THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114 ◦ (617) 626-1200

May 10, 2023

Megan Eakin
Permit Manager
Revolution Wind, LLC
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm (RWWF) - Bureau of Ocean Energy Management (BOEM) Action and U.S. Army Corps of Engineers USACE) Permit; Massachusetts. 15 C.F.R. Part 930, Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Subpart D – Consistency for Activities Requiring a Federal License or Permit

Dear Ms. Eakin:

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the proposed project to build, operate, and decommission a 704 to 880 MW offshore wind energy facility with 79 wind turbine locations for installation of up to 65 wind turbine generators (WTGs, turbines), submarine cables between the WTGs (inter-array cables), two offshore substations (OSS), all of which will be located within federal waters on the Outer Continental Shelf (OCS), specifically in BOEM Renewable Energy Lease Area OCS-A 0486 (Lease Area). The lease area is approximately 18 statute miles (mi) (15 nautical miles [nm]) southeast of Point Judith, Rhode Island, approximately 15 mi (13 nm) east of Block Island, Rhode Island, approximately 8.5 mi (7.5 nm) south of Nomans Land Island National Wildlife Refuge (uninhabited island), and between approximately 12 to 14 mi (10 to 12.5 nm) south/southwest of varying points of the Rhode Island and Massachusetts coastlines. RWWF also includes Operations & Maintenance facilities that will be located onshore at the Port of Davisville-Quonset Point in North Kingstown, Rhode Island, Setauket-East Setauket, New York, and the Port of Montauk in East Hampton, New York. Up to two Revolution Wind Export Cables (RWEC), co-located within a single corridor through both federal waters and state waters of Rhode Island, consisting of alternating current (AC) electric cables, will connect the RWWF to the existing mainland electric grid at the Davisville, Rhode Island substation in North Kingstown, Rhode Island. The RWEC includes both offshore and onshore segments. The submarine segment of the export cable is proposed to be buried beneath the seabed within both federal waters on the OCS and Rhode Island state waters.

To inform the federal consistency review, CZM reviewed the Construction and Operations Plan, Draft Environmental Impact Statement (DEIS), and the Preliminary Final Environmental Impact Statement (PFEIS) developed under the National Environmental Policy Act; and, under the Coastal Zone Management Act, the federal consistency certification, the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404/Section 10 permit application, and lease/easement/right-of-way application to BOEM under the Outer Continental Shelf Lands Act. Throughout the state and federal view process, CZM received the data and information necessary to make a consistency determination. As a designated cooperating agency, CZM will continue to review and comment on future BOEM submissions for the RWWF including the Final Environmental Impact Statement (FEIS), scheduled for release in June 2023.

In addition to the documents reviewed above, the RWWF fisheries impact analysis acknowledged the need for mitigation to impacted fishermen to meet the CZM's enforceable policy under Ports and Harbors Policy #4. Because CZM cannot require monetary compensation for mitigation as part of CZMA federal consistency CZM could not object for failure to pay a compensation amount or include a condition that an applicant must pay a compensation amount. However, CZM and Revolution Wind, LLC can mutually agree upon a monetary compensation package to meet the applicable enforceable policies. As a result of extensive mitigation negotiations conducted between CZM, the Massachusetts Division of Marine Fisheries, the EEA Fisheries Working Group on Offshore Wind ("FWG"), key stakeholders, and Revolution Wind, LLC, Revolution Wind, LLC has entered into an agreement with the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) to provide funds totaling $7,325,000 for impacts over the life of the project. The agreement includes the Massachusetts Fisheries Direct Compensation Program, the Coastal Community Fund, and the Navigation Enhancement and Training Program. The Massachusetts Fisheries Direct Compensation Program ($6,425,000 net present value (NPV)) will be used to offset economic impacts to Massachusetts commercial and charter/for-hire fishing and is intended for claims of direct economic loss to compensate Massachusetts fishermen for loss of access or reduction of harvest. The Coastal Community Fund ($400,000 NPV) will provide funding for initiatives, research, and projects that will support the co-existence of the fishing and wind sectors in the offshore environment. The Navigation Enhancement and Training Program ($500,000) will support upgrades to navigation equipment, professional training opportunities, experiential learning, and other initiatives to further a positive co-existence of the fishing and offshore wind industries. The Agreement Regarding the Establishment and Funding of the Massachusetts Fisheries Direct Compensation Program and Coastal Community Fund and Navigation Enhancement and Training Program is attached.

Based on CZM's review, all aspects of the project, including those project elements located in federal waters, and the project's effects on resources and uses in the Massachusetts coastal zone, CZM concurs with the certification that the activity as proposed is consistent with the CZM enforceable program policies.

If the above-referenced project is modified in any manner, including any changes resulting from permit, license, or certification revisions, including those ensuing from an appeal, or the project is noted to be having effects on coastal resources or uses that are different than originally proposed, it is incumbent upon the proponent to notify CZM, submit an explanation of the nature of the change pursuant to 15 CFR 930, and submit modified state permits, licenses, or certifications. CZM will use this information to determine if further federal consistency review is required.

Thank you for your cooperation with CZM.

Sincerely,

Lisa Berry Engler
Director

RLB/pb
CZM # 3121

cc: Ruthann Brien, USACE
Whitney Hauer, BOEM
Laura Lee Wolfson, BOEM
Daniel Gilmore, MA DEP
Dan McKiernan, MA DMF
John Logan, MA DMF
Steve McKenna, CZM
Samuel Haines, CZM
Todd Callaghan, CZM
Hollie Emery, CZM
Robert Boeri, CZM

AGREEMENT
REGARDING THE ESTABLISHMENT AND FUNDING OF THE
MASSACHUSETTS FISHERIES DIRECT COMPENSATION PROGRAM,
COASTAL COMMUNITY FUND
AND
NAVIGATIONAL ENHANCEMENT AND TRAINING PROGRAM

This Agreement Regarding the Establishment and Funding of the Massachusetts Fisheries Direct Compensation Program, Coastal Community Fund, and Navigational Enhancement and Training Program (the "**Agreement**"), dated as of July 14, 2021, is made between Revolution Wind, LLC ("**Revolution Wind**") and the Massachusetts Executive Office of Energy and Environmental Affairs ("**EEA**") (together, the **"Parties**").

Recitals

WHEREAS, Revolution Wind holds a federal Commercial Lease of Submerged Lands for Renewable Energy Development with the U.S. Bureau of Ocean Energy Management ("**BOEM**"), OCS-A 0486 (the "**Lease**"), located in federal waters;

WHEREAS, the Lease grants Revolution Wind the exclusive right to submit to BOEM a Construction and Operations Plan ("**COP**") for a wind energy project and to conduct the activities described in the COP if approved by BOEM and other Federal agencies having jurisdiction over such project and/or activities;

WHEREAS, on March 2020 (supplemented and updated in July 2020, October 2020, and July 2022), Revolution Wind submitted a COP to BOEM proposing to construct up to one hundred (100) wind turbine generators with a maximum capacity ranging between 704 and 880 megawatts , up to two offshore, high voltage alternating current substations, inter-array cables linking the individual turbines to the offshore substations, one substation interconnector cable linking the substations to each other, offshore export cables, an onshore transmission cable system, and one onshore substation that will interconnect in North Kingstown, Rhode Island to the mainland grid (collectively, the "**Project**");

WHEREAS, the Coastal Zone Management Act, 16 U.S.C. § 1451 *et seq.*, as amended, requires that an applicant for a federal license or permit activity in or outside the coastal zone or an outer continental shelf plan affecting any land or water use or natural resource of a state coastal zone certify that the proposed activities comply with the enforceable policies of the state's approved program and that such activities will be conducted in a manner consistent with the program;

WHEREAS, for projects located outside a state's coastal zone, the state may formally request review from the Office for Coastal Management of the National Oceanic and Atmospheric Administration;

WHEREAS, in the absence of a formal request for review, Revolution Wind voluntarily agreed to federal consistency review of the Project by the Massachusetts Office of Coastal Zone Management ("**CZM**") and filed a consistency certification for the Project. The CZM six-month review period commenced on June 7, 2021, was stayed approximately seven times, and will conclude no later than May 10, 2023. The Project certification stated that the proposed activities comply with the enforceable policies of the Massachusetts Coastal Program (the "**Coastal Policies**") and will be conducted in a manner consistent with the enforceable policies of the Coastal Policies;

WHEREAS, the Coastal Policies seek to avoid, minimize, and mitigate impacts to coastal resources and uses of the Commonwealth including areas of high concentrations of existing water-dependent uses, which include commercial and charter/for hire fishing, to the extent practicable;

WHEREAS, portions of the Project area are fished by Massachusetts commercial and charter/for hire fishermen;

WHEREAS, Revolution Wind acknowledges the importance of open and regular communication with members of the Massachusetts commercial and for-hire/charter fishing industries, in order to hear and understand questions or concerns with the purpose of supporting the sustainable development of Revolution Wind and the overall future coexistence of these two industries;

WHEREAS, Revolution Wind has modified its Project to avoid and minimize impacts to Massachusetts fishermen, including by adopting uniform 1 nautical mile by 1 nautical mile spacing between wind turbine foundations, reducing from 100 wind turbine foundations to 79 possible turbine positions for the installation of 65 turbine foundations to meet the Project's power purchase agreement obligations plus two offshore substations, proposing a fisheries research and monitoring plan that is to be part of any COP approval by BOEM, micrositing wind turbine foundations to minimize impacts to sensitive benthic habitats, adopting noise reduction systems during pile driving of wind turbine foundations to reduce impacts to fish populations, developing a gear loss claims process to compensate fishermen for lost or damaged gear and associated business interruptions costs, enhanced cellular, and very-high frequency coverage into the wind turbine generators to enhance safe navigation;

WHEREAS, on March 16, 2023, and subsequently as amended, Revolution Wind submitted to CZM a mitigation proposal for potential adverse impacts to Massachusetts commercial and charter/for hire fisheries from the Project based on a report by the Woods Hole Oceanographic Institution on the economic impact of the Project on Massachusetts fisheries (January 14, 2023), a Massachusetts Fisheries Direct Compensation Program Proposed Term Sheet and a Coastal Community Fund Proposed Term Sheet and a Navigation Enhancement and Training Program Term Sheet;

WHEREAS, from approximately March to May 2023, Revolution Wind engaged in negotiations with CZM resulting in certain amendments to the proposed term sheets, as reflected in the final term sheets, attached hereto as Exhibit A-1 (Exhibit A-1 referred to as the "**Direct Compensation Program Term Sheet**"), Exhibit B-1 (Exhibit B-1 referred to as the "**Coastal Community Fund Term Sheet**"), and Exhibit C-1 (Exhibit C-1 referred to as the "**Navigation Enhancement and Training Program Term Sheet**");

WHEREAS, these negotiations included the solicitation and receipt of feedback from the Massachusetts Fisheries Working Group on Offshore Wind Energy;

WHEREAS, Revolution Wind offered a final compensatory mitigation package to CZM of Seven Million Three Hundred Twenty-Five Thousand and 00/100 Dollars ($7,325,000) to cover potential adverse impacts resulting from the Project so as to satisfy any and all applicable enforceable policies of the Coastal Policies. This final compensatory mitigation is for only Massachusetts fishermen;

WHEREAS, the Parties recognize and acknowledge that each proposed project that comes before CZM stands alone and must be evaluated on its own merits, and that this compensatory mitigation does not provide a precedent for future offshore wind projects;

WHEREAS, although the Office for Coastal Management of the National Oceanic and Atmospheric Administration has stated that compensation cannot be required as a means of complying with Coastal Policies and achieving federal consistency concurrence, the Parties may agree to compensation, and Revolution Wind agrees to establish a two-part mitigation program to compensate Massachusetts fishermen for reasonably foreseeable adverse impacts not fully mitigated by the Project modifications within the Project area as outlined in the Direct Compensation Program Term Sheet and Coastal Community Fund Term Sheet;

WHEREAS, pursuant to the compensation program, Revolution Wind will establish the Construction and Operation Mitigation Fund and the Decommissioning Fund in accordance with the Direct Compensation Program Term Sheet attached hereto as Exhibit A-1 (the Construction Operation Mitigation Fund and the Decommissioning Fund (as defined in Paragraph 4 below) shall be referred to together as the "**Direct Compensation Program**");

WHEREAS, pursuant to the compensation program, Revolution Wind will establish a Coastal Community Fund (the "**Coastal Community Fund**") in accordance with the Coastal Community Fund Term Sheet attached hereto as Exhibit B-1;

WHEREAS, pursuant to the compensation program, Revolution Wind will establish the Massachusetts Navigational Enhancement and Training Program (the "**Navigational Enhancement and Training Program"**) in accordance with the Navigational Enhancement and Training Term Sheet attached hereto as Exhibit C-1 (Exhibit C-1 referred to as the "**Navigational Enhancement and Training Program Term Sheet**"); and

WHEREAS, CZM will reference the terms of this Agreement in its federal consistency concurrence letter;

NOW THEREFORE, the Parties agree as follows:

Revolution Wind Compensatory Mitigation

1. Revolution Wind shall make one lump sum payment of Six Million Eight Hundred Twenty-Five Thousand and 00/100 Dollars ($6,825,000), as compensatory mitigation as part of its overall Project modifications and mitigations to achieve consistency with the enforceable policies of the Coastal Policies. Revolution Wind shall also make available up to Five Hundred Thousand Dollars ($500,000) (the "**Navigational Enhancement and Training Funding**") to fund claims when made through the Navigational Enhancement and Training Program, as compensatory mitigation as part of its overall Project modifications and mitigations to achieve consistency with the enforceable policies of the Coastal Policies. The Parties agree and acknowledge that the combined sum of Seven Million Three Hundred Twenty-Five Thousand Dollars ($7,325,000) reflects the Parties' recognition that the Project is one of several offshore wind development projects proposed for the Massachusetts/Rhode Island Wind Energy Area and that each project must be evaluated on its own merits and that this compensatory mitigation does not provide a precedent for future offshore wind projects. Six Million Eight Hundred Twenty-Five Thousand Dollars ($6,825,000) shall be Revolution Wind's only direct payment of financial contribution to fisheries mitigation in Massachusetts (the "**Compensatory Mitigation**").

2. A national bank, federal savings bank or federal savings and loan association, lawfully doing business within the Commonwealth, or a trust company, savings bank, or cooperative bank chartered under the laws of the Commonwealth of Massachusetts (the "**Trust Company**") shall serve as custodial administrator of the Compensatory Mitigation.

3. Within thirty (30) days after the receipt of all final federal, state and local permits, authorizations, concurrences, non-objections, and approvals necessary to construct and operate the Project as described in the approved COP, Revolution Wind shall: (a) provide the payment of Six Million Eight Hundred Twenty-Five Thousand Dollars ($6,825,000) of the Compensatory Mitigation to the Trust Company to be held in an escrow account (the "**Escrow Account**") substantially in accordance with the terms of and in the form of the Compensation Mitigation Escrow Agreement attached hereto as Exhibit A-2 (the "**Escrow Agreement**") with such changes as requested/required by the Trust Company, and (b) make available Five Hundred Thousand Dollars ($500,000) of the Compensatory Mitigation for the Navigational Enhancement and Training Funding to be disbursed by Revolution Wind upon receipt of claims pursuant to the Navigational Enhancement and Training Program Term Sheet. The Compensatory Mitigation shall be earmarked as set forth in Paragraph 4 below.

4. The Compensatory Mitigation shall be earmarked as follows:

    i. The Direct Compensation Program

        a) Five Million Eight Hundred Twenty-Five Thousand Dollars ($5,825,000) for compensation for Massachusetts commercial and for-hire charter fishing operations for mitigation of direct losses/impacts arising from the construction and operation of the Project and unforeseen, extraordinary events that lead to later business interruption as defined in Exhibit A-3, Schedule A, ("**Operations Interruption**

Event") ("**Construction and Operation Mitigation Fund**"). The Trust Company shall be provided with the following or similar investment guidelines by way of example with the suggested overall investment goal of achieving an average annual rate of return of no less than 3 percent.

a. 30 percent U.S. Treasuries with a 30-year Treasury yield of no less than 2.0 percent;

b. 40 percent Municipal bonds with a bond yield of no less than 2.5 percent; and

c. 30 percent investment-grade Corporate bonds with a bond yield of no less than 4.0 percent;

b) Six Hundred Thousand Dollars ($600,000) for direct losses/impacts caused by decommissioning ("**Decommissioning Fund**"). The Trust Company shall be provided with the following or similar investment guidelines by way of example with the suggested overall investment goal of achieving an average annual rate of return of no less than 4 percent.

a. 15 percent U.S. Treasuries with a 30-year Treasury yield of no less than 2.0 percent;

b. 15 percent Municipal bonds with a bond yield of no less than 2.5 percent; and

c. 60 percent investment-grade Corporate bonds with a bond yield of no less than 4.5 percent;

ii. Four Hundred Thousand ($400,000) for the Coastal Community Fund, which the Trust Company shall disburse at the direction of the Director of the Division of Marine Fisheries (the "**Director**") pursuant to the provisions herein and in accordance with the Escrow Agreement. The Trust Company shall be provided with the following or similar investment guidelines by way of example with the suggested overall investment goal of achieving an average annual rate of return of no less than 3 percent.

a) 30 percent U.S. Treasuries with a 30-year Treasury yield of no less than 2.0 percent;

b) 40 percent Municipal bonds with a bond yield of no less than 2.5 percent; and

c) 30 percent investment-grade Corporate bonds with a bond yield of no less than 4.0 percent; and

iii. Five Hundred Thousand Dollars ($500,000) will be available for the Navigational Enhancement and Training Program, and Revolution Wind shall administer such Program in accordance with the provisions the Navigational Enhancement Training Program Term Sheet.

