Data availability

*This section should describe how data will be made available in accordance with Section 2.2.6 of the RFP*

[REDACTED]

[REDACTED]

**3.4. Proposed restrictions**

*This section should describe any restrictions on data provision or access that may be required to protect trade secrets or maintain site security.*

- The developer shall seek to explain why identified data types are considered commercially sensitive.

[REDACTED]

**3.5. Financial commitment for third party research**

*This section should provide a level of financial commitment, if elected, that will be appropriated to leverage third-party environmental research funding, including federal or State-supported research. Or, if elected, provide the level of commitment to a general fund for supporting third-party research into potential environmental effects of offshore wind energy development.*

[REDACTED]

**3.6. Proposed or existing commitments/collaborations**

*This section should describe proposed or existing commitments and collaborations with third-party researchers in support of monitoring activities and assessing impacts.*

[REDACTED]

[REDACTED]

## 4. Proposed Mitigation of Impacts to Marine Mammals and Sea Turtles

### 4.1. Baseline characterization

#### 4.1.1. Available information

*Describe existing key literature and datasets that are available for baseline characterization.*

- Studies available to assess the baseline characteristics for marine mammals and sea turtles potentially occurring within the Project area include, but are not limited to, the following documents:
  - NYSERDA and/or NYSDEC studies on marine wildlife and whales, including:
    - New York State Department of Environmental Conservation (NYSDEC). 2015. List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State.
      - <https://www.dec.ny.gov/animals/7494.html>
    - New York State Department of Environmental Conservation (NYSDEC). 2020. Seagrass Management.
      - <https://www.dec.ny.gov/lands/110813.html>
    - New York State Energy Research and Development Authority (NYSERDA). 2017. Offshore Wind Master Plan.
      - <https://www.nyserdera.ny.gov/All%20Programs/Programs/Offshore%20Wind/About%20Offshore%20Wind/Master%20Plan>
    - New York Bight Whale Monitoring Program Aerial Survey (NYSDEC 2020)
      - <https://www.dec.ny.gov/lands/113818.html#Methods>
    - Normandeau and APEM 2019. Digital Aerial Baseline Survey of Marine Wildlife in Support of Offshore Wind Energy. Second Annual Report Summer 2016 – Spring 2018 Fourth Interim Report.
      - [https://remote.normandeau.com/docs/NYSERDA\\_2016-2018\\_4th\\_Semi-Annual\\_report.pdf](https://remote.normandeau.com/docs/NYSERDA_2016-2018_4th_Semi-Annual_report.pdf)
    - Normandeau and APEM 2019. Digital Aerial Baseline Survey of Marine Wildlife in Support of Offshore Wind Energy, Summer 2018 Taxonomic Analysis Summary Report.
      - [https://remote.normandeau.com/docs/NYSERDA\\_Summer\\_2018\\_Taxonomic\\_Analysis\\_Summary\\_Report.pdf](https://remote.normandeau.com/docs/NYSERDA_Summer_2018_Taxonomic_Analysis_Summary_Report.pdf)
    - Normandeau and APEM 2019. Digital Aerial Baseline Survey of Marine Wildlife in Support of Offshore Wind Energy, Fall 2018 Taxonomic Analysis Summary Report.
      - [https://remote.normandeau.com/docs/NYSERDA\\_Fall\\_2018\\_Taxonomic\\_Analysis\\_Summary\\_Report.pdf](https://remote.normandeau.com/docs/NYSERDA_Fall_2018_Taxonomic_Analysis_Summary_Report.pdf)
    - Normandeau and APEM 2019. Digital Aerial Baseline Survey of Marine Wildlife in Support of Offshore Wind Energy.
      - [https://remote.normandeau.com/docs/NYSERDA\\_Spring\\_2019\\_Taxonomic\\_Analysis\\_Summary\\_Report.pdf](https://remote.normandeau.com/docs/NYSERDA_Spring_2019_Taxonomic_Analysis_Summary_Report.pdf)

- Normandeau and APEM. 2020. Digital Aerial Baseline Survey of Marine Wildlife in Support of Offshore Wind Energy Winter 2018-2019 Taxonomic Analysis Summary Report.
- [https://remote.normandeau.com/docs/NYSERDA\\_Winter\\_2018\\_19\\_Taxonomic\\_Analysis\\_Summary\\_Report.pdf](https://remote.normandeau.com/docs/NYSERDA_Winter_2018_19_Taxonomic_Analysis_Summary_Report.pdf)
- BOEM studies on whales, sea turtles, and marine species, including:
- Bureau of Ocean Energy Management (BOEM). 2013. Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Rhode Island and Massachusetts, Revised Environmental Assessment. Office of Renewable Energy Programs. OCSEIS/EA. BOEM 2013-1131.
- Bureau of Ocean Energy Management (BOEM). 2014. Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts, Revised Environmental Assessment. OCS EIS/EA, BOEM 2014-603.
- Bureau of Ocean Energy Management. 2018. Summary Report: Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species (2017). Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management, Atlantic OCS Region, Washington, D.C. OCS Study BOEM 2018-015.
- <https://www.boem.gov/sites/default/files/renewable-energy-program/Final-Summary-Report-for-BMP-Workshop-BOEM-2018-015-%281%29.pdf>
- Bureau of Ocean Energy Management (BOEM). 2019. Guidelines for Providing Information on Marine Mammals and Sea Turtles for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585.
- <https://www.boem.gov/sites/default/files/renewable-energy-program/Regulatory-Information/BOEM-Marine-Mammals-and-Sea-Turtles-Guidelines.pdf>
- Bureau of Ocean Energy Management (BOEM). 2019. Vineyard Wind Offshore Wind Energy Project Biological Assessment. December 2018 (Revised March 2019) For the National Marine Fisheries Service.
- <https://www.boem.gov/sites/default/files/documents/renewableenergy/NMFS-BA-Supplemental-info.pdf>
- Bureau of Ocean Energy Management (BOEM). 2020. Vineyard Wind 1 Offshore Wind Energy Project Supplement to the Draft Environmental Impact Statement. OCS EIS/EA BOEM 2020-025.
- <https://www.boem.gov/sites/default/files/documents/renewableenergy/Vineyard-Wind-1-Supplement-to-EIS.pdf>
- NOAA studies on marine mammals and marine turtles, including:
- NOAA Fisheries 2017. 2017 Annual Report of a Comprehensive Assessment of Marine Mammal, Marine Turtle, and Seabird Abundance and Spatial Distribution in U.S. waters of the Western North Atlantic Ocean – AMAPPS II.
- [https://www.nefsc.noaa.gov/psb/AMAPPS/docs/AMAPPS%202017%20annual%20report\\_final.pdf](https://www.nefsc.noaa.gov/psb/AMAPPS/docs/AMAPPS%202017%20annual%20report_final.pdf)