5. Revolution Wind shall select, with approval from EEA and CZM, as described in the Direct Compensation Program Term Sheet (ExhibitA-1), a Technical Assistance Provider ("TAP") to provide guidance on the establishment and administration of the Direct Compensation Program over the life of the project. The TAP will be assisted by a liaison with fisheries-relevant experience, to be selected contemporaneously as the TAP. After five (5) years of Project operations, the TAP will evaluate the claims history and fees and costs of the Direct Compensation Program against the Compensatory Mitigation in the Escrow Account and, based on historical actual claims paid and associated fees and costs, make reasonable projections regarding future claims and associated fees and costs. To be clear, associated fees and costs shall include, for example, those associated with the TAP, escrow agent and any other professionals including trust/investment management. The TAP will use their best professional judgment as to whether the balance of the Compensatory Mitigation in the Escrow Account

exceeds the amounts necessary to pay anticipated claims and fees and costs. The TAP also will use their best professional judgment as to whether Decommissioning Fund earmark is sufficient based on the claims history and fees and costs of the Direct Compensation Program during the construction period and may adjust the Decommissioning Fund earmark based on their best professional judgment. If the TAP determines that the balance of the Compensatory Mitigation in the Escrow Account exceeds an amount deemed necessary to pay future claims and associated fees and costs, the TAP may transfer excess funds in an amount to be determined by the TAP to the Coastal Community Fund to be used in accordance with the purposes of the Coastal Community Fund as specified in the Coastal Community Fund Term Sheet and Fund Agreement (the Fund Agreement is to be prepared after the date hereof) ("**Fund Agreement**"). The TAP shall conduct this assessment every five (5) years thereafter and transfer funds accordingly. The TAP is not obligated to transfer any funds they reasonably believe will be necessary to satisfy future claims, fees and costs. Any Compensatory Mitigation in the Escrow Account remaining after payment of all allowed claims or twelve (12) months after Project decommissioning, whichever is later, shall be deemed earmarked to the Coastal Community Fund to be used in accordance with the purposes of the Coastal Community Fund as specified in the Coastal Community Fund Term Sheet.

6. The Trust Company and TAP selected by Revolution Wind shall be subject to the approval of EEA, which approval shall not be unreasonably withheld, conditioned, or delayed. The TAP shall be a person, institution, or business entity with significant knowledge of the fishing industry, including the commercial fishing industry, in New England.

7. Upon selection of the Trust Company and TAP, Revolution Wind shall have no further involvement whatsoever with respect to the Direct Compensation Program or Coastal Community Fund; provided, however, that this paragraph shall not operate as a limitation on Revolution Wind's right to enforce this Agreement, including any limitations on the Coastal Community Fund's expenditures.

Establishment of the Direct Compensation Program

8. The purpose of the Direct Compensation Program is to provide financial compensation to eligible fishermen for mitigating direct losses/impacts to commercial and for-hire (charter) fishing from the construction, operation and decommissioning of the Project.

9. The Direct Compensation Program will be established in accordance with the Direct Compensation Program Term Sheet. The TAP selected pursuant to the Direct Compensation Program Term Sheet shall have authority and discretion to establish such additional terms and conditions for the Direct Compensation Program as are required to fulfill its purpose so long as any such additional terms and conditions are consistent with the Direct Compensation Program Term Sheet, Model Eligibility Form substantially in the form attached as Exhibit A-3, Model Claims Form substantially in the form attached as Exhibit A-4, and Model Form of Release of Liability substantially in the form attached as Exhibit A-5. Any ambiguity between the Direct Compensation Program Term Sheet and this Agreement shall be resolved by the TAP in favor of this Agreement, which embodies the final intent of the Parties with respect to the Direct Compensation Program.

10. The TAP shall determine if an eligibility period is deemed necessary. Notwithstanding anything herein to the contrary, all applicants shall apply for eligibility for the Direct Compensation Program by submitting an Eligibility Form established by the TAP in substantially the same form attached as Exhibit A-3. The eligibility period, if any, will begin prior to the claims and payment period and will last for a reasonable period of time and, in no event less than six (6) months. The TAP will approve or reject eligibility submittals during the eligibility period. Eligibility will be based on historic fishing in the Project area and a direct impact or direct loss caused by the Project.
11. The TAP will establish a claims review and decision process in accordance with the Direct Compensation Program Term Sheet. Applicants shall apply for compensation from the Direct Compensation Program for one of the three payment phases of construction and operation, decommissioning, and/or Operations Interruptions Events by submitting a claims form substantially in the form of the Model Claims Form attached

as Exhibit A-4. The TAP shall reject any claim arising longer than five (5) years after construction has been completed if the TAP determines, in their professional opinion, that the claimant did not reasonably consider all practicable opportunities to adapt to operating within the Revolution Wind project area. The TAP will approve or reject claims submittals during the claims period.

12. All confidential, non-public or proprietary information (the "**Information**") provided by applicants to the TAP will be kept confidential unless disclosure is required by law, rule, regulation, regulatory authority or pursuant to a legal or similar process. In such an event, the TAP shall disclose only that portion of the Information that it determines it is legally required to disclose and shall request confidential treatment of any Information so disclosed. Notwithstanding anything in this Paragraph to the contrary, information pertaining to final award amounts, along with names and other identifying information, will be provided to the Division of Marine Fisheries and made a public record. Information pertaining to final award amounts, along with address and taxpayer identification numbers necessary to process payments, will be provided to the escrow agent for the purpose of issuing payments.

13. In accordance with the Direct Compensation Fund Term Sheet, the amount of payment will be based on: the eligible claimant's historical activity in the Project area such that applicants with a higher value of historical landings in the Project area will receive higher payment than those that have a lower value of historical landings; the number of eligible applicants; and preservation of funds in the Escrow Account for future applicants.

14. In consideration for receipt of funds from the Direct Compensation Program, applicants simultaneously shall execute a Form of Release of Liability substantially in the form attached as Exhibit A-5 (each a "**Release**"), and each executed Release shall be promptly forwarded to Revolution Wind at the address set forth in Paragraph 37.

15. The Direct Compensation Program is not intended to address or provide compensation for any claims of lost or damaged gear or related economic loss. Any such claim submitted to the Direct Compensation Program shall be immediately rejected by the TAP and referred to Orsted under the Orsted Fishing Gear Conflict Prevention and Claim Procedure, which is publicly available through Orsted's Mariners' website.

Establishment of the Coastal Community Fund

16. The Coastal Community Fund shall be established as an ear-marked portion of the Escrow Account, with funds to be released by the Escrow Agent upon the written instructions of the Director.

17. Revolution Wind will provide initial funding for the Coastal Community Fund pursuant to the Compensatory Mitigation earmark set forth in Paragraph 4.

18. The Fund shall be used to fund only projects that satisfy the Coastal Community Fund's objectives, which explicitly do not include funding for litigation, regulatory work, or petitioning activities, and that are approved by the Director after consultation with the Orsted/Eversource Coastal Community Advisory Council ("**Advisory Council**"), including for support for Massachusetts companies that support Massachusetts fishing interests.

19. The members of the Advisory Council: shall be appointed by the Commissioner of the Massachusetts Department of Fish and Game with input from CZM; may include members of the Advisory Council for South Fork Wind, LLC and any future projects that are a 50/50 joint venture between Orsted North America Inc. and Eversource Investment LLC; and shall consist of at least nine (9) members including two (2) members of the Marine Fisheries Advisory Commission, the Executive Director of the New Bedford Port Authority (or his or her designee), and six (6) members of the public at large, all of whom shall have specific expertise and background in the conduct and management of marine fisheries in Southern New England. Members shall include one representative of the lobster trap fishery, one representative of the mobile gear

fishery, one representative of a Commercial Fishery Advocacy Organization, one representative of the for-hire hook-and-line fishery, and one representative of wholesale seafood dealers. To the extent practicable, such representatives shall be owners or operators of, or be employed by, business associations located within the ports where impacts from the Project may occur, such as New Bedford/Fairhaven, Westport, Chatham, and Menemsha. The Advisory Committee members shall serve for terms of three (3) years. Any member shall be eligible for reappointment.

20. Revolution Wind will have no rights or role with respect to the Advisory Council's management of the Coastal Community Fund or approval of project funding requests by the Director; provided, however, that this paragraph shall not operate as a limitation on Revolution Wind's right to enforce this Agreement, including any limitations on the Coastal Community Fund's expenditures.

21. The Director may condition the approval of any project funding on the execution of a grant agreement that provides reporting to the Director and the Advisory Council and transparency to the public with respect to the spending of funds.

Navigational Enhancement and Training Funding

22. The Navigational Enhancement and Training Funding shall be established and operated by Revolution Wind independent of EEA, the Director, the TAP and the Escrow Agent.

23. Revolution Wind will make available funding for the Navigational Enhancement and Training Funding pursuant to the Compensatory Mitigation set forth in Paragraphs 3 and 4.

24. The Navigational Enhancement and Training Fund shall be used solely to pay approved vouchers under the Navigational Enhancement and Training Program as described in the Navigational Enhancement and Training Program Term Sheet.

Payment of Expenses for the Funds

25. The reasonable costs and expenses incurred in the establishment and implementation of the Coastal Community Fund and the Direct Compensation Program, including the fees and costs of the TAP and the fees and costs for the preparation of the Fund Agreement and Escrow Agreement, shall be paid from the Escrow Account, subject to any caps established by the Parties. After five (5) years of Project operations, by March 1 of each succeeding calendar year, the TAP will send the Parties a report on the costs and expenses paid and the income accrued to the Escrow Account over the previous calendar year and the life of the Escrow Account through December 31 of the previous calendar year ("Annual Report"). If the costs and expenses over the life of the Escrow Account exceed the income accrued over the life of the Escrow Account (a "Deficiency"), in more than three (3) consecutive Annual Reports, Revolution Wind shall, within 30 days of receipt of the most recent Annual Report, make a payment to the Escrow Account in the amount of the Deficiency. The TAP shall treat this payment as income in any future Annual Report. In calculating a Deficiency, the TAP will not consider claims paid under the Direct Compensation Program or grants made from the Coastal Community Fund.

Precedent Conditions

26. This Agreement and the implementation of the Direct Compensation Program, Coastal Community Fund and Navigational Enhancement and Training Fund shall be contingent upon the occurrence of each of the following events:

    a. On or before May 10, 2023, CZM issuing concurrence with Revolution Wind's federal consistency certification; and

b. Revolution Wind receiving all other final federal, state, and local permits, authorizations, concurrences and approvals necessary to construct and operate the Project as described in the approved COP.

For the avoidance of doubt, if: (i) CZM does not issue its concurrence with Revolution Wind's consistency certification on or before May 10, 2023; or (ii) Revolution Wind fails to receive all other such permits, authorizations, concurrences and approvals, then Revolution Wind shall have no further obligations under this Agreement.

Dispute Resolution

27. If either Party alleges that there exists a dispute or disagreement regarding the matters covered by this Agreement, it shall notify in writing the other Party of such alleged dispute or disagreement ("**Dispute Notice**"). The Parties shall attempt to resolve the alleged dispute or disagreement through good faith negotiations. If the Parties fail to resolve the alleged dispute or disagreement within sixty (60) days of the Dispute Notice, the Party alleging the dispute or disagreement may enforce this Agreement only by specific performance, injunctive relief or a declaratory judgment action pursuant to M.G.L. Ch. 231A *et seq.* The remedies of specific performance, injunctive relief and declaratory judgment shall be cumulative of all other rights and remedies at law or equity of the Parties under this Agreement.

Governing Law

28. This Agreement shall be construed in accordance with and all disputes hereunder shall be controlled by the laws of the Commonwealth of Massachusetts without regard to its conflict of laws principles. For the purposes of this Agreement only, Massachusetts shall be the forum state for all forms of dispute resolution between the Parties arising out of this Agreement, including but not limited to judicial actions to enforce the Agreement.

Implementation

29. CZM shall implement this Agreement on behalf of the EEA.

Entire Agreement

30. This Agreement constitutes the entire agreement of the Parties as to the subject matter herein and supersedes any and all prior oral or written agreements of the Parties. This Agreement cannot be changed or modified except in a written instrument signed by both Parties.

Recitals

31. The above recitals are incorporated herein by reference.

Successors and Assigns

32. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.

No Third-Party Beneficiaries

33. Except for CZM in connection with its implementation of this Agreement on behalf of EEA, the Parties do not confer any rights or remedies upon any person other than the Parties to this Agreement and their respective successors and assigns.

Severability

34. If any part of this Agreement is found to be unenforceable, the rest will remain in full force and effect and shall be interpreted so as to give full effect to the intent of the Parties.

Execution in Counterparts

35. This Agreement may be executed in counterparts and by the different Parties hereto on separate counterparts, each of which when so executed and delivered shall be an original, but all counterparts shall together constitute one and the same instrument. This Agreement may be delivered by the exchange of signed signature pages by facsimile transmission, electronic signatures, or by attaching a pdf copy to an e-mail, and any printed or copied version of any signature page so delivered shall have the same force and effect as an originally signed version of such signature page.

Notice

36. Each Party shall deliver all notices, requests, consents, claims, demands, waivers, and other communications under this Agreement (each, a "**Notice**") in writing and addressed to the other Party at its address set out below (or to any other address that the receiving Party may designate from time to time in accordance with this Paragraph 37). Each Party shall deliver all Notices by personal delivery, nationally recognized overnight courier (with all fees prepaid), or email (with confirmation of transmission), or certified or registered mail (in each case, return receipt requested, postage prepaid). Except as otherwise provided in this Agreement, a Notice is effective only (a) upon receipt by the receiving party and (b) if the party giving the Notice has complied with the requirements of this Paragraph 37:

If to EEA/CZM: Lisa Berry Engler, Director
Massachusetts Office of Coastal Zone Management
251 Causeway Street, Suite 800
Boston, Massachusetts 02114
Email: lisa.engler@state.ma.us

If to Revolution Wind: Kellen Ingalls, Project Manager,
Revolution Wind, LLC
399 Boylston Street, 12th Floor
Boston, MA 02116
Email: kelin@ortsed.com

Term; Termination

37. The term of this Agreement shall start on the date of this Agreement. If any of the "Precedent Conditions" above cannot be fulfilled, this Agreement shall terminate upon the date in which it becomes apparent that such condition set forth in the "Precedent Conditions" cannot be fulfilled. If the "Precedent Conditions" are fulfilled, this Agreement shall expire on the date on which all funds held by the Coastal Community Fund and the Direct Compensation Program have been disbursed.

Signatures on Following Page

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed as of the date first written above.

REVOLUTION WIND, LLC

By: _____
Name: Ryan Chaytors
Title: Authorized Signatory

By: _____
Name: Kenneth Bowes
Title: Authorized Signatory

MASSACHUSETTS EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS

_____
Name: Rebecca Tepper
Title: Secretary of Energy and Environmental Affairs

Exhibit A-1

Direct Compensation Program Term Sheet

I. Purpose and Brief Description

- The Revolution Wind Massachusetts Fisheries Direct Compensation Program will provide financial compensation not to exceed Six Million Eight Hundred and Twenty-Five Thousand Dollars ($6,825,000) for economic loss to commercial and charter/for hire fishing as a result of the construction, operation as set forth in further detail in the Agreement and decommissioning of Revolution Wind.
- The Revolution Wind Massachusetts Fisheries Direct Compensation Program will pay eligible fishers within a reasonable period of time after their claim is approved from an escrow account to be funded according to the process as defined in the Agreement between Revolution Wind and EEA.
- The Revolution Wind Massachusetts Fisheries Direct Compensation Program has two key parts: 1) determining which fishers are eligible for compensation based on their historical fishing activity in the Revolution Wind project area; and 2) calculating the amount of individual compensation based on an open and transparent predetermined payment framework that may apply a tiered approach. In any tiered approach, every eligible fisher receives a payment but those with higher historical value landings within Revolution Wind receive more compensation than those with lesser value landings.

II. Creation, Use and Funding of Revolution Wind Escrow Account and Technical Assistance Provider

- Revolution Wind will fund an escrow account for the Revolution Wind Fisheries Direct Compensation Program in accordance with the Agreement between Revolution Wind and EEA. The escrow will be managed by an independent third party recommended (Technical Assistance Provider or "TAP") by Revolution Wind with approval from EEA and CZM, which approval shall not be unreasonably withheld, conditioned or delayed.
- The TAP will ease the administrative aspects of the program on fishers. The TAP will be responsible for overseeing the administration of the fund as described below. Revolution Wind will recommend the TAP with approval from EEA and CZM, which shall not be unreasonably withheld, conditioned or delayed. The Parties recognize that efficiencies will be gained by using the same TAP for South Fork Wind, LLC, Revolution Wind and any other future projects that are a 50/50 joint venture between Orsted North America Inc. ("Orsted") and Eversource Investment LLC ("Eversource").

III. Pre-Qualifying for Compensation During Any Eligibility Period

- The purpose of any eligibility period is to provide sufficient time for fishers to prequalify for compensation to improve the efficiency of the claim and payment phase so that the payment of approved claims will be fast.

- During any eligibility phase, fishers will be asked to fill out a simple certification form stating that they have fished in the Revolution Wind area over a three-year period as set forth in further detail in the Agreement. Fishers will be required to list the approximate value of their landings from that area over the three years.

- The TAP will be available to assist fishers with filing for eligibility. All information from fishers will be kept confidential by Revolution Wind and the TAP except as required by law.

- The term of any eligibility period will be subject to the discretion of the TAP, provided that any eligibility period shall begin prior to the claims and payment period and will last for a reasonable period of time and in no event less than 6 months. To be clear, an eligibility period is not required if the TAP deems it unnecessary. Notwithstanding anything herein to the contrary, each fisher shall be required to fill out the eligibility form prior to submitting a claim.

- The TAP will approve or reject eligibility submittals during any eligibility period.

- Revolution Wind and EEA will have no rights or role with respect to the TAP's approval or rejection of eligibility submittals.

IV. Claim and Payment Period for Eligible Fishers

- The claim and payment period for eligible fishers to obtain funds from the escrow will begin no later than upon the completion of Revolution Wind's commissioning and will last for a reasonable time period.