- NOAA Fisheries. 2020. Office of Protected Resources, Marine Mammal Stock Assessment Reports. (SARs) by Species/Stock.
- <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-species-stock>.
- National Oceanic Atmospheric Administration (NOAA) Fisheries. 2020. The Greater Atlantic Region ESA Section 7 Mapper.
- <https://www.fisheries.noaa.gov/resource/map/greateratlantic-region-esa-section-7-mapper>.
- National Oceanic Atmospheric Administration (NOAA) Fisheries. n.d.[a]. ESA Threatened and Endangered Species Directory.
- [https://www.fisheries.noaa.gov/speciesdirectory/threatenedendangered?title=&species\\_category=1000000031&species\\_status=any&regions=1000001111&items\\_per\\_page=25&sort=](https://www.fisheries.noaa.gov/speciesdirectory/threatenedendangered?title=&species_category=1000000031&species_status=any&regions=1000001111&items_per_page=25&sort=)
- Atlantic Marine Conservation Society (AMCS). 2020. AMSEAS Responds to Three Whales in Two Days.
- <https://www.amseas.org/source-blog-2/2020/7/20/amseas-responds-tothree-whales-in-two-days>.
- Baumgartner, M. F., Bonnell, J., Van Parijs, S. M., Corkeron, P.J., Hotchkin, C., Ball, K., Pelletier, L-P., Partan, J., Peters, D., Kemp, J., Pietro, J., Newhall, K., Stokes, A., Cole, T. V. N., Quintana, E., & Kraus, S. D. 2019. Persistent near real-time passive acoustic monitoring for baleen whales from a moored buoy: system description and evaluation. *Methods in Ecology and Evolution*.  
<https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/2041-210X.13244>.
  - Baumgartner, M. F., Bonnell, J., Corkeron, P. J., Van Parijs, S. M., Hotchkin, C., Hodges, B. A., Bort Thornton, J., Mensi, B. L., & Bruner, S. M. 2020. Slocum gliders provide accurate near real-time estimates of baleen whale presence from human-reviewed passive acoustic detection information. *Frontiers in Marine Science* 7:100.  
<https://www.frontiersin.org/articles/10.3389/fmars.2020.00100/full>.
  - Bellmann M. A., Brinkmann J., May A., Wendt T., Gerlach S. & Remmers P. (2020) Underwater noise during the impulse pile-driving procedure: Influencing factors on pile-driving noise and technical possibilities to comply with noise mitigation values. Supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (BMU)), FKZ UM16 881500. Commissioned and managed by the Federal Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt und Hydrographie (BSH)), Order No. 10036866. Edited by the itap GmbH.
  - CETAP (Cetacean and Turtle Assessment Program) (1982): A characterization of marine mammals and turtles in the mid- and north Atlantic areas of the U.S. outer continental shelf. Cetacean and Turtle Assessment Program, University of Rhode Island. Final Report #AA551-CT8-48 to the Bureau of Land Management, Washington, DC, 538 pp.

- Curtice C., Cleary J., Shumchenia E., Halpin P.N. 2019. Marine-life Data and Analysis Team (MDAT) technical report on the methods and development of marine-life data to support regional ocean planning and management. Prepared on behalf of the Marine-life Data and Analysis Team (MDAT).  
<http://seamap.env.duke.edu/models/mdat/MDAT-Technical-Report.pdf>.
- Kraus, S.D., S. Leiter, K. Stone, B. Wikgren, C. Mayo, P. Hughes, R.D. Kenney, C.W. Clark, A. N. Rice, B. Estabrook and J. Tielens. 2016. Northeast Large Pelagic Survey Collaborative Aerial and Acoustic Surveys for Large Whales and Sea Turtles. U.S. Department of the Interior, Bureau of Ocean Energy Management, Sterling, Virginia. OCS Study BOEM 2016-054. 117 pp. + appendices.  
<https://www.boem.gov/RI-MA-Whales-Turtles/>.
- Halpin, P.N., Read, A.J., Fujioka, E., Best., B.D., Donnelly, B., Hazen, L.J., Kot, C., Urian, K., LaBrecque, E., Dimatteo, A., Cleary, J., Good, C., Crowder, L.B., and Hyrenbach, K.D. 2009. OBIS-SEAMAP: The World Data Center for Marine Mammal, Sea Bird, and Sea Turtle Distributions. *Oceanography* 22(2):104–115, doi:10.5670/oceanog.2009.42.  
[http://www.tos.org/oceanography/assets/docs/22-2\\_halpin.pdf](http://www.tos.org/oceanography/assets/docs/22-2_halpin.pdf)
- Roberts, J. J., Best, B. D., Mannocci, L., Fujioka, E., Halpin, P. N., Palka, D. L., Garrison, L.P., Mullin, K. D., Cole, T. V. N., Khan, C. B., McLellan, W. A., Pabst, A., and Lockhart, G.G. 2016. Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico. *Scientific Reports* 6, 22615 (2016).  
<https://www.nature.com/articles/srep22615>
- Roberts J.J., L. Mannocci, and P.N. Halpin. 2016b. Final Project Report: Marine Species Density Data Gap Assessments and Update for the AFTT Study Area, 2015-2016 (Base Year). Document version 1.0. Report prepared for Naval Facilities Engineering Command, Atlantic by the Duke University Marine Geospatial Ecology Lab, Durham, NC.
- Roberts JJ, Mannocci L, Halpin PN (2017) Final Project Report: Marine Species Density Data Gap Assessments and Update for the AFTT Study Area, 2016-2017 (Opt. Year 1). Document version 1.4. Report prepared for Naval Facilities Engineering Command, Atlantic by the Duke University Marine Geospatial Ecology Lab, Durham, NC.  
[https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/April%202019/Duke%20Model%20Information/aftt\\_update\\_2016\\_2017\\_final\\_report\\_v1.4\\_excerpt.pdf](https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/April%202019/Duke%20Model%20Information/aftt_update_2016_2017_final_report_v1.4_excerpt.pdf)
- Roberts J.J., L. Mannocci, R.S. Schick, and P.N. Halpin. 2018. Final Project Report: Marine Species Density Data Gap Assessments and Update for the AFTT Study Area, 2017-2018 (Opt. Year 2). Document version 1.2. Report prepared for Naval Facilities Engineering Command, Atlantic by the Duke University Marine Geospatial Ecology Lab, Durham, NC.  
[http://seamap.env.duke.edu/resources/dsm/references/USECGOM/AFTT\\_Update\\_2017\\_2018\\_Final\\_Report\\_v1.2\\_excerpt.pdf](http://seamap.env.duke.edu/resources/dsm/references/USECGOM/AFTT_Update_2017_2018_Final_Report_v1.2_excerpt.pdf).
- Other state and regional studies on marine mammals and sea turtles.

[REDACTED]

[REDACTED]

Kenney R.D., and K.J. Vigness-Raposa. 2010. Marine Mammals and Sea Turtles of Narragansett Bay, Block Island Sound, Rhode Island Sound, and Nearby Waters: An Analysis of Existing Data for the Rhode Island Ocean Special Area Management Plan. University of Rhode Island. Ocean Special Area Management Plan Technical Report #10. pp 337.

- The developer will comply with BOEM’s site characterization requirements in 30 CFR § 585.626(3).

**4.1.2. Data being collected**

*Describe data collected, or will be collected, to support baseline characterization.*

- Observations of all right whales, and dead, entangled, or distressed marine mammals shall be communicated to federal authorities as soon as is practicable, and no later than 24 hours after occurrence.

[REDACTED]



[Redacted]

#### 4.2. Species at risk

*Describe which species the Developer believes to be of greatest concern and why.*

[Redacted]

[Redacted]

[Redacted]



#### **4.3. Potential impacts and mitigation measures by phase**

*The table below should list the potential impacts to marine mammals and sea turtles and proposed mitigation measures. To this end, a description of proposed measures to minimize the impacts of sound on marine mammals and sea turtles during all phases to of Project development should be included. In addition, provide a description of the anticipated pre- and post- construction survey techniques to establish an ecological baseline and changes to that baseline within the Project site; the minimum size of exclusion zone intended to be monitored during geophysical surveys and construction; planned approaches to understanding marine mammal and sea turtle presence and absence within the development site exclusion zone during site assessment and construction (e.g. a combination of visual monitoring by protected species observers and passive acoustic monitoring, the use of night vision and infra-red cameras during nighttime activities, etc.); proposed temporal constraints on construction activities and geophysical surveys with noise levels that could cause injury to or harassment of marine mammals (e.g., seasonal restrictions during periods of heightened vulnerability for priority species; commencing activities during daylight hours and good visibility conditions, dynamic adjustments following the detection of a marine mammal); and proposed equipment and technologies the Developer would use to reduce the amount of sound at the source, if any.*

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Underwater noise impacts from geophysical survey equipment	<ul style="list-style-type: none"> <li>Exclusion, clearance, and monitoring zones shall be maintained around noise-generating activities to help measure and mitigate potential noise-related effects on marine mammals.</li> <li>Monitoring during noise-generating activities shall be done through an integrated monitoring approach, including the use of PAM, NMFS-approved PSOs, and other proven technologies, as appropriate, to the extent practicable and in compliance with federal regulation</li> <li>Noise generating geophysical survey work shall not commence after dark or at other times of low visibility that would prevent sufficient monitoring of exclusion zones, to the extent compatible with practicability and worker safety</li> </ul>	X	X	X	
Underwater noise impacts from construction and installation activities	<ul style="list-style-type: none"> <li>The developer shall seek to use noise attenuation technologies to reduce sound from pile driving of foundations (if such methods are used).</li> <li>Monitoring during noise-generating activities shall be done through an integrated monitoring approach, including the use of PAM, NMFS- approved PSOs, and other proven technologies, as appropriate, to the extent practicable.</li> <li>The developer shall not commence impact pile driving for foundation installation during poor visibility conditions such as darkness, fog, and heavy rain, unless an alternative mitigation monitoring plan that does not rely on visual observation has been determined to be effective, to the extent compatible with practicability and worker safety.</li> </ul>		X		

[REDACTED]

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	[REDACTED]				
Vessel strikes on marine mammals	<ul style="list-style-type: none"> <li>The developer shall ensure that all vessel personnel are trained regarding animal identification and protocols when sightings occur.</li> <li>The developer shall provide reference materials on board all project vessels for identification of marine mammals and sea turtles.</li> </ul> [REDACTED]	X	X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Electromagnetic Fields (EMF), resulting in potential disturbance to marine mammals/sea turtles and/or their prey resource	<ul style="list-style-type: none"> <li>The developer shall use proper shielding to reduce EMF impacts.</li> <li>The developer shall conduct EMF modeling and assessments to identify potential mitigation requirements.</li> </ul>	X	X	X	

\*Phase: 1: Survey/Design; 2: Construction; 3: Operation; 4: Decommission

#### 4.4. Monitor for potential impacts during each phase

*Describe how potential impacts will be monitored on marine mammals and sea turtles during each phase of physical work for the Project (site assessment, construction, operation, and decommissioning) to inform mitigation planning for later phases of the Project as well as for future Projects.*

- The developer shall seek to collaborate with other regulatory agencies and stakeholder groups to identify research needs and opportunities.

##### 4.4.1. Assess and quantify changes

*Describe how changes to environmental resources will be quantified using statistically sound methods.*

- Ideally, specific questions and focal taxa for monitoring shall be chosen for the Project either based on site-specific marine mammals risk assessments, or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species.
- Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively analyze risk prior to construction and evaluate impacts during construction

and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis.

- Outside expertise will, if practicable, be consulted during study design and data analysis processes.

[REDACTED]

#### 4.4.2. Address data gaps

*Describe how data gaps will be addressed.*

- The developer shall work with stakeholders, including regulatory agencies and local groups, in the design phase of the Selected Project to identify data gaps to be addressed through surveys or permitting applications.

[REDACTED]

#### 4.5. Strategies for developing alternate protocols

*Describe the process for determining when mitigation strategies are insufficient and under what conditions they might elect to rehabilitate or restore impacted marine mammals and sea turtles in an alternative location.*

- As necessary, the developer shall explore this further in consultation with the E-TWG, regulatory agencies and relevant stakeholders.