- Each payment form shall include a release of liability by the certifying fisher releasing Revolution Wind. The form of Release is attached hereto in A-5.

- The amount of the payment will be based on the eligible fishers' historical activity in the Revolution Wind lease and export cables area. Payments may be established in tiers by fishery, to be determined by the TAP using their best professional judgement.

    i. Once any eligibility period ends, tiered payment levels may be established for allocating funds. Fishers with a higher value of historical landings in the Revolution Wind area will receive higher payment than those that have a lower value of historical landings. A minimum payment will be incorporated to ensure all fishers with any level of historical landings from the Revolution Wind area will receive a payment. The predetermined funding framework will provide full transparency of how much compensation each eligible claimant will receive.

- Payments will be made within a reasonable time frame.

- The TAP will approve claims consistent with the funding framework, as set forth in further detail in the Agreement. Revolution Wind, CZM and EEA will have no role with the claim and payment period. Upon approval from the TAP, the escrow agent will pay funds directly to the eligible fisher.

* * *

Exhibit A-2

Escrow Agreement

The Escrow Agreement shall be prepared after the date hereof in consultation with the selected Escrow Agent.

Exhibit A-3

Eligibility Form

Massachusetts Fisheries Direct Compensation Program Eligibility Application

Commercial fishermen and party/charter boat operations must use this form to demonstrate eligibility for compensation under the Revolution Wind Massachusetts Fisheries Direct Compensation Program. The Massachusetts Fisheries Direct Compensation Program will provide financial compensation for mitigating direct losses/impacts to commercial fishing and party/charter boat operations during the construction, operation, and decommissioning phases of Revolution Wind. Separate eligibility forms must be submitted for each affected vessel. Only the DMF permit holder may apply for eligibility.

This form must be completed in full and delivered to the Technical Assistance Provider (TAP) designated to administer the fund. Applicants can file the form electronically by emailing it to [TAP email address] or by mailing it to [TAP address]. You may contact the TAP by email or by phone ([TAP phone number]) if you have questions on the application.

This eligibility form may be used to prequalify for compensation to improve the efficiency of the claim and payment phase and pay claims faster. Once you are deemed eligible by the TAP, you will be asked to submit a simplified claims form to inform your direct compensation payment.

The TAP will approve or reject eligibility submittals during the eligibility period based on the information submitted with your application.

I. Applicant Information

A. Name: _____
First Last M.I.

B. Mailing Address:

_____
Street Address Apartment/Unit

_____
City State Zip

C. Place of Residence (if different from mailing address):

_____
Street Address Apartment/Unit

_____
City State Zip

D. Phone: _____

E. Email: _____

F. Fishing Operation Information (complete the section that applies):

□ Commercial fishing operation

1. Vessel Name: _____
2. State Registration Number/Coast Guard Documentation Number: _____
3. Homeport (as listed on your state or Coast Guard registration):

   _____
4. Federal Permit (if applicable): _____
5. MA Commercial Fishing Permit Number: _____
6. Tax Identification Number (TIN), if applicable: _____

□ Party and charter boat information

1. Vessel Name: _____
2. MA Charter/Party Permit Number: _____
3. Federal Permit (if applicable): _____
4. Business Name (if different from applicant name): _____
5. Tax Identification Number (TIN), if applicable: _____

II. Demonstration of Eligibility

Identify the project phase for which you are seeking eligibility to submit a claim:

□ Business interruption during construction and the operations period following construction.

□ Business interruption during the decommissioning phase.

□ Business interruption during the operations phase that arises from an extraordinary unforeseen event (e.g., extraordinary maintenance in the Project area resulting in extended constraints on access).

Applicants must stipulate to the following eligibility criteria:

- You must hold a valid state fishing or landing permit;
- You must have a homeport in Massachusetts (as documented on your vessel registration) or be a resident or incorporated business in Massachusetts; and
- You must demonstrate a history of the vessel operating in the Revolution Wind Project area in the three years prior to eligibility and having incurred a direct impact/direct loss caused by Revolution Wind.

Schedule A identifies the documentation needed to verify eligibility. Failure to provide adequate documentation to the TAP may lead the TAP to disqualify you from participating in the program.

III. Confidentiality

Information provided via this application process will be kept confidential by the TAP, except as otherwise required by law. Notwithstanding anything herein to the contrary, if the TAP pays a

claim, the amount of the payment and the identity of the recipient will be reported to the Division of Marine Fisheries and made a public record.

IV. Notification

The TAP will notify you of the decision regarding your eligibility by contacting you at the email address provided above.

V. Certification and Release

By completing and signing this form, I certify my understanding of the following:

A. I understand and acknowledge that the TAP will rely on the information I have provided, and I agree that the information I have provided is material to my request for eligibility. I certify upon the pains and penalties of perjury that I have provided complete and truthful information here and to the TAP for considering my eligibility.

B. I certify that I am duly authorized to bind the entity or individual and the vessel identified above.

C. I consent to allowing the TAP to use VTRs, SAFIS trip-level data, and other Massachusetts Division of Marine Fisheries data, as applicable, to verify the information contained in this application, and I waive any and all confidentiality pertaining to this information as it relates to this application.

Signature _____ Date _____

Title (if any): _____

Schedule A: Examples/Operations Interruptions Events Qualifying for Compensation

1. Possible business interruptions arising from unforeseen extraordinary events may include the following or similar event:

    - Extraordinary maintenance in the Project area resulting in extended constrained access within the Revolution Wind Project area

2. Examples of excluded Operations Interruptions are:

    - Fishery management measures that constrain catch or access to fishing grounds (e.g., quotas, area closures) or seasonal restrictions;
    - General declines in stock for targeted species caused by climate change;
    - Environmental changes unrelated to Revolution Wind;
    - Harmful algal blooms;
    - Vessel or other property damage;
    - Reductions in fishing activity due to personal illness or public health measures;
    - Inclement weather; or
    - Force majeure events where the direct impact to applicant was not exacerbated or contributed to by the operation or maintenance of the Revolution Wind Project.

Schedule B. Documentation to Affirm Eligibility to Participate in the Direct Compensation Program

A. Commercial fishing documentation is required for the three years prior to construction.

- If you file Vessel Trip Reports (VTRs) with the National Marine Fisheries Service (NMFS):
  - You must submit one of the following documents:
    - Your VTR data for the relevant years; or
    - Documentation that you have authorized NMFS to release your VTR data to the TAP.
  - While optional, you may also submit:
    - Documentation that you have authorized NMFS to release vessel monitoring system (VMS) or observer program data relevant to your vessel.
    - Other detailed electronic information (e.g., chart plotter data) documenting effort within the Revolution Wind Project Area.
- If you do not file VTRs with NMFS:
  - You must submit one of the following documents:
    - Massachusetts trip-level reporting data, whether filed electronically (through the Standard Atlantic Fisheries Information System, SAFIS) or via paper; or
    - Documentation that you have authorized the Massachusetts Division of Marine Fisheries (MADMF) to release your trip-level reporting data.
  - While optional, you may also submit other electronic information (e.g., chart plotter data) or independently maintained logbooks that document your activity in the Revolution Wind Project Area.

B. Party/Charter boat documentation is required for the three years prior to construction:

- You must submit eTRIPS Desktop or Mobile trip data submitted to MADMF or documentation that you have authorized MADMF to release your trip data.
- While optional, you may submit other electronic information (e.g., chart plotter data) or independently maintained logbooks that document your activity in the Revolution Wind Project Area.

Exhibit A-4

Claims Form

Massachusetts Fisheries Direct Compensation Program Claim Application

Commercial fishermen and party/charter boat operations must use this form to file claims for direct compensation of economic impacts directly attributable to the Revolution Wind project. The Revolution Wind Massachusetts Fisheries Direct Compensation Program will provide financial compensation for mitigating impacts to commercial and party/charter boat fishing during the construction, operation, and decommissioning phases of Revolution Wind. Only applicants who have separately filed an eligibility form and been approved to participate in the Revolution Wind Direct Compensation Program for the applicable project phase may complete this claim form. Separate claim forms must be submitted for each affected vessel. If you are a new fisherman in the Revolution Wind Project Area, you will need to apply for eligibility prior to submitting this claim form.

This form must be completed in full and delivered to the Technical Assistance Provider (TAP) designated to administer the fund. Applicants can file the form electronically by emailing it to [TAP email address] or by mailing a physical copy to [TAP address]. You may contact the TAP by email or by phone ([TAP phone number]) if you have questions on the application.

I. Applicant Information

A. Name: _____
First Last M.I.

B. Phone: _____

C. Email: _____

D. Vessel Name: _____

E. State-Issued Fishing Permit Number: _____

F. Federal Fishing Permit Number (if any): _____

If any identification information (e.g., vessel name, fishing permit number) provided when you applied for eligibility has changed, please note that here:

_____

_____

_____

II. Economic Impact

A. A claim may be filed for impacts incurred in each of the following phases of the project. Please check the phase that is relevant to your claim:

- □ Business interruption during construction and the operations period following construction.
- □ Business interruption during the decommissioning phase.
- □ Business interruption during the operations phase that arises from an extraordinary unforeseen event (e.g., extraordinary maintenance in the Project area resulting in extended constraints on access).

B. The basis for your claim will be your average historical gross revenue.

1. Commercial Fishing Operations
   Claims are estimated based on your historical gross revenue in the Revolution Wind Project Area, incorporating the years prior to construction, decommissioning or the unforeseen operations interruptions event.

   a) *Complete Table 1 below to document your landings and gross revenue in each year that you fished. If you did not fish in a given year, leave the space blank.*
   b) *Using the same table, calculate your average annual gross revenue based on the highest three years, i.e., the sum of your top three gross revenue figures divided by three. This figure will be the basis for your claim (see below).*

Table 1. ESTIMATION OF AVERAGE ANNUAL COMMERCIAL FISHING REVENUE FROM WITHIN Revolution Wind		
Year	Landings (pounds)	Gross (Ex-Vessel) Revenue ($)
5 years ago		$
4 years ago		$
3 years ago		$
2 years ago		$
Last year		$
AVERAGE ANNUAL GROSS REVENUE BASED ON TOP THREE YEARS		$

2. Party/Charter Boat Operations
   Claims are estimated based on your historical gross receipts, as reported to the tax authorities, scaled for trips made in the Revolution Wind Project Area. The TAP will compare your gross receipts in the tax year your claim event occurs to the average annual gross receipts for the three tax years immediately prior to your claim event.

   a) *Using Table 2 below, document the number of trips you conducted in the Revolution Wind Project Area in each tax year.*
   b) *Using the same table, report your annual gross receipts in each tax year. This information should be obtained from your tax returns.*
   c) *Using the same table, calculate the difference between your pre- and post-claim annual gross receipts. The net change in gross receipts is the basis for your claim (see below).*

Table 2. ESTIMATION OF PARTY/CHARTER BOAT REVENUE IMPACT FROM WITHIN Revolution Wind		
Year	Number of Trips in Revolution Wind Project Area	Annual Gross Receipts
3 years ago		$
2 years ago		$
Last year		$
Average Annual Pre-Claim Event Gross Receipts		$
Current year (post-claim event)		$

Net Economic Impact *(Difference Between Post-Claim Event Gross Receipts and Average Annual Pre-Claim Event Gross Receipts)*	$

C. Please attach the following documentation. If you provided this documentation with your initial eligibility form, there is no need to duplicate your submission.

1. Commercial fishing documentation: You may provide personal or business tax returns to corroborate your gross revenue data. If you prefer not to do so, please provide the following documentation:
    - If you file Vessel Trip Reports (VTRs) with the National Marine Fisheries Service (NMFS), you must submit either your VTR data for the relevant years or documentation that you have authorized NMFS to release your VTR data to the TAP.
    - If you do not file VTRs with NMFS, you must submit Massachusetts trip-level reporting data (whether filed electronically through the Standard Atlantic Fisheries Information System, SAFIS, or via paper) or documentation that you have authorized the Massachusetts Division of Marine Fisheries (MADMF) to release your trip-level reporting data.
2. Party/charter boat documentation:
    - You must provide personal or business tax returns to corroborate your gross receipts data.
    - You must submit eTRIPS Desktop or Mobile trip data submitted to MADMF or documentation that you have authorized MADMF to release your trip data.

III. Amount of Claim

Each eligible applicant may apply for a one-time pro-rata fixed payment to compensate for economic impacts. Please check the box corresponding to the impact for which you are seeking compensation:

- □ Business interruption during construction and the operations period following construction.
- □ Business interruption during the decommissioning phase.
- □ Business interruption during the operations phase that arises from an extraordinary unforeseen event (e.g., extraordinary maintenance in the Project area resulting in extended constraints on access). If more than one separate and unrelated eligible event occurs, you may apply for compensation for each such event.

Calculation of the compensation payment differs by project phase and by Applicant Type, as explained below.

A. For commercial fishing vessels:

1. Compensation for impacts during construction and operation will be calculated as Average Annual Gross Revenue times a Construction Scaling Factor, which will reflect adjustments for variable expenses to approximate net operating income.
2. Compensation for impacts during decommissioning will be calculated as Average Annual Gross Revenue times a Decommissioning Scaling Factor, which will reflect adjustments for variable expenses to approximate net operating income.
3. Compensation for impacts arising from an extraordinary unforeseen event during operations will be calculated as Average Annual Gross Revenue times a Business Interruption Scaling Factor, which will reflect adjustments for variable expenses to approximate net operating income.

B. For charter/party vessels:

1. Compensation for impacts during construction and operation will be calculated as Net Economic Impact from Section II, Table 2 times a Construction Scaling Factor, which will reflect adjustments for variable expenses to approximate net operating income.
2. Compensation for impacts during decommissioning will be calculated as Net Economic Impact from Section II, Table 2 times a Decommissioning Scaling Factor, which will reflect adjustments for variable expenses to approximate net operating income.
3. Compensation for impacts arising from unforeseen business interruption during operations will be calculated as Net Economic Impact from Section II, Table 2 times a Business Interruption Scaling Factor, which will reflect adjustments for variable expenses to approximate net operating income.

IV. Confidentiality

Information provided via this application process will be kept confidential by the TAP, except as otherwise required by law.

Notwithstanding anything herein to the contrary, information pertaining to final award amounts, along with names and other identifying information, will be provided to the Division of Marine Fisheries and made a public record. Information pertaining to final award amounts, along with address and taxpayer identification numbers necessary to process payments, will be provided to the escrow agent for the purpose of issuing payments.

V. Certification and Release

By completing and signing this form, I certify my understanding of the following:

A. As a condition to and in full consideration of any payment, I will execute the attached release.

B. I understand and acknowledge that the TAP will rely on the information I have provided, and I agree that the information I have provided is material to my claim for compensation. I certify upon the pains and penalties of perjury that I have provided complete and truthful information here and to the TAP for evaluating my claim.

C. I certify that I am duly authorized to bind the entity or individual and the vessel identified above.

D. I consent to allowing the TAP to use the information I provided, including, as applicable, VTRs, SAFIS trip-level reporting data, NMFS Dealer data, and/or information from the Massachusetts Department of Revenue, to verify the information contained in this application, and I waive any and all confidentiality pertaining to this information as it relates to this application.

Signature _____ Date _____

Title (if any): _____

Schedule A: Examples/Operations Interruptions Events Qualifying for Compensation

1. Possible business interruptions arising from unforeseen extraordinary events may include the following or similar events:
    - Extraordinary maintenance in the Project area resulting in extended constrained access within the Revolution Wind Project area; or
2. Examples of excluded Operations Interruptions are:
    - Fishery management measures that constrain catch or access to fishing grounds (e.g., quotas, area closures) or seasonal restrictions;
    - General declines in stock for targeted species caused by climate change;
    - Environmental changes unrelated to Revolution Wind;
    - Harmful algal blooms;
    - Vessel or other property damage;
    - Reductions in fishing activity due to personal illness or public health measures;
    - Inclement weather; or
    - Force majeure events where the direct impact to applicant was not exacerbated or contributed to by the operation or maintenance of the Revolution Wind Project.

Exhibit A-5

Release of Liability

I, _____, have submitted a claim for compensation to the Revolution Wind Massachusetts Fisheries Direct Compensation Program (the "Program") for business interruption losses for one of the following three Program phases described in the claims form [(1) construction and the operations period following construction, (2) decommissioning, or (3) Operations Interruptions Events] (circle one) (the "Claim").

I assert that my Claim resulted directly from the Revolution Wind project. By signing this Release of Liability, I acknowledge that the Program has accepted and paid my Claim. My acceptance of such payment constitutes full, final and complete payment for this Claim. I agree on behalf of myself, and all my personal representatives, heirs, executors, administrators, agents, representatives, employees, affiliates, business partners, predecessors-in-interest, successors-in-interest, and assigns (the "Releasing Parties") that neither Revolution Wind, LLC, Orsted North America, Inc., Eversource Investment LLC, nor any of their affiliates or joint venture partners, officers, directors, shareholders, employees, agents, representatives, insurers, predecessors, parents, subsidiaries, successors, and assigns (the "Released Parties") shall have any further outstanding or ongoing obligation with respect to this Claim, even if the Releasing Parties learn new information about the Claim. I agree that neither I nor the Releasing Parties will, directly or indirectly, assert any claim, or commence, join in, prosecute, participate in, or fund any part of, any suit or other proceeding of any kind against the Released Parties arising out of, related to or concerning in any way the Claim, and I and the Releasing Parties forever release and discharge the Released Parties from any liability arising under, related to, or concerning such Claim.

I acknowledge that I am duly authorized to sign on behalf of the entity indicated below. Signed under pains and penalties of perjury.

_____ _____

Date Signature

Exhibit B-1

Coastal Community Fund Term Sheet

I. Purpose

- Revolution Wind will establish the Revolution Wind Coastal Community Fund to provide grants for initiatives supporting coastal communities in Massachusetts.

- By way of example, but without limitation except as set forth in Paragraph 19 of the Agreement, the Revolution Wind Coastal Community Fund may be used for the following objectives:

    - Supporting the recreational and charter boat industry;

    - Providing marketing and promotional support for processors, manufacturers of local seafood products, party or charter boat services;

    - Enhancing opportunities for training, apprenticeship, and employment in the commercial fishing industry, offshore wind industry, and other sectors of the coastal economy;

    - Improving infrastructure that supports the commercial fishing industry including but not limited to processors, wholesalers, and recreational fishers;

    - Supporting the enhancement and productivity of the commercial fishing industry; and

    - Supporting technology development to reduce potential conflicts between commercial fishing and offshore wind operations.

II. Creation, Use and Funding of the Coastal Community Fund

- Revolution Wind will establish an escrow account that will be overseen by an independent third- party escrow agent selected by Revolution Wind with approval from EEA, which approval shall not be unreasonably withheld, conditioned or delayed.
- Revolution Wind will fund the escrow account according to the process as defined in the Agreement.
- These funds will be used only to fund projects that satisfy the Revolution Wind Coastal Community Fund‘s objectives and as approved by the Director of the Division of Marine Fisheries, who shall act only after receiving advice from the Revolution Wind Coastal Community Advisory Council (“Advisory Council”).

- Revolution Wind will have no rights or role with respect to the Advisory Council’s approval of project funding requests.

III. Distribution of Escrow Account Funds

- Each request for project funding must be submitted to the Advisory Council and affirm that funds will be used to support projects that meet the objectives of the fund.

- The Advisory Council will review all submitted proposals. The Advisory Council will either recommend approval or rejection with an explanation, or request additional documentation necessary to complete its evaluation of a proposal.

- The process and form of such proposals will be determined by the Advisory Council and the Director.

- Upon written instructions from the Director, the escrow agent will disburse funds directly to the project applicant.

- In the event the fund is oversubscribed, the Director may, in consultation with the Advisory Council, approve partial payment of a proposal.

* * *

Exhibit B-2

Form of Fund Agreement

To be prepared after the date hereto

Revolution Wind | Powered by Ørsted & Eversource

www.revolution-wind.com

06.07.2021

Lisa Berry Engler
CZM Director
Massachusetts Office of Coastal Zone Management 251 Causeway Street, Suite 800
Boston, MA 02114-2138

Subject: Revolution Wind Farm Coastal Zone Management Act Federal Consistency Review

Dear Ms. Engler,

As discussed during our prefiling consultations with Massachusetts Office of Coastal Zone Management (MA CZM), Revolution Wind, LLC (Revolution Wind; formerly DWW Rev I, LLC) is voluntarily providing the enclosed consistency certification along with the necessary data and information required for the Commonwealth of Massachusetts to conduct a federal consistency review for the Revolution Wind Farm Project (Project), inclusive of both the Revolution Wind Farm (RWF) and Revolution Wind Export Cable (RWEC), pursuant to Subpart E of 15 CFR Part 930.

On April 30, The Bureau of Ocean Energy Management (BOEM) published a Notice of Intent to Prepare an Environmental Impact Statement in accordance with the National Environmental Policy Act. With this notice, BOEM published a copy of the Project's Construction and Operations Plan (COP) (available at: https://www.boem.gov/Revolution-Wind). The COP contains the necessary data and information required for consistency certification under the Massachusetts Coastal Program Policies. Appendix B-Coastal Zone Management Consistency Statements (Rhode Island and Massachusetts) of the COP contains a list of the enforceable policies and statement of compliance for each enforceable program policy. References are provided to the sections of the COP where the applicable policy is addressed. Appendix B contains the required statement under 15 CFR § 930.76 that the proposed project "complies with the enforceable policies of the Massachusetts approved management program and will be conducted in a manner consistent with such program."

Pursuant to 15 CFR § 930.77, Revolution Wind respectfully requests that MA CZM commence its review of Revolution Wind's consistency certification as of the date of this letter. Please let me know as soon as possible if you have any questions on this submission.

We look forward to working with you during your consistency review. Please do not hesitate to contact me or Liz Gowell, at LIZGO@orsted.com or (857) 348-3262, if you have any questions.

Sincerely,

Mark Roll
Permit Manager, Revolution Wind
857-360-8811

Enclosure: Appendix B to the Revolution Wind COP - Coastal Zone Management Consistency Statements, April 2021

Cc (via email): Robert Boeri, MA CZM
Jeffrey T. (JT) Hesse, BOEM
Jessica Stromberg, BOEM
Liz Gowell, Orsted

Coastal Zone Management Consistency Statements

Rhode Island and Massachusetts

Prepared for

DWW Rev I, LLC
56 Exchange Terrace
Suite 300
Providence, RI 02903

April 2021

1 Cedar Street
Suite 400
Providence, Rhode Island 02903

APPENDIX B

Coastal Zone Management Consistency Statements

The federal Coastal Zone Management Act (CZMA) of 1972 encourages coastal states to be active in managing natural resources. The CZMA is a voluntary program for states. If a state chooses to participate in the CZMA program, it develops a coastal management program (CMP) pursuant to federal law. Under the federal consistency provision of the CZMA, in general, federal actions that may have reasonably foreseeable effects on the uses or resources of a state's coastal zone must be consistent with the enforceable policies of the state's federally approved CMP. The CZMA requires that non-federal applicants for federal licenses or permits submit a consistency certification to the state that declares that the proposed activity complies with the enforceable polices of the state's approved management program and will be conducted in a manner consistent with such program.

In accordance with the "federal consistency" requirement of the CZMA (16 USC 1456), as well as 15 CFR Part 930, the federal actions associated with the Revolution Wind Farm (RWF) and Revolution Wind Export Cable (RWEC) (collectively the Project or proposed activity) include approval of the Construction and Operations Plan (COP) by BOEM (15 CFR part 930, subpart E) and issuance of an Individual Permit by United States Army Corps of Engineers (USACE), under Section 10 and 14 of the Rivers and Harbors Act and Section 404 of the Clean Water Act (15 CFR part 930, subpart E). Based on pre-application discussions, DWW Rev I, LLC (DWW Rev I) expects that Rhode Island and Massachusetts will review the Project for consistency with their state's enforceable policies.

This appendix provides summary tables listing each of the enforceable policies for the Rhode Island CRMP and the Massachusetts CZMP. The summary tables present descriptions of how the RWF and the RWEC will be consistent with each applicable policy and provide a cross reference to specific sections of the COP where the applicable policy is addressed. Key details for each state are described below.

Rhode Island Coastal Resources Management Program

The Rhode Island Coastal Resources Management Council (CRMC) received its federal program (CRMP) approval under the CZMA in 1978. Included in the CRMP is the Rhode Island Ocean Special Area Management Plan (Ocean SAMP), which CRMC approved in 2010 and which the National Oceanic and Atmospheric Administration (NOAA) approved in 2011. The Ocean SAMP contains requirements for activities in state waters and enforceable policies for certain federal agency activities, licenses and permits in certain federal offshore waters.

A consistency certification is required for listed activities on the State's approved federal consistency list that are located in two areas of federal waters designated as geographic location description (GLD) 2011 and GLD 2018. For the GLD 2018, CRMC requested expanded federal consistency review authority of certain federal license or permit activities, namely offshore wind facilities and submarine cables within a portion of the Massachusetts Wind Energy Area (WEA) and certain federal waters. In December 2018, NOAA approved CRMC's requests including the expanded GLD (GLD 2018) and the modified federal consistency list.

The RWF and the RWEC are located in the area defined by the GLDs and the Project is a listed activity on the State's approved federal consistency list. DWW Rev I has prepared a consistency certification that reviews the Project for consistency with the enforceable policies set forth in Section 11 of the Ocean

SAMP, see Appendix B-1. The Project complies with the enforceable policies of the Rhode Island approved management program and will be conducted in a manner consistent with such program.

Massachusetts Coastal Zone Management Program

The Massachusetts Coastal Zone Management Plan, which NOAA approved in 1978, is administered by the Massachusetts Office of Coastal Zone Management within the Executive Office of Energy and Environmental Affairs. The *Massachusetts Office of Coastal Zone Management Policy Guide - October 2011* (Policy Guide) contains the official program policies and references to the legal authorities of the CMP, including the federal consistency review process. DWW Rev I has voluntarily prepared a consistency certification that reviews the Project for consistency with the enforceable policies of the Massachusetts CZMP, see Appendix B-2. The Project complies with the enforceable policies of the Massachusetts approved management program and will be conducted in a manner consistent with such program.

Appendix B-1

Rhode Island Ocean Special Area Management Plan (Ocean SAMP) Consistency Review

Ocean SAMP Section Number 650-RICR-20-05-11	Policy/Requirement	Response to Policy for RWF	Response to Policy for RWEC	COP Sections and Appendices
11.10 Regulatory Standards				
11.10 (A)	This section contains all the regulatory standards outlined by the Ocean SAMP. The regulatory standards have been organized according to the following stages: application; design, fabrication and installation; pre-construction; construction and decommissioning; and monitoring. Section 1160.1 of this part, Overall Regulatory Standards, applies to all stages of development. The regulatory standards contained within all previous chapters of the Ocean SAMP document have been incorporated into this section based upon the applicable stage of development. The "Regulatory Standards" in Section 1160 of this part are enforceable policies for purposes of the Federal CZMA Federal Consistency provision (16 U.S.C. § 1456 and 15 C.F.R. part 930). For CZMA Federal Consistency purposes the Regulatory Standards, in addition to other applicable federally approved RICRMP enforceable policies shall be used as the basis for a CRMC CZMA Federal Consistency concurrence or objection.	The Revolution Wind Farm (RWF) will be located within federal waters, but also is within the Rhode Island Ocean Special Area Management Plan (Ocean SAMP) study area, a Geographic Location Description (GLD), and meets the definition of an Offshore Development.	The Revolution Wind Export Cable (RWEC) will be located underwater within the Ocean SAMP study area and meets the definition of an Offshore Development.	Section 1.3, Project Purpose; Section 1.4, Regulatory Framework; Section 2.0, Project Siting and Design Development; and Section 3.0, Description of Proposed Activity
11.10(B)	The federal offshore renewable energy leasing process, and subsequent regulation of renewable energy projects located in federal waters, will remain under the jurisdiction of BOEM, in consultation and coordination with relevant federal agencies and affected state, local, and tribal officials, as per BOEM's statutory authority at 43 USC 1337(p) and the regulations found at 30 CFR 285.	The RWF is located in federal waters and therefore will remain in compliance with Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSSE) policies.	The RWEC is located in federal waters and state waters, and will remain in compliance with BOEM policies as well as with Rhode Island Coastal Zone Management policies.	Section 1.3, Project Purpose; Section 1.4, Regulatory Framework; Section 2.0, Project Siting and Design Development; and Section 3.0, Description of Proposed Activity
11.10.1 Overall Regulatory Standards				
11.10.1(A)	All Offshore Developments regardless of size, including energy projects, which are proposed for or located within state waters of the Ocean SAMP area, are subject to the policies and standards outlined in Sections 1150 and 1160 of this part (except, as noted above, Section 1150 policies shall not be used for CRMC concurrence or objection for CZMA Federal Consistency reviews). For the purposes of the Ocean SAMP, Offshore Developments are defined as:	The RWF is not located within Rhode Island state waters but is located in a GLD, and meets the definition of a large-scale offshore development and is subject to section 11.10 policies.	The RWEC is located within Rhode Island State waters, is located in a GLD, and is an underwater cable; therefore, the RWEC is subject to Ocean SAMP policies and standards.	Section 1.3, Project Purpose; Section 1.4, Regulatory Framework; Section 2.0, Project Siting and Design Development; and Section 3.0, Description of Proposed Activity
11.10.1(A)(1)	Large-scale projects, such as:			
11.10.1(A)(1)(a)	offshore wind facilities (5 or more turbines within 2 km of each other, or 18 MW power generation);			
11.10.1(A)(1)(b)	wave generation devices (2 or more devices, or 18 MW power generation);			
11.10.1(A)(1)(c)	instream tidal or ocean current devices (2 or more devices, or 18 MW power generation); and			
11.10.1(A)(1)(d)	offshore LNG platforms (1 or more); and			
11.10.1(A)(1)(e)	Artificial reefs (1/2 acre footprint and at least 4 feet high), except for projects of a public nature whose primary purpose is habitat enhancement.			
11.10.1(A)(1)(f)	outer continental shelf (OCS) exploration, development, and production plans.			
11.10.1(A)(2)	Small-scale projects, defined as any projects that are smaller than the above thresholds;			
11.10.1(A)(3)	Underwater cables;			
11.10.1(A)(4)	Mining and extraction of minerals, including sand and gravel;			
11.10.1(A)(5)	Aquaculture projects of any size, as defined and regulated in Section 00-1.3.1(K) of this chapter;			
11.10.1(A)(6)	Dredging, as defined and regulated in Section 00-1.3.1(I) of this chapter; or			
11.10.1(A)(7)	Other development as defined in subchapter 00 part 1 of this chapter (RICRMP - Red Book) which is located from the mouth of Narragansett Bay seaward, in tidal waters from between 500 feet offshore and the 3-nautical mile, state water boundary.			
11.10.1(B)	In assessing the natural resources and existing human uses present in state waters of the Ocean SAMP area, the Council finds that the most suitable area for offshore renewable energy development in the state waters of the Ocean SAMP area is the Renewable Energy Zone depicted in Figure 1 in Section 11.10.1(R) of this part, below. The Council designates this area as Type 4E waters. In the RI CRMP these waters were previously designated as Type 4 (or multipurpose) but are hereby modified to show that this is the preferred site for large scale renewable energy projects in state waters. The Council may approve offshore renewable energy development elsewhere in the Ocean SAMP area, within state waters, where it is determined to have no significant adverse impact on the natural resources or human uses of the Ocean SAMP area. Large-scale Offshore Developments shall avoid areas designated as Areas of Particular Concern consistent with Section 11.10.2 of this part. No large-scale offshore renewable energy development shall be allowed in Areas Designated for Preservation consistent with Section 11.10.3 of this part.	The RWF is consistent with this policy. The RWF is located outside Rhode Island state waters and the OSAMP boundary designated by the Council. The RWF has been sited to avoid areas designated for preservation and avoid, to the extent possible, areas of particular concern. When avoidance is not possible, protection measures will be employed to avoid or minimize impact to any areas of particular concern.	The RWEC is consistent with this policy. Within federal waters, the RWEC is located in the OSAMP boundary designated by the Council. The RWEC has been sited to avoid areas designated for preservation and avoid, to the extent possible, areas of particular concern. When avoidance is not possible, protection measures will be employed to avoid or minimize impact to any areas of particular concern.	Section 1.3, Project Purpose; Section 1.4, Regulatory Framework; Section 2.0, Project Siting and Design Development; and Section 3.0, Description of Proposed Activity
11.10.1(C)	Offshore Developments shall not have a significant adverse impact on the natural resources or existing human uses of the Rhode Island coastal zone, as described in the Ocean SAMP. Where the Council determines that impacts on the natural resources or human uses of the Rhode Island coastal zone through the pre-construction, construction, operation, or decommissioning phases of a project constitute significant adverse effects, the Council shall, through its permitting and enforcement authorities in state waters and through any subsequent CZMA federal consistency reviews, require that the applicant modify the proposal to avoid and/or mitigate the impacts or the Council shall deny the proposal.	The RWF is consistent with this policy. The RWF will not have significant adverse impact on the natural resources or human uses of the Ocean SAMP study area. It is expected that current activities will be able to continue post construction.	The RWEC is consistent with this policy. The RWEC will not have significant adverse impact on the natural resources or human uses of the Ocean SAMP study area. It is expected that current activities will be able to continue post construction.	Section 1.4.2.2, Coastal Zone Management Act Consistency; Section 4.3, Biological Resources; Section 4.6, Socioeconomic Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix B, Coastal Zone Management Act Consistency Certifications
11.10.1(D)	Any Large-Scale Offshore Development, as defined in section 11.3(H), shall require a meeting between the Fisherman's Advisory Board (FAB), the applicant, and the Council staff to discuss potential fishery-related impacts, such as, but not limited to, project location, construction schedules, alternative locations, project minimization and identification of high fishing activity or habitat edges. For any state permit process for a Large-Scale Offshore Development this meeting shall occur prior to submission of the state permit application. The Council cannot require a pre-application meeting for federal permit applications, but the Council strongly encourages applicants for any Large-Scale Offshore Development, as defined in Section 11.3(H) in federal waters to meet with the FAB and the Council staff prior to the submission of a federal application, lease, license, or authorization. However, for federal permit applicants, a meeting with the FAB shall be necessary data and information required for federal consistency reviews for purposes of starting the CZMA 6-month review period for federal license or permit activities under 15 C.F.R. part 930, subpart D, and OCS Plans under 15 C.F.R. part 930, subpart E, pursuant to 15 C.F.R. § 930.58(a)(2).	The RWF will be consistent with this policy. Meetings have been held with CRMC and Revolution Wind intends to schedule a pre-application meeting with the FAB to discuss potential fisheries-related impacts from the RWF.	The RWEC will be consistent with this policy. Meetings have been held with CRMC and Revolution Wind intends to schedule a pre-application meeting with the FAB to discuss potential fisheries-related impacts from the RWEC.	Section 1.4.2.2, Coastal Zone Management Act Consistency; Section 1.5, Agency and Public Outreach; Section 2.0, Project Siting and Design Development; Section 3.0, Description of Proposed Activity; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix B, Coastal Zone Management Act Consistency Certifications
11.10.1(D)(1)	For purposes of BOEM's renewable energy program under the Outer Continental Shelf Lands Act, the CZMA federal consistency process cannot begin until a construction and operations plan (COP) has been submitted for BOEM's review and approval. Once BOEM has determined the COP and supporting information is sufficient to begin its environmental review under the National Environmental Policy Act, a Notice of Intent to prepare an Environmental Impact Statement will be issued. Only when BOEM issues the COP Notice of Intent can the CZMA review period begin. In most cases, an applicant provides the necessary data and information to the state at the time the applicant files its consistency certification and once the consistency certification and necessary data and information are submitted to the state, the six-month CZMA review period begins. However, for CZMA purposes the CRMC FAB meeting can occur before BOEM issues the COP Notice of Intent if the CRMC and the applicant mutually agree. If the FAB meeting does not occur until after BOEM issues the COP Notice of Intent, then the CZMA six-month review period shall not begin until the day after the FAB meeting, providing that the applicant has submitted all other necessary data and information and the consistency certification pursuant to NOAA's regulations. If the applicant requests the FAB meeting, it must be made in writing to the CRMC and the Chair of the FAB. The CRMC shall schedule the meeting in a timely manner to ensure that the CZMA process is not delayed.	The RWF will be consistent with this policy. Meetings have been held with CRMC and Revolution Wind intends to schedule a pre-application meeting with the FAB meeting to discuss potential fisheries-related impacts from the RWF.	The RWEC will be consistent with this policy. Meetings have been held with CRMC and Revolution Wind intends to schedule a pre-application meeting with the FAB meeting to discuss potential fisheries-related impacts from the RWEC.	Appendix A, Agency Correspondence