[REDACTED]



## 5. Proposed Mitigation of Impacts to Birds and Bats

### 5.1. Baseline characterization

*Describe how baseline data will be established on the presence of bird and bat assemblages, temporal and spatial use of the site by key species within the area of the proposed Project.*

#### 5.1.1. Available information

*Describe key existing literature and datasets that are available for baseline characterization.*

- Studies available to assess the baseline characteristics for birds and bats potentially occurring within the Project area include, but are not limited to, the following documents:

- NYSERDA and/or NYSDEC studies on marine wildlife and birds and bats;



NYSERDA. 2017. New York State Offshore Wind Master Plan: Birds and Bats Study. NYSERDA Report 17-25q.

- <https://www.nyserderda.ny.gov/All-Programs/Programs/Offshore-Wind/About-Offshore-Wind/Master-Plan>

NYSERDA. 2017. New York State Offshore Wind Master Plan: Cable Landfall Permitting Study. NYSERDA Report 17-25q.

- <https://www.nyserderda.ny.gov/All%20Programs/Programs/Offshore%20Wind/About%20Offshore%20Wind/Master%20Plan>

Normandeau and APEM. 2019. Remote Marine and Onshore Technology Digital Aerial Baseline Survey of Marine Wildlife in Support of Offshore Wind Energy. Prepared for New York State Energy Research and Development Authority.

- [https://remote.normandeau.com/portal\\_data.php?pj=6&public=1](https://remote.normandeau.com/portal_data.php?pj=6&public=1)

- BOEM and USFWS studies on marine species, seabirds, and bats;

Dowling, Z., P.R. Sievert, E. Baldwin, L. Johnson, S. von Oettingen, and J. Reichard. 2017. Flight Activity and Offshore Movements of Nano-Tagged Bats on Martha's Vineyard, MA. OCS Study BOEM 2017-054. U.S. Department of the Interior, Bureau of Ocean Energy Management, Sterling, VA. 39 pp.

Johnson, J.A., J. Storrer, K. Fahy, and B. Reitherman. 2011. Determining the Potential Effects of Artificial Lighting From Pacific Outer Continental Shelf (POCS) Region Oil and Gas Facilities on Migrating Birds. OCS Study BOEMRE2011-047. U.S. Department of the Interior, Bureau of Ocean Energy Management, Regulations and Enforcement, Camarillo, CA, 20+ pp.

- <https://wildlife.onlinelibrary.wiley.com/doi/abs/10.1002/jwmg.696>

Loring, P.H., J.D. McLaren, P.A. Smith, L.J. Niles, S L. Koch, H.F. Goyert, H. Bai. 2018.

Tracking movements of threatened migratory rufa Red Knots in U.S. Atlantic Outer



- Continental Shelf Waters. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2018-046. 145 p.
- Loring, P., P.W.C. Paton, J.D. McLaren, H. Bai, R. Janaswamy, H.F. Goyert, C R. Griffin, P.R. Sievert. 2019. Tracking Offshore Occurrence of Common Terns, Endangered Roseate Terns, and Threatened Piping Plovers with VHF Arrays. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2019-017. 140 p.
- Pelletier, S.K., K. Omland, K.S. Watrous, and T.S. Peterson. 2013. Information Synthesis on the Potential for Bat Interactions with Offshore Wind Facilities – Final Report. U.S. Dept of the Interior, Bureau of Ocean Energy Management, Headquarters, Herndon, VA. OCS Study BOEM 2013-01163. 119 pp.
- Spiegel, C.S., A.M. Berlin, A.T. Gilbert, C.O. Gray, W.A. Montevecchi, I.J. Stenhouse, S.L. Ford, G.H. Olsen, J.L. Fiely, L. Savoy, M.W. Goodale, and C.M. Burke. 2017. Determining Fine-scale Use and Movement Patterns of Diving Bird Species in Federal Waters of the Mid-Atlantic United States Using Satellite Telemetry. OCS Study BOEM 2017-069. U.S. Department of the Interior, Bureau of Ocean Energy Management, Sterling, VA.
- Veit, R.R., T.P. White, S.A. Perkins, S. Curley. 2016. Abundance and Distribution of Seabirds off Southeastern Massachusetts, 2011-2015. U.S. Department of the Interior, Bureau of Ocean Energy Management, Sterling, Virginia. OCS Study BOEM 2016-067. 82 pp.
- Curtice, C., J. Cleary, E. Shumchenia, and P.N. Halpin. 2019. Marine-life Data and Analysis Team (MDAT) technical report on the methods and development of marine-life data to support regional ocean planning and management.
    - [http://seamap.env.duke.edu/models/MDAT/MDAT-Technical-Report-v1\\_1.pdf](http://seamap.env.duke.edu/models/MDAT/MDAT-Technical-Report-v1_1.pdf)
  - Loring, P.H., P. Paton, J. Osenkowski, S. Gilliland, J. Savard, and S. McWilliams. 2014. Habitat use and selection of black scoters in southern New England and siting of offshore wind energy facilities. *The Journal of Wildlife Management*. Vol 78.4.
  - Paton, P., K. Winiarski, C. Trocki, and S. McWilliams. 2010. Spatial Distribution, Abundance, and Flight Ecology of Birds in Nearshore and Offshore Waters of Rhode Island. Interim Technical Report for the Rhode Island Ocean Special Area Management Plan 2010. June 17, 2010.
  - New York State Breeding Bird Atlas (NYS BBA). 2007. [Internet] 2000–2005. Release 1.0. Albany (New York): New York State Department of Environmental Conservation [updated June 11, 2007].
    - <http://www.dec.ny.gov/animals/7312.html>. Accessed April 14, 2020.
  - NPS. 2018b. Fire Island National Seashore Bat Population Monitoring and White-nose Syndrome. October 2018.
  - Winiarski, K, P. Paton, S. McWilliams, and D. Miller. 2012. Rhode Island Ocean Special Area Management Plan: Studies Investigating the Spatial Distribution and Abundance of Marine Birds in Nearshore and Offshore Waters of Rhode Island. Department of Natural Resources Science, University of Rhode Island. October 10, 2012.

- Published data of bats in offshore and nearshore environments:

Cryan, P.M. and A.C. Brown. 2007. Migration of bats past a remote island of fers clues toward the problem of bat fatalities at wind turbines. *Biological Conservation* 139:1-11

Hatch, S.K., E.E. Connelly, T.J. Divoll, I.J. Stenhouse, and K.A. Williams. 2013. Offshore observations of eastern red bats (*Lasiurus borealis*) in the Mid-Atlantic United States using multiple survey methods. *PLoS ONE* 8: e83803.

Sjollema, A.L., J. E. Gates, R.H. Hilderbrand, and J. Sherwell. 2014. Offshore activity of bats along the mid-Atlantic coast. *Northeastern Naturalist* 21: 154–163.