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11.10.1(E)	The Council shall prohibit any other uses or activities that would result in significant long-term negative impacts Rhode Island's commercial or recreational fisheries. Long-term impacts are defined as those that affect more than one or two seasons.	The RWF is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWF. The RWF is not expected to have major long term impacts on commercial or recreational fisheries.	The RWEC is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWEC. The RWEC is not expected to have major long term impacts on commercial or recreational fisheries.	Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; and Appendix CC, Commercial and Recreational Fisheries
11.10.1(F)	The Council shall require that the potential adverse impacts of Offshore Developments and other uses on commercial or recreational fisheries be evaluated, considered, and mitigated as described in Section 11.10.1(G) of this part.	The RWF is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWF. The RWF is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction.	The RWEC is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWEC. The RWEC is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction.	Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix L, Essential Fish Habitat Assessment; Appendix X, Benthic Assessment; Appendix Y, Fisheries and Benthic Monitoring Plan; and Appendix CC, Commercial and Recreational Fisheries
11.10.1(G)	For the purposes of fisheries policies and standards as summarized in Ocean SAMP Chapter 5, Commercial and Recreational Fisheries, §§ 5.3.1 and 5.3.2 of this Subchapter, mitigation is defined as a process to make whole those fisheries user groups, including related shore-side seafood processing facilities, that are adversely affected by offshore development proposals or projects. Mitigation measures shall be consistent with the purposes of duly adopted fisheries management plans, programs, strategies and regulations of the agencies and regulatory bodies with jurisdiction over commercial and recreational fisheries, including but not limited to those set forth above in § 11.9.4(B) of this Part. Mitigation shall not be designed or implemented in a manner that substantially diminishes the effectiveness of duly adopted fisheries management programs. Mitigation measures may include, but are not limited to, compensation, effort reduction, habitat preservation, restoration and construction, marketing, and infrastructure and commercial fishing fleet improvements. Where there are potential impacts associated with proposed projects, the need for mitigation shall be presumed (see § 11.10.1(F) of this Part). Mitigation shall be negotiated between the Council staff, the FAB, the project developer, and approved by the Council. The final mitigation will be the mitigation required by the CRMC and included in the CRMC's Assent for the project or, included within the CRMC's federal consistency decision for a project's federal permit application.	The RWF is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWF. The RWF is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction. The Project's Fisheries Communication and Outreach Plan summarizes the outreach conducted and includes a Fishing Gear Conflict Prevention and Compensation Plan that identifies measures to Prevent gear loss, as well as a claim procedure in the event that gear loss is caused by RWF activities.	The RWEC is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWEC. The RWEC is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction. The Project's Fisheries Communication and Outreach Plan summarizes the outreach conducted and includes a Fishing Gear Conflict Prevention and Compensation Plan that identifies measures to Prevent gear loss, as well as a claim procedure in the event that gear loss is caused by RWEC activities.	Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix L, Essential Fish Habitat Assessment; Appendix X, Benthic Assessment; Appendix Y, Fisheries and Benthic Monitoring Plan Appendix CC, Commercial and Recreational Fisheries; and Appendix DD, Fisheries Communication and Outreach Plan
11.10.1(H)	The Council recognizes that moraine edges, as illustrated in Figures 3 and 4 in section 11.10.2 of this part, are important to commercial and recreational fishermen. In addition to these mapped areas, the FAB may identify other edge areas that are important to fisheries within a proposed project location. The Council shall consider the potential adverse impacts of future activities or projects on these areas to Rhode Island's commercial and recreational fisheries. Where it is determined that there is a significant adverse impact, the Council will modify or deny activities that will impact these areas. In addition, the Council will require assent holders for Offshore Developments to employ micro-siting techniques in order to minimize the potential impacts of such projects on these edge areas.	The RWF is consistent with this policy. The RWF has been sited to avoid and minimize impacts to areas of particular concern, including moraine edges. When avoidance is not possible, protection measures will be employed to avoid to minimize impact to any moraine edges.	The RWEC is consistent with this policy. The RWEChas been sited to avoid and minimize impacts to areas of particular concern, including moraine edges. When avoidance is not possible, protection measures will be employed to avoid to minimize impact to any moraine edges.	Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; and Appendix CC, Commercial and Recreational Fisheries
11.10.1(I)	The finfish, shellfish, and crustacean species that are targeted by commercial and recreational fishermen rely on appropriate habitat at all stages of their life cycles. While all fish habitat is important, spawning and nursery areas are especially important in providing shelter for these species during the most vulnerable stages of their life cycles. The Council shall protect sensitive habitat areas where they have been identified through the Site Assessment Plan or Construction and Operation Plan review processes for Offshore Developments as described in Section 11.10.5(C) of this part.	The RWF is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWF. The RWF is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction.	The RWEC is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWEC. The RWEC is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction.	Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix L, Essential Fish Habitat Assessment; Appendix X, Benthic Assessment; Appendix Y, Fisheries and Benthic Monitoring Plan; and Appendix CC, Commercial and Recreational Fisheries
11.10.1(J)	Any Large-Scale Offshore Development, as defined in this part, shall require a meeting between the HAB, the applicant, and the Council staff to discuss potential marine resource and habitat-related issues such as, but not limited to, impacts to marine resource and habitats during construction and operation, project location, construction schedules, alternative locations, project minimization, measures to mitigate the potential impacts of proposed projects on habitats and marine resources, and the identification of important marine resource and habitat areas. For any state permit process for a Large-Scale Offshore Development, this meeting shall occur prior to submission of the state permit application. The Council cannot require a pre-application meeting for federal permit applications, but the Council strongly encourages applicants for any Large-Scale Offshore Development, as defined in Section 11.10.1(A) of this part, in federal waters to meet with the HAB and the Council staff prior to the submission of a federal application, lease, license, or authorization. However, for federal permit applicants, a meeting with the HAB shall be necessary data and information required for federal consistency reviews for purposes of starting the CZMA 6-month review period for federal license or permit activities under 15 C.F.R. part 930, subpart D, and OCS Plans under 15 C.F.R. part 930, subpart E, pursuant to 15 C.F.R. § 930.58 (a)(2).	The RWF will be consistent with this policy. Meetings have been held with CRMC and Revolution Wind intends to schedule a pre-application meeting with the HAB meeting to discuss potential marine resources and habitat-related impacts from the RWF.	The RWEC is consistent with this policy. Meetings have been held with CRMC and Revolution Wind intends to schedule a pre-application meeting with the HAB meeting to discuss potential marine resources and habitat-related impacts from the RWEC.	Section 1.3.4, Coastal Zone Management Act Consistency; Section 1.5, Agency and Public Outreach; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix A, Agency Correspondence; and Appendix B, Coastal Zone Management Act Consistency Certifications
11.10.1(J)(1)	For purposes of BOEM's renewable energy program under the Outer Continental Shelf Lands Act, the CZMA federal consistency process cannot begin until a construction and operations plan (COP) has been submitted for BOEM's review and approval. Once BOEM has determined the COP and supporting information is sufficient to begin its environmental review under the National Environmental Policy Act, a Notice of Intent to prepare an Environmental Impact Statement will be issued. Only when BOEM issues the COP Notice of Intent can the CZMA review period begin. In most cases, an applicant provides the necessary data and information to the state at the time the applicant files its consistency certification and once the consistency certification and necessary data and information are submitted to the state, the six-month CZMA review period begins. However, for CZMA purposes the CRMC HAB meeting can occur before BOEM issues the COP Notice of Intent if the CRMC and the applicant mutually agree. If the HAB meeting does not occur until after BOEM issues the COP Notice of Intent, then the CZMA six-month review period shall not begin until the day after the HAB meeting, providing that the applicant has submitted all other necessary data and information and the consistency certification pursuant to NOAA's regulations. If the applicant requests the HAB meeting, it must be made in writing to the CRMC and the Chair of the FAB. The CRMC shall schedule the meeting in a timely manner to ensure that the CZMA process is not delayed.			
11.10.1(K)	The potential impacts of a proposed project on cultural and historic resources will be evaluated in accordance with the National Historic Preservation Act and Antiquities Act, and the Rhode Island Historical Preservation Act and Antiquities Act as applicable. Depending on the project and the lead federal agency, the projects that may impact marine historical or archaeological resources identified through the joint agency review process shall require a Marine Archaeology Assessment that documents actual or potential impacts the completed project will have on submerged cultural and historic resources.	The RWF is consistent with this policy. Potential impacts on cultural and historic resources have been evaluated.	The RWEC is consistent with this policy. Potential impacts on cultural and historic resources have been evaluated.	Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix M, Marine Archaeological Resources Assessment Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm

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11.10.1(L)	Guidelines for Marine Archaeology Assessment in the Ocean SAMP Area can be obtained through the RIHPHC in their document, "Performance Standards and Guidelines for Archaeological Projects: Standards for Archaeological Survey" (RIHPHC 2007), or the lead federal agency responsible for reviewing the proposed development.	The RWF is consistent with this policy. BOEM is the lead federal agency for the RWF and the Marine Archaeology Assessment was conducted in accordance with their guidelines.	The RWEC is consistent with this policy. BOEM is the lead federal agency for the RWF and the Marine Archaeology Assessment was conducted in accordance with their guidelines.	Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix M, Marine Archaeological Resources Assessment
11.10.1(M)	The potential non-physical impacts of a proposed project on cultural and historic resources shall be evaluated in accordance with 36 CFR 800.5, *Assessment of Adverse Effects, (v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features* . Depending on the project and the lead federal agency, the Ocean SAMP Interagency Working Group may require that a project undergo a Visual Impact Assessment that evaluates the visual impact a completed project will have on onshore cultural and historic resources.	The RWF is consistent with this policy. Visual Impact Assessments were performed for the RWF.	The RWEC is consistent with this policy. Visual Impact Assessments were performed for the project; the RWEC will be buried and, therefore, will not be visible.	Section 4.1.10, Visible Structures; Section 4.5, Visual Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix U3, Visual Impact Assessment- Revolution Wind Farm
11.10.1(N)	A Visual Impact Assessment may require the development of detailed visual simulations illustrating the completed project's visual relationship to onshore properties that are designated National Historic Landmarks, listed on the National Register of Historic Places, or determined to be eligible for listing on the National Register of Historic Places. Assessment of impacts to specific views from selected properties of interest may be required by relevant state and federal agencies to properly evaluate the impacts and determination of adverse effect of the project on onshore cultural or historical resources.	The RWF is consistent with this policy. Visual Impact Assessments were performed for the RWF.	The RWEC is consistent with this policy. Visual Impact Assessments were performed for the project; the RWEC will be buried and, therefore, will not be visible.	Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm
11.10.1(O)	A Visual Impact Assessment may require description and images illustrating the potential impacts of the proposed project.	The RWF is consistent with this policy. Visual Impact Assessments were performed for the RWF.	The RWEC is consistent with this policy. Visual Impact Assessments were performed for the project; the RWEC will be buried and, therefore, will not be visible.	Section 4.1.10, Visible Structures; Section 4.5, Visual Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix U3, Visual Impact Assessment- Revolution Wind Farm
11.10.2 Areas of Particular Concern				
11.10.2(A)	Areas of Particular Concern (APCs) have been designated in state waters through the Ocean SAMP process with the goal of protecting areas that have high conservation value, cultural and historic value, or human use value from Large-Scale Offshore Development. These areas may be limited in their use by a particular regulatory agency (e.g. shipping lanes), or have inherent risk associated with them (e.g. unexploded ordnance locations), or have inherent natural value or value assigned by human interest (e.g. glacial moraines, historic shipwreck sites). Areas of Particular Concern have been designated by reviewing habitat data, cultural and historic features data, and human use data that has been developed and analyzed through the Ocean SAMP process. Currently designated Areas of Particular Concern are based on current knowledge and available datasets; additional Areas of Particular Concern may be identified by the Council in the future as new datasets are made available. Areas of Particular Concern may be elevated to Areas Designated for Preservation in the future if future studies show that Areas of Particular Concern cannot risk even low levels of Large-Scale Offshore Development within these areas. Areas of Particular Concern include:	The RWF is consistent with these policies, as described below.	The RWEC is consistent with these policies, as described below.	See responses below.
11.10.2(A)(1)	Areas with unique or fragile physical features, or important natural habitats;	The RWF is consistent with this policy. The RWF will be sited to avoid unique or fragile physical features or important natural habitats to the maximum extent possible. Where avoidance is not possible, Revolution Wind will implement environmental protection measures to minimize impacts on these resources.	The RWEC is consistent with this policy. The RWEC will be sited to avoid unique or fragile physical features or important natural habitats to the maximum extent possible. Where avoidance is not possible, Revolution Wind will implement environmental protection measures to minimize impacts on these resources.	Section 4.3, Biological Resources; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; and Appendix CC, Commercial and Recreational Fisheries
11.10.2(A)(2)	Areas of high natural productivity;	The RWF is consistent with this policy. Based on fisheries assessments, the RWF was sited to avoid areas of high natural productivity.	The RWEC is consistent with this policy. Based on fisheries assessments, the RWEC was sited to avoid to avoid areas of high natural productivity.	Section 4.3, Biological Resources; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; and Appendix CC, Commercial and Recreational Fisheries
11.10.2(A)(3)	Areas with features of historical significance or cultural value;	The RWF is consistent with this policy. Revolution Wind is conducting surveys and tribal coordination to identify submerged cultural resources. The RWF will be sited to avoid areas with features of historical significance or cultural value to the maximum extent possible. Where avoidance is not possible, will implement environmental protection measures to minimize impacts on these resources, including implementation of an Unanticipated Discovery Plan.	The RWEC is consistent with this policy. Revolution Wind is conducting surveys and tribal coordination to identify submerged cultural resources. The RWEC will be sited to avoid areas with features of historical significance or cultural value to the maximum extent possible. Where avoidance is not possible, will implement environmental protection measures to minimize impacts on these resources, including implementation of an Unanticipated Discovery Plan.	Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix M, Marine Archaeological Resources Assessment Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm
11.10.2(A)(4)	Areas of substantial recreational value;	The RWF is consistent with this policy. The RWF is not located in an area that has substantial recreational value.	The RWEC is consistent with this policy. The RWEC is not located in an area that has substantial recreational value.	Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.6.7, Coastal Land Use and Infrastructure; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Management Measures; and Appendix CC, Commercial and Recreational Fisheries
11.10.2(A)(5)	Areas important for navigation, transportation, military and other human uses; and	The RWF is consistent with this policy. The RWF was sited to avoid areas that are important to navigation, transportation, military and other uses.	The RWEC is consistent with this policy. The RWEC will be buried and will therefore not interfere with navigation, transportation, military and other uses.	Section 4.6.6, Commercial Shipping; Section 4.6.7, Coastal Land Use and Infrastructure; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix R, NavigationSafety Risk Assessment
11.10.2(A)(6)	Areas of high fishing activity.	The RWF is consistent with this policy. Based on fisheries assessments, the RWF is not sited in an area of high fishing activity.	The RWEC is consistent with this policy. The RWEC will be buried and is not expected to have impact fishing activity.	Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix CC, Commercial and Recreational Fisheries

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11.10.2(B)	The Council has designated the areas listed below in section 11.10.2(C) of this part in state waters as Areas of Particular Concern. All Large-scale, Small-scale, or other offshore development, or any portion of a proposed project, shall be presumptively excluded from APCs. This exclusion is rebuttable if the applicant can demonstrate by clear and convincing evidence that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC. When evaluating a project proposal, the Council shall not consider cost as a factor when determining whether practicable alternatives exist. Applicants which successfully demonstrate that the presumptive exclusion does not apply to a proposed project because there are no practicable alternatives that are less damaging in areas outside of the APC must also demonstrate that all feasible efforts have been made to avoid damage to APC resources and values and that there will be no significant alteration of the APC resources or values. Applicants successfully demonstrating that the presumptive exclusion does not apply because the proposed project will not result in a significant alteration to the values and resources of the APC must also demonstrate that all feasible efforts have been made to avoid damage to the APC resources and values. The Council may require a successful applicant to provide a mitigation plan that protects the ecosystem. The Council will permit underwater cables, only in certain categories of Areas of Particular Concern, as determined by the Council in coordination with the Joint Agency Working Group. The maps listed below in section 11.10.2(C) of this part. depicting Areas of Particular Concern may be superseded by more detailed, site-specific maps created with finer resolution data.	The RWF is consistent with this policy. The RWF is located in federal waters, but within the Ocean SAMP study area, and was sited to avoid Areas of Particular Concern. When avoidance is not possible, protection measures will be employed to avoid or minimize impacts to Areas of Particular Concern.	The RWEC is consistent with this policy. The RWEC was sited to avoid Areas of Particular Concern. When avoidance is not possible, protection measures will be employed to avoid or minimize impacts to Areas of Particular Concern.	Section 3.0, Description of Proposed Activity Section 4.7 Summary of Potential Impacts and Proposed Environmental Protection Measures.
11.10.2(C)	Areas of particular concern that have been identified in the Ocean SAMP area in state waters are described as follows.			
11.10.2(C)(1)	Historic shipwrecks, archaeological or historical sites and their buffers as described in Chapter 4, Cultural and Historic Resources, section 440.1.1 through 440.1.4, are Areas of Particular Concern. For the latest list of these sites and their locations please refer to the Rhode Island State Historic Preservation and Heritage Commission.	The RWF is consistent with this policy. Revolution Wind analyzed the shipwreck data provided by Rhode Island State Historic Preservation and Heritage Commission. Known shipwrecks located within the RWF will be avoided.	The RWEC is consistent with this policy. Revolution Wind analyzed the shipwreck data provided by Rhode Island State Historic Preservation and Heritage Commission. Known shipwrecks located within the RWEC will be avoided.	Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix M, Desktop Marine Archaeological Resources Assessment
11.10.2(C)(2)	Offshore dive sites within the Ocean SAMP area, as shown in Figure 2 in Section 11.10.2 of this part are designated Areas of Particular Concern. The Council recognizes that offshore dive sites, most of which are shipwrecks, are valuable recreational and cultural ocean assets and are important to sustaining Rhode Island's recreation and tourism economy.	The RWF is consistent with this policy. There are no offshore dive sites of significance in the RWF area.	The RWEC is consistent with this policy. There are no offshore dive sites of significance along the RWEC route.	Section 4.6.4, Recreation and Tourism; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix R, Navigation Safety Risk Assessment
11.10.2(C)(3)	Glacial moraines are important habitat areas for a diversity of fish and other marine plants and animals because of their relative structural permanence and structural complexity. Glacial moraines create a unique bottom topography that allows for habitat diversity and complexity, which allows for species diversity in these areas and creates environments that exhibit some of the highest biodiversity within the entire Ocean SAMP area. The Council also recognizes that because glacial moraines contain valuable habitats for fish and other marine life, they are also important to commercial and recreational fishermen. Accordingly, the Council shall designate glacial moraines as identified in Figure 3 and Figure 4 in section 11.10.2 of this part as Areas of Particular Concern.	The RWF is consistent with this policy. The RWF has been sited to avoid areas of particular concern. When avoidance is not possible, protection measures will be employed to avoid to minimize impact to glacial moraines.	The RWEC is consistent with this policy. The RWEC has been sited to avoid areas of particular concern. When avoidance is not possible, protection measures will be employed to avoid to minimize impact to glacial moraines.	Section 4.2.3, Geological Resources; Section 4.2.4, Physical Oceanography and Meteorology; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.2(C)(4)	Navigation, Military, and Infrastructure areas including: designated shipping lanes, precautionary areas, recommended vessel routes, ferry routes, dredge disposal sites, military testing areas, unexploded ordnance, pilot boarding areas, anchorages, and a coastal buffer of 1 km as depicted in Figure 5 in section 11.10.2 of this part are designated as Areas of Particular Concern. The Council recognizes the importance of these areas to marine transportation, navigation and other activities in the Ocean SAMP area.	The RWF is consistent with this policy. Revolution Wind analyzed navigation, military, and infrastructure areas, and there are no precautionary areas, ferry routes, dredge disposal sites, military testing areas, unexploded ordnance, pilot boarding areas, anchorages, or coastal buffers located in the RWF area. There are no known unexploded ordnances.	The RWEC is consistent with this policy. Revolution Wind analyzed navigation, military, and infrastructure areas, and there are no precautionary areas, ferry routes, dredge disposal sites, military testing areas, unexploded ordnance, pilot boarding areas, anchorages, or coastal buffers located along the RWEC route. There are no known unexploded ordnances.	Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix R, Navigation Safety Risk Assessment
11.10.2(C)(5)	Areas of high fishing activity as identified during the pre-application process by the Fishermen's Advisory Board, as defined in section 11.3(E) of this part, may be designated by the Council as Areas of Particular Concern.	The RWF is consistent with this policy. The RWF has been sited to avoid Areas of high fishing activity. The RWF is not expected to have major long-term impacts on fishing it is expected that fishing will continue after construction.	The RWEC is consistent with this policy. The RWEC has been sited to avoid Areas of high fishing activity. The RWEC is not expected to have major long-term impacts on fishing it is expected that fishing will continue after construction.	Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix CC, Commercial and Recreational Fisheries
11.10.2(C)(6)	Several heavily-used recreational boating and sailboat racing areas, as shown in Figure 6 in section 11.10.2 of this part, are designated as Areas of Particular Concern. The Council recognizes that organized recreational boating and sailboat racing activities are concentrated in these particular areas, which are therefore important to sustaining Rhode Island's recreation and tourism economy.	The RWF is consistent with this policy. The RWF is not located in a heavily-used recreational boating and sailboat racing areas, as shown on Figure 6 of the Ocean SAMP, and will not negatively impact Rhode Island's recreation and tourism economy.	The RWEC is consistent with this policy. The RWEC is not located in a heavily-used recreational boating and sailboat racing areas, as shown on Figure 6 of the Ocean SAMP, and will not negatively impact Rhode Island's recreation and tourism economy.	Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix CC, Commercial and Recreational Fisheries
11.10.2(C)(7)	Naval Fleet Submarine Transit Lane, as described in Chapter 7, Marine Transportation, Navigation, and Infrastructure section 720.7, are designated as Areas of Particular Concern.	The RWF is consistent with this policy. The RWF is not located in a Naval Fleet Submarine Transit Lane.	The RWEC is consistent with this policy. The RWEC is not located in a Naval Fleet Submarine Transit Lane.	Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix R, Navigation Safety Risk Assessment
11.10.2(C)(8)	Other Areas of Particular Concern may be identified during the pre-application review by state and federal agencies as areas of importance.	The RWF is consistent with this policy. Revolution Wind recognizes that other Areas of Particular concern may be identified during the pre-application review.	The RWEC is consistent with this policy. Revolution Wind recognizes that other Areas of Particular concern may be identified during the pre-application review.	Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix R, Navigation Safety Risk Assessment
11.10.2(D)	Developers proposing projects for within the Renewable Energy Zone as described in section 11.10.1(B) of this part shall adhere to the requirements outlined in 11.10.2 of this part regarding Areas of Particular Concern in state waters, including any Areas of Particular Concern that overlap the Renewable Energy Zone (see Figure 7 in section 11.10.2 of this part).	This policy is not applicable because the RWF is not located within Rhode Island state waters.	The RWEC is consistent with these policy.	Not applicable
11.10.3 Prohibitions and Areas Designated for Preservation				
11.10.3(A)	Areas Designated for Preservation are designated in the Ocean SAMP area in state waters for the purpose of preserving them for their ecological value. Areas Designated for Preservation were identified by reviewing habitat and other ecological data and findings that have resulted from the Ocean SAMP process. Areas Designated for Preservation are afforded additional protection than Areas of Particular Concern (see section 11.10.2 of this part) because of scientific evidence indicating that Large-Scale Offshore Development in these areas may result in significant habitat loss. The areas listed in Section 11.10.3 are designated as Areas Designated for Preservation. The Council shall prohibit any Large-Scale Offshore Development, mining and extraction of minerals, or other development that has been found to be in conflict with the intent and purpose of an Area Designated for Preservation. Underwater cables are exempt from this prohibition. Areas designated for preservation include:	This policy is not applicable because the RWF is located in federal waters, outside state waters, and is therefore not located in any Areas Designated for Preservation.	This policy is not applicable because the RWEC is not located in any Areas Designated for Preservation.	Not applicable
11.10.3(A)(1)	Ocean SAMP sea duck foraging habitat in water depths less than or equal to 20 meters [65.6 feet] (as shown in Figure 8 in section 11.10.2 of this part) is designated as an Area Designated for Preservation due to their ecological value and the significant role these foraging habitats play to avian species, and existing evidence suggesting the potential for permanent habitat loss as a result of offshore wind energy development. The current research regarding sea duck foraging areas indicates that this habitat is depth limited and generally contained within the 20 meter depth contour. It is likely there are discreet areas within this region that are prime feeding areas, however at present there is no long-term data set that will allow this determination. Thus, the entire area within the 20 meter contour is being protected as an Area Designated for Preservation until further research allows the Council and other agencies to make a more refined determination.	This policy is not applicable because the RWF is not located in any Areas Designated for Preservation or Ocean SAMP sea duck foraging habitat.	This policy is not applicable because the RWEC is not located in any Areas Designated for Preservation or Ocean SAMP sea duck foraging habitat.	Not applicable
11.10.3(A)(2)	The mining and extraction of minerals, including sand and gravel, from tidal waters and salt ponds is prohibited. This prohibition does not apply to dredging for navigation purposes, channel maintenance, habitat restoration, or beach replenishment for public purposes.	This policy is not applicable because the RWF is an offshore wind farm facility, not a mining and extraction of minerals facility.	This policy is not applicable because the RWEC is a buried export cable, not a mining and extraction of minerals facility.	Not applicable

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11.10.3(A)(3)	The Council shall prohibit any Offshore Development in areas identified as Critical Habitat under the Endangered Species Act.	The RWF is consistent with this policy. The RWF is not located within any critical habitat areas.	The RWEC is consistent with this policy. The RWEC is not located within any critical habitat areas.	Section 4.3, Biological Resources; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; and Appendix CC, Commercial and Recreational Fisheries
11.10.3(A)(4)	Dredged material disposal, as defined and regulated in Section 00-1.3.1(I) of this chapter, is further limited in the Ocean SAMP area by the prohibition of dredged material disposal in the following Areas of Particular Concern as defined in section 11.10.2 of this part: historic shipwrecks, archaeological, or historic sites; offshore dive sites; navigation, military, and infrastructure areas; and moraines. Beneficial reuse may be allowed in Areas Designated for Preservation, whereas all other dredged material disposal is prohibited in those areas. All disposal of dredged material will be conducted in accordance with the U.S. EPA and U.S. Army Corps of Engineers' manual, *Evaluation of Dredged Material Proposed for Ocean Disposal*.	This policy is not applicable because the RWF is an offshore wind farm facility, not a dredging project.	This policy is not applicable because the RWEC is an underwater cable, not a dredging project.	Not applicable
11.10.4 Other Areas				
11.10.4(A)	Large-scale projects or other development which is found to be a hazard to commercial navigation shall avoid areas of high intensity commercial marine traffic in state waters. Avoidance shall be the primary goal of these areas. Areas of High Intensity Commercial Marine Traffic are defined as having 50 or more vessel counts within a 1 km by 1 km grid, as in Figure 9 in Section 11.10.4(B).	The RWF is consistent with this policy. The RWF is not located in the areas of high traffic as described in Figure 9 of the Ocean SAMP.	The RWEC is consistent with this policy. The RWEC will be buried and therefore will not be a hazard to commercial navigation.	Section 4.6.8, Other Marine Uses; and Appendix R, NavigationSafety Risk Assessment
11.10.5 Application Requirements				
11.10.5(A)	For the purposes of this document, the phrase "'necessary data and information'" shall refer to the necessary data and information required for federal consistency reviews for purposes of starting the Coastal Zone Management Act (CZMA) 6-month review period for federal license or permit activities under 15 C.F.R. part 930, subpart D, and OCS Plans under 15 C.F.R. part 930, subpart E, pursuant to 15 C.F.R. § 930.58(a)(2). Any necessary data and information shall be provided before the 6-month CZMA review period begins for a proposed project. It should be noted that other federal and state agencies may require other types of data or information as part of their review processes.	The RWF is consistent with this policy. All necessary data and information will be provided to start the 6 month review period.	The RWEC is consistent with this policy. All necessary data and information will be provided to start the 6 month review period.	Not Applicable
11.10.5(B)	For the purposes of this document, the following terms shall be defined as:			
11.10.5(B)(1)	A **Site Assessment Plan** (SAP) is defined as a pre-application plan that describes the activities and studies the applicant plans to perform for the characterization of the project site.	A SAP for Lease Area OCS - A - 0486 was approved by BOEM in October 2017. The CRMC issued concurrence for file #2017-09-034 on September 8, 2017.	A SAP for Lease Area OCS - A - 0486 was approved by BOEM in October 2017. The CRMC issued concurrence for file #2017-09-034 on September 8, 2017.	Not Applicable
11.10.5(B)(2)	A **Construction and Operations Plan** (COP) is defined as a plan that describes the applicant's construction, operations, and conceptual decommissioning plans for a proposed facility, including the applicant's project easement area.	The COP for the RWF was submitted to BOEM in March 2020 and is under review.	The COP for the RWEC was submitted to BOEM in March 2020 and is under review.	Section 1.3, Project Purpose; Section 1.4, Regulatory Framework; and Section 3.0, Description of Proposed Activity
11.10.5(B)(3)	A **Certified Verification Agent** (CVA) is defined as an independent third-party agent that shall use good engineering judgment and practices in conducting an independent assessment of the design, fabrication and installation of the facility. The CVA shall have licensed and qualified Professional Engineers on staff.	The CVA nomination was submitted with the COP and will be approved by BOEM.	The CVA nomination was submitted with the COP and will be approved by BOEM.	Section 7, Certified Verification Agent Nominations; Appendix C1 and C2, Certified Verification Agent
11.10.5(C)	Prior to construction, the following sections shall be considered necessary data and information and shall be required by the Council:			
11.10.5(C)(1)	**Site Assessment Plan** - A SAP is a pre-application plan that describes the activities and studies (e.g., installation of meteorological towers, meteorological buoys) the applicant plans to perform for the characterization of the project site. The SAP shall describe how the applicant shall conduct the resource assessment (e.g., meteorological and oceanographic data collection) or technology testing activities. For projects in state waters the applicant shall receive the approval of the SAP by the Council (see § 11.9.8 of this Part). For projects within Type 4E waters (depicted in Figure 1 in § 11.10.1 of this Part), pre-construction data requirements may incorporate data generated by the Ocean SAMP provided the data was collected within 2 years of the date of application, or where the Ocean SAMP data is determined to be current enough to meet the requirements of the Council in coordination with the Joint Agency Working Group. The applicant shall reference information and data discussed in the Ocean SAMP (including appendices and technical reports) in their SAP. For a SAP required by BOEM under the Outer Continental Shelf Lands Act for projects in federal waters, if BOEM combines the SAP with the COP, then the SAP and COP would be filed at the same time. If BOEM does not require a SAP for a project in federal waters, then the SAP shall not be necessary data and information for federal consistency reviews.	A SAP for Lease Area OCS - A - 0486 was approved by BOEM in October 2017. The CRMC issued concurrence for file #2017-09-034 on September 8, 2017.	A SAP for Lease Area OCS - A - 0486 was approved by BOEM in October 2017. The CRMC issued concurrence for file #2017-09-034 on September 8, 2017.	Not Applicable
11.10.5(C)(1)(a)	The applicant's SAP shall include data from:			
11.10.5(C)(1)(a)(1)	Physical characterization surveys (e.g., geological and geophysical surveys or hazards surveys); and			
11.10.5(C)(1)(a)(2)	Baseline environmental surveys (e.g., biological or archaeological surveys).			
11.10.5 C)(1)(b)	The SAP shall demonstrate that the applicant has planned and is prepared to conduct the proposed site assessment activities in a manner that conforms to the applicant's responsibilities listed above in section 11.10.1(E) of this part:			
11.10.5(C)(1)(b)(1)	Conforms to all applicable laws, regulations;			
11.10.5(C)(1)(b)(2)	Is safe;			
11.10.5(C)(1)(b)(3)	Does not unreasonably interfere with other existing uses of the state waters,			
11.10.5(C)(1)(b)(4)	Does not cause undue harm or damage to natural resources; life (including human and wildlife); the marine, coastal, or human environment; or sites, structures, or direct harm to objects of historical or archaeological significance;			
11.10.5(C)(1)(b)(5)	Uses best available and safest technology;			
11.10.5(C)(1)(b)(6)	Uses best management practices; and			
11.10.5(C)(1)(b)(7)	Uses properly trained personnel.			
11.10.5(C)(1)(C)	The applicant shall also demonstrate that the site assessment activities shall collect the necessary data and information required for the applicant's COP, as described below in section 11.10.5(C)(2) of this part.			
11.10.5(C)(1)(d)	The applicant's SAP shall include the information described in Table 3 in Section 11.10.5 of this Part, as applicable.			
Table 3: Contents of a site assessment plan	**Table 3: Contents of a site assessment plan**			
11.10.5(C)(1)(d)(1)	(1) Contact Information. The name, address, e-mail address, and phone number of an authorized representative.			
	(2) The site assessment or technology testing concept. A discussion of the objectives; description of the proposed activities, including the technology to be used; and proposed schedule from start to completion.			
	(4) Stipulations and compliance. A description of the measures the applicant took, or shall take, to satisfy the conditions of any permit stipulations related to the applicant's proposed activities.			
	(5) A location. The surface location and water depth for all proposed and existing structures, facilities, and appurtenances located both offshore and onshore.			
	(6) General structural and project design, fabrication, and installation. Information for each type of facility associated with the applicant's project.			
	(7) Deployment activities. A description of the safety, prevention, and environmental protection features or measures that the applicant will use.			