[REDACTED]

### 5.1.2. Data collected

*Describe data collected, or will be collected, to support baseline characterization.*

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

**5.2. Species at risk**

*Describe which species the Developer believes to be of greatest concern and why.*

[Redacted text block]

**5.3. Potential impacts/risks and mitigation measures by project stage**

*The table below should list the potential impacts and mitigation measures to understand and*

*minimize the Project’s risk to birds and bats. At a minimum this should include the steps the Developer will pursue to minimize risk to birds and bats (e.g. lighting), and identification of technological approaches to assess impacts or any Proposals for other research or mitigations relating to birds or bats planned or under consideration at this time.*

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Collision risk to birds and bats in the marine environment	<ul style="list-style-type: none"> <li>To avoid and minimize attraction- and disorientation-related impacts to birds and bats, artificial lighting on offshore wind projects shall be reduced to the extent practicable while maintaining human safety and compliance with FAA, USCG, BOEM and other regulations.</li> <li>Monitoring shall be conducted to determine if there is a need for perching-related deterrents to reduce attraction and minimize potential perching and loafing opportunities for birds.</li> <li>Physical deterrents to perching (e.g. such as spikes and netting or other best available technology) shall be implemented if there is demonstrated risk at the site (e.g., perching and roosting on infrastructure is a common occurrence) and to the extent that they do not represent a human safety hazard.</li> </ul>		X	X	
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				
	[REDACTED]				

[REDACTED]

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
[REDACTED]	[REDACTED]				
Habitat impacts, including breeding and nesting areas	<ul style="list-style-type: none"> <li>Siting and construction of nearshore and onshore project components for offshore wind farms (including but not limited to nearshore export cable routes, landfall sites, onshore cable routes, and onshore converter stations) shall be conducted in such a way as to avoid or minimize the loss or alteration of bird and bat habitat, as well as avoid or minimize disturbance and direct and indirect effects to bird and bat populations and their prey. Specifically, onshore infrastructure (i.e., landfall site, cable routes, substations) and development activities should 1) maximize the use of previously developed or disturbed areas, and 2) avoid unique or protected habitats, as well as habitat for key species, where feasible.</li> </ul> [REDACTED]		X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4

\*Phase: 1: Survey/Design; 2: Construction; 3: Operation; 4: Decommission

**5.4. Monitor for impacts during each phase**

*Describe how potential impacts will be monitored on birds and bats during each phase of physical work for the Project (site assessment, construction, operation, and decommissioning) to inform mitigation planning for later phases of the Project as well as for future Projects.*

**5.4.1 Pre/Post monitoring to assess and quantify changes**

*Describe how changes to environmental resources will be quantified using statistically sound methods.*

- Pre- and post-construction monitoring shall be designed in such a way that it improves understanding of the impacts of offshore wind energy development on birds and bats, including identifying specific questions and taxa on which to focus monitoring efforts for the proposed Project, or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species.
- Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively analyze risk prior to construction and evaluate impacts during construction and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis.
- Outside expertise will, if practicable, be consulted during study design and data analysis processes.



[Redacted text block]

**5.4.2 Address data gaps**

*Describe how data gaps will be addressed.*

- The developer shall work with stakeholders, including regulatory agencies and local groups, in the design phase of the Project to identify data gaps to be addressed through surveys or permitting applications.

[Redacted text block]

**5.5. Strategies for developing alternate protocols**

*Describe the process for determining when mitigation strategies are insufficient and under what conditions they might elect to rehabilitate or restore impacted birds and bats in an alternative location.*

- As necessary, the developer will explore this further in consultation with the E-TWG, regulatory agencies and relevant stakeholders.

[Redacted text block]



## 6. Proposed Mitigation of Impacts to Fish, Invertebrates and their Habitats

### 6.1. Baseline characterization

Describe what is known about the proposed site in terms fish and invertebrate assemblage, and temporal and spatial variations in fish, invertebrates and their habitats at the proposed site. The use of collaborative monitoring models with the fishing community is encouraged to develop trusted baseline data.

#### 6.1.1 Available information

Describe key existing literature and datasets that are available for baseline characterization.

- Studies available to assess the baseline characteristics for fish, invertebrates and their habitats occurring within the Project area include, but are not limited to, the following documents:
  - NYSERDA and/or NYSDEC studies on marine wildlife:

NYSERDA. 2017a. New York State Offshore Wind Master Plan: Fish and Fisheries Study. NYSERDA Report 17-25q.

    - <https://www.nyserdera.ny.gov/All-Programs/Programs/Offshore-Wind/About-Offshore-Wind/Master-Plan>
  - BOEM studies on marine habitats and lobsters and crabs:

Collie, J.S. and J.W. King. 2016. Spatial and Temporal Distributions of Lobsters and Crabs in the Rhode Island Massachusetts Wind Energy Area. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Atlantic OCS Region, Sterling, Virginia. OCS Study BOEM 2016-073.

Guida, V., A. Drohan, H. Welch, J. McHenry, D. Johnson, V. Kentner, J. Brink, D. Timmons, and E. Estela-Gomez. 2017. Habitat Mapping and Assessment of Northeast Wind Energy Areas. Sterling, VA: U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2017-088. 312 p.
  - NOAA and Northeast Fisheries Science Center studies and stock assessment reports, including:

Cargnelli, L.M., S.J. Griesbach, P.L. Berrien, W.W. Morse, and D.L. Johnson. 1999a. Essential fish habitat source document: Haddock, *Melanogrammus aeglefinus*, life history and habitat characteristics. NOAA Tech Memo NMFS-NE-128. 31 p.

Cargnelli, L.M., S.J. Griesbach, D.B. Packer, P.L. Berrien, D.L. Johnson, and W.W. Morse. 1999b. Essential Fish Habitat Source Document: Pollock, *Pollachius virens*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-131. 38 p.

Cargnelli, L.M., S.J. Griesbach, D.B. Packer, P.L. Berrien, W.W. Morse, and D.L. Johnson. 1999c. Essential Fish Habitat Source Document: Witch Flounder, *Glyptocephalus cynoglossus*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-139. 38 p.

- Cargnelli, L.M., S.J. Griesbach, D.B. Packer, and E. Weissberger. 1999d. NOAA Tech Memo NMFS-NE-142. 22 p.
- Cargnelli, L.M., S.J. Griesbach, D.B. Packer, and E. Weissberger. 1999e. Essential Fish Habitat Source Document: Ocean Quahog, *Arctica islandica*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-148. 20 p.
- National Oceanic and Atmospheric Administration (NOAA). 2009. Consolidated Atlantic Highly Migratory Species Fishery Management Plan, Amendment 1, Chapter 5.
- National Marine Fisheries Service (NOAA Fisheries). 2017. Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan: Essential Fish Habitat. Office of Sustainable Fisheries, Atlantic Highly Migratory Species Management Division. 442 p.
- [https://www.habitat.noaa.gov/application/efhinventory/docs/a10\\_hms\\_efh.pdf](https://www.habitat.noaa.gov/application/efhinventory/docs/a10_hms_efh.pdf)
- National Marine Fisheries Service (NOAA Fisheries). 2019. 2019 Stock Assessment and Fishery Evaluation Report for Atlantic Highly Migratory Species.
- <https://www.fisheries.noaa.gov/resource/document/2019-stock-assessment-and-fishery-evaluation-report-atlantic-highly-migratory>.
- National Marine Fisheries Service (NOAA Fisheries). 2020a. Essential Fish (EFH) Habitat Mapper.
- <https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper>.
- NOAA Fisheries. 2020. Species Directory.
- <https://www.fisheries.noaa.gov/species-directory>
- Northeast Fisheries Science Center (NEFSC). 2016. 61st Northeast Regional Stock Assessment Workshop (61st SAW) Assessment Summary Report. Northeast Fisheries Science Center Reference Document 16-13. 26 p.
- <https://www.nefsc.noaa.gov/publications/crd/crd1613/crd1613.pdf>
- Northeast Fisheries Science Center (NEFSC). 2017a. Operational Assessment of 19 Northeast Groundfish Stocks, Updated Through 2016. Northeast Fisheries Science Center Reference Document 17-17. 259 p.
- <https://www.nefsc.noaa.gov/publications/crd/crd1717/>.
- Northeast Fisheries Science Center (NEFSC). 2017b. 62nd Northeast Regional Stock Assessment Workshop (62nd SAW) Assessment Report. Northeast Fisheries Science Center Reference Document 17-03. 822 p.
- <https://www.nefsc.noaa.gov/publications/crd/crd1703/>.
- Northeast Fisheries Science Center (NEFSC). 2017c. Scup Stock Assessment Update for 2017.
- [https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/596fb26bc534a5fa937b2c07/1500492396171/5Scup\\_2017\\_Assessment\\_Update.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/596fb26bc534a5fa937b2c07/1500492396171/5Scup_2017_Assessment_Update.pdf).
- Northeast Fisheries Science Center (NEFSC). 2017d. 63rd Northeast Regional Stock Assessment Workshop (63rd SAW) Assessment Report. Northeast Fisheries Science Center Reference Document 17-10. 409 p.

- <https://www.nefsc.noaa.gov/publications/crd/crd1710/>  
Northeast Fisheries Science Center (NEFSC). 2018a. 65th Northeast Regional Stock Assessment Workshop (65th SAW) Assessment Summary Report. Northeast Fisheries Science Center Reference Document 18-08. 38 p.
- <https://www.nefsc.noaa.gov/publications/crd/crd1808/>  
Northeast Fisheries Science Center (NEFSC). 2018b. 64th Northeast Regional Stock Assessment Workshop(64th SAW) Assessment Summary Report. Northeast Fisheries Science Center Reference Document 18-03. 27 p.
- <https://www.nefsc.noaa.gov/publications>  
Northeast Fisheries Science Center (NEFSC). 2020. Operational assessment of the black sea bass, scup, bluefish, and monkfish stocks, updated through 2018. NEFSC Ref Doc 20-01; 160 p.
- <http://www.nefsc.noaa.gov/publications/>
- Additional state and region studies and other published data for the waters of the northeast Atlantic related to offshore wind development;
  - Atlantic States Marine Fisheries Commission (ASMFC). 2012. Habitat Addendum IV to Amendment 1 to the Interstate Fishery Management Plan for Atlantic Sturgeon.
    - [http://www.asmfc.org/uploads/file/sturgeonHabitatAddendumIV\\_Sept2012.pdf](http://www.asmfc.org/uploads/file/sturgeonHabitatAddendumIV_Sept2012.pdf)
  - Atlantic States Marine Fisheries Commission (ASMFC). 2017. 2017 Atlantic Sturgeon Benchmark Stock Assessment and Peer Review Report.
    - [http://www.asmfc.org/uploads/file//59f8d5ebAtlSturgeonBenchmarkStockAssmt\\_PeerReviewReport\\_2017.pdf](http://www.asmfc.org/uploads/file//59f8d5ebAtlSturgeonBenchmarkStockAssmt_PeerReviewReport_2017.pdf)
  - Atlantic States Marine Fisheries Commission (ASMFC). Species.
    - <http://www.asmfc.org/fisheries-management/program-overview>
  - Atlantic Sturgeon Status Review Team. 2007. Status Review of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*).
    - [https://www.nao.usace.army.mil/Portals/31/docs/civilworks/JamesRiver/NMFS\\_Atlantic\\_sturgeon\\_status\\_review\\_2007.pdf](https://www.nao.usace.army.mil/Portals/31/docs/civilworks/JamesRiver/NMFS_Atlantic_sturgeon_status_review_2007.pdf)
- Breece, M., Fox, D.A., Dunton, K.J., Frisk, M.G., Jordaan, A., and Oliver, M.J. 2016. Dynamic seascapes predict the marine occurrence of an endangered species. *Methods in Ecology and Evolution*.
- Collette, B.B. and G. Klein-MacPhee, ed. 2002. *Bigelow and Schroeder's Fishes of the Gulf of Maine*. 3rd Edition. Washington, DC: Smithsonian Institution Press.
- Dadswell, Michael. 2006. A Review of the Status of Atlantic Sturgeon in Canada, with Comparisons to Populations in the United States and Europe. *Fisheries*. 31. 218-229. 10.1577/1548-8446(2006)31[218:AROTSO]2.0.CO;2.
- Dimond J. and E. Carrington E. 2007. Temporal variation in the symbiosis and growth of the temperate scleractinian coral *Astrangia poculata*. *Mar Ecol Prog Ser* 348:161-172.
- Dunton, Keith J., Adrian Jordaan, Kim A. McKown, David O. Conover, and Michael G. Frisk. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus*)