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	(8) The applicant's proposed measures for avoiding, minimizing, reducing, eliminating, and monitoring environmental impacts. A description of the measures the applicant shall take to avoid or minimize adverse effects and any potential incidental take, before the applicant conducts activities on the project site, and how the applicant shall mitigate environmental impacts from proposed activities, including a description of the measures to be used.			
	(9) Reference information. Any document or published sources that the applicant information and data discussed in the Ocean SAMP (including appendices and technical reports), other plans referenced in the Ocean SAMP, and other plans previously submitted by the applicant or that are otherwise readily available to the Council.			
	(10) Decommissioning and site clearance procedures. A discussion of methodologies.			
	(11) Air quality information. Information required for the Clean Air Act (42 U.S.C. 7409) and implementing regulations.			
	(12) A listing of all Federal, State, and local authorizations or approvals required to conduct site assessment activities on the project site. A statement indicating whether such authorization or approval has been applied for or obtained.			
	(13) A list of agencies or persons with whom the applicant has communicated, or will communicate, regarding potential impacts associated with the proposed activities. Contact information and issues discussed.			
	(14) Financial assurance information. Statements attesting that the activities and facilities proposed in the applicant's SAP are or shall be covered by an appropriate performance bond or other Council approved security.			
	(15) Other information. Additional information as requested by the Council in coordination with the Joint Agency Working Group.			
11.10.5(C)(1)(e)	The applicant's SAP shall provide the results of geophysical and geological surveys, hazards surveys, archaeological surveys (as required by the Council in coordination with the Joint Agency Working Group), and biological surveys outlined in Table 4 in Section 11.10.5 of this Part (with the supporting data) in the applicant's SAP:			
Table 4: Necessary data and information to be provided in the site	**Table 4: Necessary data and information to be provided in the site assessment plan**			
11.10.5(C)(1)(e)(1)	(1) Geotechnical.			
11.10.5(C)(1)(e)(2)	(2) Shallow hazards.			
11.10.5(C)(1)(e)(3)	(3) Archaeological resources.			
11.10.5(C)(1)(e)(4)	(4) Geological survey.			
11.10.5(C)(1)(e)(5)	(5) Biological survey.			
11.10.5(C)(1)(e)(6)	(6) Fish and fisheries survey.			
11.10.5(C)(1)(f)	The applicant shall submit a SAP that describes those resources, conditions, and activities listed in Table 5 of Section 11.10.5 of this Part that could be affected by the applicant's proposed activities, or that could affect the activities proposed in the applicant's SAP, including but not limited to:			
Table 5: Resource data and uses that shall be described in the site	**Table 3: Resource data and uses that shall be described in the site assessment plan**			
11.10.5(C)(1)(f)(1)	(1) Hazard information.			
11.10.5(C)(1)(f)(2)	(2) Water quality			
11.10.5(C)(1)(f)(3)	(3) Biological resources.			
11.10.5(C)(1)(f)(4)	(4) Threatened or endangered species.			
11.10.5(C)(1)(f)(5)	(5) Sensitive biological resources or habitats.			
11.10.5(C)(1)(f)(6)	(6) Archaeological and visual resources.			
11.10.5(C)(1)(f)(7)	(7) Social and economic resources.			
11.10.5(C)(1)(f)(8)	(8) Fisheries Resources and Uses			
11.10.5(C)(1)(f)(9)	(9) Coastal and marine uses.			
11.10.5(C)(1)(g)	The Council shall review the applicant's SAP in conjunction with the Joint Agency Working Group to determine if it contains the information necessary to conduct technical and environmental reviews and shall notify the applicant if the SAP lacks any necessary information. If the Council determines that necessary data and information is missing, the CRMC may only delay the CZMA six-month federal consistency review period in accordance with NOAA's regulations at 15 C.F.R. §§ 930.60(a) and 930.77(a) (1).			
11.10.5(C)(1)(h)	Any Large-Scale Offshore Development, as defined above in section 11.10.1(A) of this part, shall require a meeting between the Fisherman's Advisory Board (FAB), the applicant, and the Council staff to discuss potential fishery-related impacts, such as, but not limited to, project location, construction schedules, alternative locations, project minimization and identification of high fishing activity or habitat edges. For any state permit process for a Large-Scale Offshore Development this meeting shall occur prior to submission of the state permit application. The Council cannot require a pre-application meeting for federal permit applications, but the Council strongly encourages applicants for any Large-Scale Offshore Development, as defined in Section 11.3(F) in federal waters to meet with the FAB and the Council staff prior to the submission of a federal application, lease, license, or authorization. However, for federal permit applicants, a meeting with the FAB shall be necessary data and information required for federal consistency reviews for purposes of starting the CZMA 6-month review period for federal license or permit activities under 15 C.F.R. part 930, subpart D, and OCS Plans under 15 C.F.R. part 930, subpart E, pursuant to 15 C.F.R. § 930.58(a)(2). Any necessary data and information shall be provided before the 6-month CZMA review period begins for a proposed project.			
11.10.5(C)(2)	**Construction and Operations Plan (COP) -** The COP describes the applicant's construction, operations, and conceptual decommissioning plans for the proposed facility, including the applicant's project easement area.	The COP for the RWF was submitted to BOEM in March 2020 and is under review.	The COP for the RWEC was submitted to BOEM in March 2020 and is under review.	Section 3.0, Description of Proposed Activity
11.10.5(C)(2)(a)	The applicant's COP shall describe all planned facilities that the applicant shall construct and use for the applicant's project, including onshore and support facilities and all anticipated project easements.			
11.10.5(C)(2)(b)	The applicant's COP shall describe all proposed activities including the applicant's proposed construction activities, commercial operations, and conceptual decommissioning plans for all planned facilities, including onshore and support facilities.			
11.10.5(C)(2)(c)	The applicant shall receive the Council's approval of the COP before the applicant can begin any of the approved activities on the applicant's project site, lease or easement.			Section 1.4, Regulatory Framework
11.10.5(C)(2)(d)	The COP shall demonstrate that the applicant has planned and is prepared to conduct the proposed activities in a manner that:			Section 4.0, Site Characterization and Assessment of Potential Impacts
11.10.5(C)(2)(d)(1)	Conforms to all applicable laws, implementing regulations.			
11.10.5(C)(2)(d)(2)	Is safe;			
11.10.5(C)(2)(d)(3)	Does not unreasonably interfere with other uses of state waters;			
11.10.5(C)(2)(d)(4)	Does not cause undue harm or damage to natural resources; life(including human and wildlife); the marine, coastal, or human environment; or direct impact to sites, structures, or objects of historical or archaeological significance;			
11.10.5(C)(2)(d)(5)	Uses best available and safest technology;			
11.10.5(C)(2)(d)(6)	Uses best management practices; and			
11.10.5(C)(2)(d)(7)	Uses properly trained personnel.			
11.10.5(C)(2)(e)	The applicant's COP shall include the following project-specific information, as applicable.			

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Table 6: Contents of the construction and Operations Plan	**Table 6: Contents of the Construction and Operations Plan**			
11.10.5(C)(2)(e)(1)	(1) Contact Information			Section 1.6, Authorized Representative and Operator
11.10.5(C)(2)(e)(2)	(2) Designation of operator, if applicable.			
11.10.5(C)(2)(e)(3)	(3) The construction and operation concept			Section 3.0, Description of Proposed Activity
11.10.5(C)(2)(e)(4)	(4) A location.			
11.10.5(C)(2)(e)(5)	(5) General structural and project design, fabrication, and installation.			
11.10.5(C)(2)(e)(6)	(6) All cables and pipelines, including cables on project easements.			
11.10.5(C)(2)(e)(7)	(7) A description of the deployment activities.			
11.10.5(C)(2)(e)(8)	(8) A list of solid and liquid wastes generated.			Section 3.0, Description of Proposed Activity; Section 4.1.6, Discharges and Releases; and Section 4.1.7, Trash and Debris
11.10.5(C)(2)(e)(9)	(9) A list of chemical products used (if stored volume exceeds Environmental Protection (EPA) Reportable Quantities).			Section 3.0, Description of Proposed Activity
11.10.5(C)(2)(e)(10)	(10) Decommissioning and site clearance procedures.			
11.10.5(C)(2)(e)(11)	(11) A list of all Federal, State, and local authorizations, approvals, or permits that are required to conduct the proposed activities, including commercial operations.			Section 1.4, Regulatory Framework
11.10.5(C)(2)(e)(12)	(12) The applicant's proposed measures for avoiding, minimizing, reducing, eliminating, and monitoring environmental impacts.			Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.5(C)(2)(e)(13)	(13) Information the applicant incorporates by reference.			Section 5.0, References
11.10.5(C)(2)(e)(14)	(14) A list of agencies or persons with whom the applicant has communicated, or will communicate, regarding potential impacts associated with the proposed activities.			Section 1.5, Agency and Public Outreach; and Appendix A, Agency Correspondence
11.10.5(C)(2)(e)(15)	(15) Reference.			Section 5.0, References
11.10.5(C)(2)(e)(16)	(16) Financial assurance.			Section 1.10, Financial Assurance
11.10.5(C)(2)(e)(17)	(17) CVA nominations			Section 1.7, Certified Verification Agent Nominations; and Appendix C1 and C2, Certified Verification Agent
11.10.5(C)(2)(e)(18)	(18) Construction schedule.			Section 3.0, Description of Proposed Activity
11.10.5(C)(2)(e)(19)	(19) Air quality information.			Section 4.1.9, Air Emissions; Section 4.2.1, Air Quality, and Appendix T, Air Emissions Calculations and Methodology
11.10.5(C)(2)(e)(20)	(20) Other information.			Not Applicable
11.10.5(C)(2)(f)	f. The applicant's COP shall include the following information and surveys for the proposed site(s) of the applicant's facility or facilities:			Section 4.2.3, Geological Resources Appendices O1-O8, Geophysical and Geotechnical Site Investigation Reports
Table 7: Necessary data and information to be provided in the Construction and Operations Plan	**Table 7: Necessary data and information to be provided in the Construction and Operations Plan**			
11.10.5(C)(2)(f)(1)	(1) Shallow hazards.			
11.10.5(C)(2)(f)(2)	(2) Geological survey relevant to the siting and design of the facility.			
11.10.5(C)(2)(f)(3)	(3) Biological Survey			Section 4.3, Biological Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; and Appendix L, Essential Fish Habitat Assessment
11.10.5(C)(2)(f)(4)	(4) Fish and Fisheries Survey			Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; and Appendix CC, Commercial and Recreational Fisheries
11.10.5(C)(2)(f)(5)	(5) Geotechnical survey.			Section 4.2.3, Geological Resources Appendices O1-O8, Geophysical and Geotechnical Site Investigation Reports
11.10.5(C)(2)(f)(6)	(6) Archaeological and Visual resources if required.			Section 4.4, Cultural Resources; Section 4.5, Visual Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix M, Marine Archaeological Resources Assessment; Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm; and Appendix U3, Visual Impact Assessment- Revolution Wind Farm
11.10.5(C)(2)(f)(7)	(7) Overall site investigation.			Section 4.2.3, Geological Resources Appendices O1-O8, Geophysical and Geotechnical Site Investigation Reports
11.10.5(C)(2)(g)	g. The applicant's COP shall describe those resources, conditions, and activities listed in Table 6 that could be affected by the applicant's proposed activities, or that could affect the activities proposed in the applicant's COP, including:			Section 4.2.3, Geological Resources; and Section 4.2.4, Physical Oceanography and Meteorology Appendices O1-O8, Geophysical and Geotechnical Site Investigation Reports
Table 8: Resources, conditions, and activities that shall be described in the Construction and Operations Plan	**Table 8: Resources, conditions, and activities that shall be described in the Construction and Operations Plan**			
11.10.5(C)(2)(g)(1)	(1) Hazard information and sea level rise.			

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11.10.5(C)(2)(g)(2)	(2) Water quality and circulation			Section 4.2.2, Water Quality and Water Resources; and Appendix J, Hydrodynamic and Sediment Transport Modeling Reports
11.10.5(C)(2)(g)(3)	(3) Biological resources.			Section 4.3, Biological Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species; and Appendix AA, Assessment of the Potential Effects of the Revolution Offshore Wind Farm on Birds & Bats
11.10.5(C)(2)(g)(4)	(4) Threatened or endangered species.			Section 4.3, Biological Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species; and Appendix AA, Assessment of the Potential Effects of the Revolution Offshore Wind Farm on Birds & Bats
11.10.5(C)(2)(g)(5)	(5) Sensitive biological resources or habitats.			Section 4.3, Biological Resources; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species; Appendix AA, Assessment of the Potential Effects of the Revolution Offshore Wind Farm on Birds & Bats; and Appendix CC, Commercial and Recreational Fisheries
11.10.5(C)(2)(g)(6)	(6) Fisheries Resources and Uses			Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat, Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; Appendix CC, Commercial and Recreational Fisheries
11.10.5(C)(2)(g)(6)	(6) Archaeological resources.			Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix M, Marine Archaeological Resources Assessment Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm
11.10.5(C)(2)(g)(7)	(7) Social and economic resources.			Section 4.6, Socioeconomic Resources; and Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.5(C)(2)(g)(8)	(8) Coastal and marine uses.			Section 4.6.7, Coastal Land Use and Infrastructure; Section 4.6.8, Other Marine Uses; and Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.5(C)(2)(h)	The applicant shall submit an oil spill response plan per the Oil Pollution Act of 1990, 33 USC 2701 *et seq.*			Appendix D, Emergency Response Plan/Oil Spill Response Plan
11.10.5(C)(2)(i)	The applicant shall submit the applicant's Safety Management System, the contents of which are described below:			Appendix E, Safety Management System
11.10.5(C)(2)(i)(1)	How the applicant plans to ensure the safety of personnel or anyone on or near the facility;			
11.10.5(C)(2)(i)(2)	Remote monitoring, control and shut down capabilities;			
11.10.5(C)(2)(i)(3)	Emergency response procedures;			
11.10.5(C)(2)(i)(4)	Fire suppression equipment (if needed);			
11.10.5(C)(2)(i)(5)	How and when the safety management system shall be implemented and tested; and			
11.10.5(C)(2)(i)(6)	How the applicant shall ensure personnel who operate the facility are properly trained.			
11.10.5(C)(2)(j)	The Council shall review the applicant's COP and the information provided to determine if it contains all the required information necessary to conduct the project's technical and environmental reviews. The Council shall notify the applicant if the applicant's COP lacks any necessary information.			Not Applicable
11.10.5(C)(2)(k)	As appropriate, the Council shall coordinate and consult with relevant Federal, State, and local agencies, the FAB and affected Indian tribes.			
11.10.5(C)(2)(l)	During the review process, the Council may request additional information if it is determined that the information provided is not sufficient to complete the review and approval process. If the applicant fails to provide the requested information, the Council may disapprove the applicant's COP.			
11.10.5(C)(2)(m)	Upon completion of the technical and environmental reviews and other reviews required, the Council may approve, disapprove, or approve with modifications the applicant's COP.			
11.10.5(C)(2)(n)	In the applicant's COP, the applicant may request development of the project area in phases. In support of the applicant's request, the applicant shall provide details as to what portions of the site shall be initially developed for commercial operations and what portions of the site shall be reserved for subsequent phased development.			
11.10.5(C)(2)(o)	If the application and COP is approved, prior to construction the applicant shall submit to the Council for approval the documents listed below:			
11.10.5(C)(2)(o)(1)	**Facility Design Report-** The applicant's Facility Design Report provides specific details of the design of any facilities, including cables and pipelines, that are outlined in the applicant's approved SAP or COP. The applicant's Facility Design Report shall demonstrate that the applicant's design conforms to the applicant's responsibilities listed in Section 11.10.6 of this part. The applicant shall include the following items in the applicant's Facility Design Report:	The RWF is consistent with this policy. An FDR and FIR will be developed according to BOEM requirements, provided to BOEM prior to construction, and approved by the CVA.	The RWEC is consistent with this policy. An FDR and FIR will be developed according to BOEM requirements, provided to BOEM prior to construction, and approved by the CVA.	Not Applicable