- within the Northwest Atlantic Ocean, determined from five fishery-independent surveys. *Fishery Bulletin*, 108: 450-466.
- Dunton, K.J., Chapman, D., Jordaan, A., Feldheim, K., O'Leary, S.J., McKown, K.A., and Frisk, M.G. 2012. Genetic mixed-stock analysis of Atlantic Sturgeon *Acipenser oxyrinchus oxyrinchus* in a heavily exploited marine habitat indicates the need for routine genetic monitoring. *Journal of Fish Biology*, 80: 207-217.
- Dunton, Keith J., Adrian Jordaan, David O. Conover, Kim A. McKown, Lisa A. Bonacci, and Michael G. Frisk. 2015. Marine Distribution and Habitat Use of Atlantic Sturgeon in New York Lead to Fisheries Interactions and Bycatch, *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science*. 7:1, 18-32.
- Gotceitas, V. and J.A. Brown. 1993. Substrate selection by juvenile Atlantic cod (*Gadus morhua*): effects of predation risk. *Oecologia* 93: 31-37.
- Greene, J.K., Anderson, M.G., Odell, J., and Steinberg, N., eds. 2010. The Northwest Atlantic Marine Ecoregional Assessment: Species, Habitats and Ecosystems. Phase One. The Nature Conservancy, Eastern U.S. Division, Boston, MA.
- Griswold, C.A. and J. Prezioso. 1981. In-situ observations on reproductive behavior of the long-finned squid, *Loligo pealei*. *Fishery Bulletin* 78: 945–947.
- Ingram, E.C., Cerrato, R.M., Dunton, K.J., and Frisk, M.G. 2019. Endangered Atlantic Sturgeon in the New York wind energy area: implications of future development in an offshore wind energy site. *Scientific Reports, Nature Research*, 9:12432.
- International Commission for the Conservation of Atlantic Tunas (ICCAT). 2014. Report of the 2014 ICCAT East and West Atlantic Skipjack Stock Assessment Meeting.
- [https://www.iccat.int/Documents/Meetings/Docs/2014\\_SKJ\\_ASSESS\\_ENG.pdf](https://www.iccat.int/Documents/Meetings/Docs/2014_SKJ_ASSESS_ENG.pdf).
- International Commission for the Conservation of Atlantic Tunas (ICCAT). 2016a. Report of the 2016 ICCAT North and South Atlantic Albacore Stock Assessment Meeting.
- [https://www.iccat.int/Documents/Meetings/Docs/2016\\_ALB\\_REPORT\\_ENG.pdf](https://www.iccat.int/Documents/Meetings/Docs/2016_ALB_REPORT_ENG.pdf).
- International Commission for the Conservation of Atlantic Tunas (ICCAT). 2016b. Report of the 2016 ICCAT Yellowfin Tuna Stock Assessment Meeting.
- [https://www.iccat.int/Documents/SCRS/DetRep/YFT\\_SA\\_ENG.pdf](https://www.iccat.int/Documents/SCRS/DetRep/YFT_SA_ENG.pdf).
- International Commission for the Conservation of Atlantic Tunas (ICCAT). 2017. Report of the Standing Committee on Research and Statistics (SCRS).
- [https://www.iccat.int/Documents/Meetings/Docs/2017\\_SCRS\\_REP\\_ENG.pdf](https://www.iccat.int/Documents/Meetings/Docs/2017_SCRS_REP_ENG.pdf).
- [REDACTED]
- [REDACTED]
- [REDACTED]
- O'Hara, C.J. and R.N. Oldale. 1980. Maps showing geology and shallow structure of eastern Rhode Island Sound and Vineyard Sound, Massachusetts: U.S. Geological Survey Miscellaneous Field Studies Map MF-1186, 41 p.
- Mid-Atlantic Fishery Management Council (MAFMC). 1998. Amendment 12 to the Atlantic Surfclam and Ocean Quahog Fishery Management Plan. Mid-Atlantic Fishery Management Council in cooperation with the National Marine Fisheries Service, and the New England Fishery Management Council, October 1998.

- Mid-Atlantic Fishery Management Council (MAFMC). 1998a. Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP). Published in cooperation with National Marine Fisheries Services (NOAA Fisheries). 7 October 1998.
- Mid-Atlantic Fishery Management Council (MAFMC). 1998b. Amendment 1 to the Bluefish Fishery Management Plan, Mid-Atlantic Fishery Management Council Atlantic States Marine Fisheries Commission, in cooperation with the National Marine Fisheries Service, the New England Fishery Management Council, and the South Atlantic Fishery Management Council, October 1998.
- Mid-Atlantic Fishery Management Council (MAFMC). 1998c. Amendment 12 to the Atlantic Surfclam and Ocean Quahog Fishery Management Plan. Mid-Atlantic Fishery Management Council in cooperation with the National Marine Fisheries Service, and the New England Fishery Management Council, October 1998.
- Mid-Atlantic Fishery Management Council (MAFMC). 2011. Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan. Mid-Atlantic Fishery Management Council. May 2011.
- Mid-Atlantic Fishery Management Council (MAFMC). 2014. Amendment 3 to the Spiny Dogfish Fishery Management Plan, Includes Environmental Assessment (EA). Mid-Atlantic Fishery Management Council in cooperation with the National Marine Fisheries Service. May 27, 2014.
- Mid-Atlantic Fishery Management Council (MAFMC). 2016. Regional Use of the Habitat Area of Particular Concern (HAPC) Designation. May 2016.
- Mid-Atlantic Fishery Management Council and the National Marine Fisheries Service (NOAA Fisheries). 2018. Squid Amendment: Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan. 224 p.
- [https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5c113b1f70a6ad290cf75cfd/1544633161550/20181018\\_Squid-Amendment-Final+EA.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5c113b1f70a6ad290cf75cfd/1544633161550/20181018_Squid-Amendment-Final+EA.pdf)
- Rhode Island Coastal Resources Management Council (RI CRMC). 2010. Rhode Island Ocean Special Area Management Plan Adopted by the RI CRMC on October 19, 2010.
- <http://seagrant.gso.uri.edu/oceansamp/documents.html>
- Roper, C.F.E., M.J. Sweeney, and C.E. Nauen. 1984. FAO Species Catalogue, Vol. 3 Cephalopods of the world. An annotated and illustrated catalogue of species of interest to fisheries. FAO Fisheries Synopsis 125 (3):1–277.
- Scott, J.S. 1982. Selection of bottom type by groundfishes of the Scotian Shelf. Can. J. Fish. Aquat. Sci. 39: 943-947.
- South Atlantic Fishery Management Council. 2003. Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic Including a Final Environmental Impact Statement, Regulatory Impact Review, Initial Regulatory Flexibility Analysis, and Social Impact Assessment/Fishery Impact Statement.

Stokesbury, K.D.E. 2012. Report: SMAST video survey of Western portion of the offshore Windfarm area, School for Marine Science and Technology, Dartmouth.

Stokesbury, K.D.E. 2014. Final Report: SMAST video survey of Western portion of the offshore Windfarm area, School for Marine Science and Technology, Dartmouth.

Truesdale, C.L., Dalton, T.M., and McManus, C.M. 2019. Fishers' knowledge and perceptions of the emerging southern New England Jonah crab fishery. *North American Journal of Fisheries Management*, 39(5): 951-963.

USGS. 2020. usSEABED: Coastal and Marine Geology Program.

- <https://walrus.wr.usgs.gov/usseabed/> Accessed: 6/30/2020

[Redacted text block]

**6.1.2 Data being collected**

*Describe data collected, or will be collected, to support baseline characterization.*

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

**6.2. Species at risk**

*Describe which species the Developer believes to be of greatest concern and why.*

- [Redacted list item]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]



**6.3. Potential impacts/risks and mitigation measures by project stage**

The table below should list the potential impacts to fish, invertebrates, and their habitats and proposed mitigation measures. To this end, this section should describe how the Developers will minimize risk to fish, invertebrates and their habitats (e.g., foundation type, scour protection, cable shielding for electromagnetic fields, construction windows, siltation/turbidity controls, use of dynamic-positioning vessels and jet plow embedment).

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Micro-siting conflicts with habitats and fishery resources	<ul style="list-style-type: none"> <li>The developer shall seek input from regulatory authorities, the fishing industry, and maritime industry to locate foundation and cable routes in the least impactful manner that is practicable.</li> </ul>	X			
Temporary alteration of the seabed and localized increases in noise and turbidity	<ul style="list-style-type: none"> <li>The developer shall seek to use noise attenuation technologies to reduce sound from pile driving of foundations (if such methods are used).</li> </ul>	X	X	X	X
Long-term changes to seabed and habitat	<ul style="list-style-type: none"> <li>The developer shall, to the extent possible, avoid sensitive benthic habitats.</li> </ul>	X	X	X	X

[Redacted text block]

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	[Redacted]				
EMF Impacts	<ul style="list-style-type: none"> <li>The developer shall use proper shielding to reduce EMF.</li> <li>[Redacted]</li> </ul>		X	X	
Cable burial	<ul style="list-style-type: none"> <li>The developer shall bury export cables to an appropriate minimal depth to reduce exposure risk. If depth cannot be reached, the developer shall add protective materials over the cable.</li> <li>[Redacted]</li> </ul>		X	X	
[Redacted]	[Redacted]				

\*Phase: 1: Survey/Design; 2: Construction; 3: Operation; 4: Decommission

#### 6.4. Monitor for impacts during each phase

Describe how potential impacts will be monitored on these types of fish and invertebrates during each phase of physical work for the Project (site assessment, construction, operation, and decommissioning) to inform mitigation planning for later phases of the Project as well as for future Projects.

**6.4.1 Pre/Post monitoring to assess and quantify changes**

*Describe how changes to environmental resources will be quantified using statistically sound methods.*

- Ideally, specific questions and focal taxa shall be chosen for the Project either based on site-specific fisheries risk assessment, or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species.
- Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively analyze risk prior to construction and evaluate impacts during construction and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis.
- Outside expertise will, if practicable, be consulted during study design and data analysis processes.
- The developer shall seek to collaborate with other regulatory agencies and stakeholder groups to identify research needs and opportunities.



[REDACTED]

**6.4.2 Addressing data gaps**

*Describe how data gaps will be addressed.*

- The developer shall seek to work with stakeholders, including regulatory agencies, to identify data gaps to be addressed through surveys or permitting applications.

[REDACTED]

**6.5. Strategies for developing alternate protocols**

*Describe the process for determining when mitigation strategies are insufficient and under what conditions they might elect to rehabilitate or restore impacted fisheries in an alternative location or when the provision of compensation of some form may be appropriate.*

- As necessary, the developer shall explore this further in consultation with the E-TWG, regulatory agencies and relevant stakeholders.

[REDACTED]

## 7. Project Decommissioning

### 7.1. Potential impacts on marine wildlife, birds, bats, and fisheries

*This section should describe potential impacts to marine mammals, sea turtles, birds, bats, and fisheries and habitats from decommissioning the project, based on available information and relevant experience (if any).*

- The developer's waste handling processes during decommissioning shall focus on re-use or recycling, with disposal as the last option.
- The developer shall collaborate with regulatory authorities and key environmental stakeholder groups better understand the effects and potential impacts associated with decommissioning.
- In March 2017, Ørsted became the first developer to decommission an offshore wind project, the Vindeby Offshore Wind Farm near Lolland, Denmark (Vindeby Project).

### 7.2. Approach for decommissioning plan and coordination with stakeholders

*This section should describe how a decommissioning plan will be developed to identify and mitigate potential impacts, including coordination with stakeholders, and any elements of its contemplated decommissioning plan that can be identified at this stage.*

- The developer shall decommission the Selected Project in accordance with all necessary laws and regulations and generate a detailed Selected Project-specific decommissioning plan. The developer shall seek input on the detailed Selected Project-specific decommissioning plan from regulatory agencies, fisheries and marine stakeholders, and local communities.
- The developer shall use "lessons learned" from the construction and operations activities and apply them when appropriate to the decommissioning plan.

## 8. Additional Considerations

### 8.1. Additional mitigation strategies and EMP refinement

*This section should describe any additional mitigation strategies not otherwise described herein that would improve the Plan and reduce impacts on wildlife. In addition, describe how the EMP will be updated and refined based on additional information and stakeholder feedback.*

- The developer will support collaborative research on potential mitigation strategies and best management practices, with other developers, agencies and stakeholders.

[REDACTED]

### 8.2. Process for updating the EMP

*This section should describe how feedback from environmental stakeholders, E-TWG, and other agencies and working groups will be incorporated and updated in the EMP.*

[REDACTED]

- The developer expects that additional guidance and information will become available throughout the planning and regulatory process and as such will continue to consider its relevance to the EMP at the appropriate intervals.
- Updates to the EMP are intended to reflect the results of iterative exchanges with members of the E-TWG, F-TWG and relevant stakeholders.

[REDACTED]