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Table 7: Contents of the Facility Design Report	**Table 7: Contents of the Facility Design Report**			
11.10.5(C)(2)(o)(1)(1)	(1) Cover letter.			
11.10.5(C)(2)(o)(1)(2)	(2) Location.			
11.10.5(C)(2)(o)(1)(3)	(3) Front, Side, and Plan View drawings.			
11.10.5(C)(2)(o)(1)(4)	(4) Complete set of structural drawings.			
11.10.5(C)(2)(o)(1)(5)	(5) Summary of environmental data used for design.			
11.10.5(C)(2)(o)(1)(6)	(6) Summary of the engineering design data.			
11.10.5(C)(2)(o)(1)(7)	(7) A complete set of design calculations.			
11.10.5(C)(2)(o)(1)(8)	(8) Project-specific studies used in the facility design or installation.			
11.10.5(C)(2)(o)(1)(9)	(9) Description of the loads imposed on the facility.			
11.10.5(C)(2)(o)(1)(10)	(10) Geotechnical report.			
11.10.5(C)(2)(o)(2)	For any floating facility, the applicant's design shall meet the requirements of the U.S. Coast Guard for structural integrity and stability (e.g., verification of center of gravity). The design shall also consider:			
11.10.5(C)(2)(o)(2)(AA)	Foundations, foundation pilings and templates, and anchoring systems; and			
11.10.5(C)(2)(o)(2)(BB)	Mooring or tethering systems.			
11.10.5(C)(2)(o)(3)	The applicant is required to use a Certified Verified Agent (CVA). The Facility Design Report shall include two paper copies of the following certification statement: ''The design of this structure has been certified by a Council approved CVA to be in accordance with accepted engineering practices and the approved SAP, or COP as appropriate. The certified design and as-built plans and specifications shall be on file at (given location).''			
11.10.5(C)(2)(o)(4)	**Fabrication and Installation Report-** The applicant's Fabrication and Installation Report shall describe how the applicant's facilities shall be fabricated and installed in accordance with the design criteria identified in the Facility Design Report; the applicant's approved SAP or COP; and generally accepted industry standards and practices. The applicant's Fabrication and Installation Report shall demonstrate how the applicant's facilities shall be fabricated and installed in a manner that conforms to the applicant's responsibilities listed in Section 11.10.6 of this part. The applicant shall include the following items in the applicant's Fabrication and Installation Report:			
Table 8: Contents of the Fabrication and Installation Report	**Table 8: Contents of the Fabrication and Installation Report**			
11.10.5(C)(2)(o)(4)(1)	(1) Cover letter.			
11.10.5(C)(2)(o)(4)(2)	(2) Schedule.			
11.10.5(C)(2)(o)(4)(3)	(3) Fabrication information.			
11.10.5(C)(2)(o)(4)(4)	(4) Installation process information.			
11.10.5(C)(2)(o)(4)(5)	(5) Federal, State, and local permits (e.g., EPA, Army Corps of Engineers).			
11.10.5(C)(2)(o)(4)(6)	(6) Environmental information.			
11.10.5(C)(2)(o)(4)(7)	(7) Project easement.			
11.10.5(C)(2)(o)(5)	i. A CVA report shall include the following: a Fabrication and Installation Report which shall include four paper copies of the following certification statement: ''The fabrication and installation of this structure has been certified by a Council approved CVA to be in accordance with accepted engineering practices and the approved SAP or COP as appropriate.''			
11.10.5(C)(2)(p)	Based on the Council's environmental and technical reviews, if approved, the Council may specify terms and conditions to be incorporated into any approval the Council may issue. The applicant shall submit a certification of compliance annually (or another frequency as determined by the Council) with certain terms and conditions which may include:			
11.10.5(C)(2)(p)(1)	Summary reports that show compliance with the terms and conditions which require certification; and			
11.10.5(C)(2)(p)(2)	A statement identifying and describing any mitigation measures and monitoring methods, and their effectiveness. If the applicant identified measures that were not effective, then the applicant shall make recommendations for new mitigation measures or monitoring methods.			
11.10.5(C)(2)(q)	After the applicant's COP, Facility Design Report, and Fabrication and Installation Report is approved, and the Council has issued a permit and lease for the project site, construction shall begin by the date given in the construction schedule included as a part of the approved COP, unless the Council approves a deviation from the applicant's schedule.			
11.10.5(C)(2)(r)	The applicant shall seek approval from the Council in writing before conducting any activities not described in the applicant's approved COP. The application shall describe in detail the type of activities the applicant proposes to conduct. The Council shall determine whether the activities the applicant proposes are authorized by the applicant's existing COP or require a revision to the applicant's COP. The Council may request additional information from the applicant, if necessary, to make this determination.			
11.10.5(C)(2)(s)	The Council shall periodically review the activities conducted under an approved COP. The frequency and extent of the review shall be based on the significance of any changes in available information, and on onshore or offshore conditions affecting, or affected by, the activities conducted under the applicant's COP. If the review indicates that the COP should be revised, the Council may require the applicant to submit the needed revisions.			
11.10.5(C)(2)(t)	The applicant shall notify the Council, within 5 business days, any time the applicant ceases commercial operations, without an approved suspension, under the applicant's approved COP. If the applicant ceases commercial operations for an indefinite period which extends longer than 6 months, the Council may cancel the applicant's lease, and the applicant shall initiate the decommissioning process.			
11.10.5(C)(2)(u)	The applicant shall notify the Council in writing of the following events, within the time periods provided:			
11.10.5(C)(2)(u)(1)	No later than 10 days after commencing activities associated with the placement of facilities on the lease area under a Fabrication and Installation Report.			
11.10.5(C)(2)(u)(2)	No later than 10 days after completion of construction and installation activities under a Fabrication and Installation Report.			
11.10.5(C)(2)(u)(3)	At least 7 days before commencing commercial operations.			
11.10.5(C)(2)(v)	The applicant may commence commercial operations within 30 days after the CVA has submitted to the Council the final Fabrication and Installation Report.			
11.10.5(C)(2)(w)	The applicant shall submit a Project Modification and Repair Report to the Council, demonstrating that all major repairs and modifications to a project conform to accepted engineering practices.			
11.10.5(C)(2)(w)(1)	A major repair is a corrective action involving structural members affecting the structural integrity of a portion of or all the facility.			
11.10.5(C)(2)(w)(2)	A major modification is an alteration involving structural members affecting the structural integrity of a portion of or all the facility.			
11.10.5(C)(2)(w)(3)	The report must also identify the location of all records pertaining to the major repairs or major modifications.			
11.10.5(C)(2)(w)(4)	The Council may require the applicant to use a CVA for project modifications and repairs.			
11.10.6 Design, Fabrication and Installation Standards				
11.10.6(A)	**Certified Verification Agent-** The Certified Verification Agent (CVA) shall use good engineering judgment and practices in conducting an independent assessment of the design, fabrication and installation of the facility. The CVA shall certify in the Facility Design Report to the Council that the facility is designed to withstand the environmental and functional load conditions appropriate for the intended service life at the proposed location. The CVA is paid for by the applicant, but is approved and reports to the Council.	The RWF is consistent with this policy. The CVA nomination was submitted with the COP and will be approved by BOEM.	The RWEC is consistent with this policy. The CVA nomination was submitted with the COP and will be approved by BOEM.	Section 1.7, Certified Verification Agent Nominations Appendix C1 and C2, Certified Verification Agent

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11.10.6(A)(1)	The Applicant Shall use a CVA to review and certify the facility design report, the fabrication and installation report, and the project modifications and repairs report. The applicant shall use a CVA to:			
11.10.6(A)(1)(a)	Ensure the applicant's facilities are designed, fabricated and installed in conformance with accepted engineering practices and the facility design report and fabrication and installation report;			
11.10.6(A)(1)(b)	Ensure that repairs and major modifications are completed in conformance with accepted engineering practices; and			
11.10.6(A)(1)(C)	Provide the Council immediate reports of all incidents that affect the design, fabrication, and installation of the project and its components.			
11.10.6(A)(2)	Nominating a CVA for Council approval - the applicant shall nominate a CVA for the Council Approval. The Applicant shall specify whether the nomination is for the facility design report fabrication and installation report, modification and repair report, or for any combination of these.			
11.10.6(A)(2)(a)	For each CVA that the applicant nominates, the applicant shall submit to the council a list of documents they shall forward to the CVA and a qualification statement that includes the following:			
11.10.6(A)(2)(a)(1)	Previous experience in third-party verification or experience in the design, fabrication, installation, or major modification of offshore energy facilities;			
11.10.6(A)(2)(a)(2)	Technical Capabilities of the individual or the primary staff for the specific project;			
11.10.6(A)(2)(a)(3)	Size and type of organization or corporation;			
11.10.6(A)(2)(a)(4)	In house availability of, or access to, appropriate technology (including computer programs, hardware, and testing materials and equipment);			
11.10.6(A)(2)(a)(5)	Ability to perform the CVA functions for the specific project considering current commitments			
11.10.6(A)(2)(a)(6)	Previous experience with the Council requirements and procedures, if any; and			
11.10.6(A)(2)(a)(7)	The level of work to be performed by the CVA			
11.10.6(A)(3)	Individuals or organizations acting as CVAs shall not function in any capacity that shall create a conflict of interest, or the appearance of a conflict of interest			
11.10.6(A)(4)	The verification shall be conducted by or under the direct supervision of registered professional engineers			
11.10.6(A)(5)	The Council shall approve or disapprove the applicant's CVA prior to construction			
11.10.6(A)(6)	The applicant shall nominate a new CVA for the Council approval if the previously approved CVA:			
11.10.6(A)(6)(a)	Is no longer able to serve in a CVA capacity for the project; or			
11.10.6(A)(6)(b)	No longer meets the requirements for a CVA set forth in this subpart.			
11.10.6(A)(7)	The CVA shall conduct an independent assessment of all proposed:			
11.10.6(A)(7)(a)	Planning criteria;			
11.10.6(A)(7)(b)	Operational requirements;			
11.10.6(A)(7)(c)	Environmental loading data			
11.10.6(A)(7)(d)	Load determinations;			
11.10.6(A)(7)(e)	Stress analyses;			
11.10.6(A)(7)(f)	Material designations;			
11.10.6(A)(7)(g)	Soil and foundation conditions;			
11.10.6(A)(7)(h)	Safety factors; and			
11.10.6(A)(7)(i)	Other pertinent parameters of the proposed design.			
11.10.6(A)(8)	For any floating facility, the CVA shall ensure that any requirements of the U.S. Coast Guard for structural integrity and stability (eg., verification of center of gravity), have been met. The CVA shall also consider:			
11.10.6(A)(8)(a)	Foundations;			
11.10.6(A)(8)(b)	Foundation pilings and templates, and			
11.10.6(A)(8)(C)	Anchoring systems			
11.10.6(A)(9)	The CVA shall do all of the following:			
11.10.6(A)(9)(a)	Use good engineering judgment and proactive in conducting an independent assessment of the fabrication and installation activities;			
11.10.6(A)(9)(b)	Monitor the fabrication and installation of the facility;			
11.10.6(A)(9)(c)	Make periodic onsite inspections while fabrication is in progress and verify the items required by Section 11.10.6 (A)(11) of this Part;			
11.10.6(A)(9)(d)	Make periodic onsite inspections while installation is in progress and satisfy the requirements by Section 11.10.6 (A)(12) of this Part; and			
11.10.6(A)(9)(e)	Certify in a report that project components are fabricated and installed in accordance with accepted engineering practices; the applicant's approved COP or SAP; and the fabrication and installation report			
11.10.6(A)(9)(e)(1)	The report shall also identify the location of all records pertaining to fabrication and installation.			
11.10.6(A)(9)(e)(2)	The applicant may commence commercial operations or other approved activities 30 days after the council receives that certification report, unless the council notifies the applicant within that time period of its objections to the certification report			
11.10.6(A)(10)	The CVA shall monitor the fabrication and installation of the facility to ensure that it has been built and installed according to the facility design report and fabrication and installation report.			
11.10.6(A)(10)(a)	If the CVA finds that fabrication and installation procedures have been changed or design specifications have been modified, the CVA shall inform the applicant and the Council.			
11.10.6(A)(11)	The CVA shall make periodic onsite inspections while fabrication is in progress and shall certify the following items, as appropriate:			
11.10.6(A)(11)(a)	Quality control by lessee (or grant holder) and builder;			
11.10.6(A)(11)(b)	Fabrication site facilities;			
11.10.6(A)(11)(c)	Material quality and identification methods;			
11.10.6(A)(11)(d)	Fabrication procedures specified in the fabrication and installation report, and adherence to such procedures;			
11.10.6(A)(11)(e)	Welder and welding procedure qualification and identification;			
11.10.6(A)(11)(f)	Adherence to structural tolerances specified;			
11.10.6(A)(11)(g)	Nondestructive examination requirements and evaluation results of the specified examinations;			
11.10.6(A)(11)(h)	Destructive testing requirements and results;			
11.10.6(A)(11)(i)	Repair procedures;			
11.10.6(A)(11)(j)	Installation of corrosion protection systems and splash zone protection;			
11.10.6(A)(11)(k)	Erection procedures to ensure that overstressing of structural members does not occur;			
11.10.6(A)(11)(l)	Alignment procedures;			
11.10.6(A)(11)(m)	Dimensional check of the overall structure, including any turrets, turret and hull interfaces, any mooring line and chain and riser tensioning line segments; and			
11.10.6(A)(11)(n)	Status of quality control records at various stages of fabrication.			
11.10.6(A)(12)	The CVA shall make periodic onsite inspections while installation is in progress and shall, as appropriate, verify, witness, survey, or check, the installation items required by this section. The CVA shall verify, as appropriate, all of the following:			
11.10.6(A)(12)(a)	Load out and initial flotation procedures;			
11.10.6(A)(12)(b)	Towing operation procedures to the specified location, and review the towing records;			
11.10.6(A)(12)(c)	Launching and uprighting activities;			
11.10.6(A)(12)(d)	Submergence activities;			
11.10.6(A)(12)(e)	Pile or anchor installations;			

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11.10.6(A)(12)(f)	Installation of mooring and tethering systems;			
11.10.6(A)(12)(g)	Transition pieces, support structures, and component installations; and			
11.10.6(A)(12)(h)	Installation at the approved location according to the facility design report and the fabrication and installation report.			
11.10.6(A)(13)	For a fixed for floating facility, the CVA shall verify that proper procedures were used during the following:			
11.10.6(A)(13)(a)	The loadout of the transition pieces and support structures, piles, or structures, from each fabrication site; and			
11.10.6(A)(13)(b)	The actual installation of the facility or major modification and the related installation activities.			
11.10.6(A)(14)	For a floating facility, the CVA shall verify that proper procedures were used during the following:			
11.10.6(A)(14)(a)	The loadout of the facility			
11.10.6(A)(14)(b)	The installation of foundation pilitings templates, and anchoring systems.			
11.10.6(A)(15)	The CVA shall conduct an onsite survey of the facility after transportation to the approved location.			
11.10.6(A)(16)	The CVA shall spot check the equipment, procedures, and recordkeeping as necessary to determine compliance with the applicable documents incorporated by reference and the regulation sunder this part.			
11.10.6(A)(17)	The CVA shall prepare and submit to the applicant and the Council all reports required by this subpart. The CVA shall also submit interim repots to the applicant and the council, as requested by the council. The CVA shall submit one electronic copy and four paper copies of each final report to the council. In each report, the CVA shall:			
11.10.6(A)(17)(a)	Give details of how, by whom, and when the CVA activities were conducted;			
11.10.6(A)(17)(b)	Describe the CVA's activities during the verification process;			
11.10.6(A)(17)(c)	Summarize the CVA's findings; and			
11.10.6(A)(17)(d)	Provide any additional comments that the CVA deems necessary.			
11.10.6(A)(18)	Until the council releases the applicants financial assurance under Section 11.10.7(B) of this part, the applicant shall compile, retain, and make available to the council representatives all of the following:			
11.10.6(A)(18)(a)	The as-built drawings;			
11.10.6(A)(18)(b)	The design assumptions and analyses;			
11.10.6(A)(18)(c)	A summary of the fabrication and installation examination records;			
11.10.6(A)(18)(d)	Results from the required inspections and assessments;			
11.10.6(A)(18)(e)	Records of repairs not covered in the inspection report submitted.			
11.10.6(A)(19)	The applicant shall record and retain the original material test results of all primary structural materials during all stages of construction until the council releases the applicant's financial assurance under Section 11.10.7(B) of this part. Primary material is material that, should it fail, would lead to a significant reduction in facility safety, structural reliability, or operating capabilities. Items such as steel brackets, deck stiffener and secondary braces or beams would not generally be considered primary structural members (or materials).			
11.10.6(A)(20)	The Applicant shall provide the Council with the location of these records in the certification statement.			
11.10.6(A)(21)	The council may hire its own CVA agent to review the work of the applicants CVA. The applicant shall be responsible for the cost of the council's CVA. The council's CVA shall perform those duties as assigned by the council.			
11.10.7 Pre-Construction Standards				
11.10.7(A)	The Council may issue a permit for a period of up to 50 years to construct and operate an Offshore Development. A lease shall be issued at the start of the construction phase and payment shall commence at the end of the construction phase. Lease payments shall be due when the project becomes operational. Lease renewal shall be submitted 5 years before the end of the lease term. Council approval shall be required for any assignment or transfer of the permit or lease. This provision shall not apply to aquaculture permitting. Aquaculture permitting and leasing are governed by the provisions of the RI General Laws Chapter 20-10 and Section 00-1.3.1(K) of this Chapter.	These policies are not applicable. The RWF is in federal waters. A permit, lease, or assent from the Council is not required for the RWF.	The RWEC is consistent with these policies. The RWEC is located in federal and Rhode Island state waters and a permit from the Council will be sought.	Not Applicable
11.10.7(B)	Prior to construction, the assent holder shall post a Performance Bond sufficient to ensure removal of all structures at the end of the lease and restore the site. The Council shall review the bond amount initially and every 3 years thereafter to ensure the amount is sufficient.			Section 1.10, Financial Assurance
11.10.7(C)	Prior to construction, the assent holder shall show compliance with all federal and state agency requirements, which may include but are not limited to the requirements of the following agencies: the Rhode Island Coastal Resources Management Council, the Rhode Island Department of Environmental Management, the Rhode Island Energy Facilities Siting Board, the Rhode Island Historical Preservation and Heritage Commission, U.S. Department of the Interior Bureau of Ocean Energy Management, Regulation and Enforcement, Army Corps of Engineers, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency.			Section 1.4, Regulatory Framework
11.10.7(D)	The Council shall consult with the U.S. Coast Guard, the U.S. Navy, marine pilots, the Fishermen's Advisory Board as defined in section 11.3 (E) of this part, fishermen's organizations, and recreational boating organizations when scheduling offshore marine construction or dredging activities. Where it is determined that there is a significant conflict with season-limited commercial or recreational fishing activities, recreational boating activities or scheduled events, or other navigation uses, the Council shall modify or deny activities to minimize conflict with these uses.			Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.6.6, Commercial Shipping; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix R, NavigationSafety Risk Assessment; Appendix CC, Commercial and Recreational Fisheries; and Appendix DD, Fisheries Communication and Outreach Plan;
11.10.7(E)	The Council shall require the assent holder to provide for communication with commercial and recreational fishermen, mariners, and recreational boaters regarding offshore marine construction or dredging activities. Communication shall be facilitated through a project website and shall complement standard U.S. Coast Guard procedures such as Notices to Mariners for notifying mariners of obstructions to navigation.			Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.6.6, Commercial Shipping; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix R, NavigationSafety Risk Assessment; Appendix CC, Commercial and Recreational Fisheries; and Appendix DD, Fisheries Communication and Outreach Plan;
11.10.7(F)	For all Large-Scale Offshore Developments, underwater cables, and other development projects as determined by the Council, the assent holder shall designate and fund a third-party fisheries liaison. The fisheries liaison must be knowledgeable about fisheries and shall facilitate direct communication between commercial and recreational fishermen and the project developer. Commercial and recreational fishermen shall have regular contact with and direct access to the fisheries liaison throughout all stages of an offshore development (pre-construction; construction; operation; and decommissioning).			Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix CC, Commercial and Recreational Fisheries; and Appendix DD, Fisheries Communication and Outreach Plan;
11.10.7(G)	Where possible, Offshore Developments should be designed in a configuration to minimize adverse impacts on other user groups, which include but are not limited to: recreational boaters and fishermen, commercial fishermen, commercial ship operators, or other vessel operators in the project area. Configurations which may minimize adverse impacts on vessel traffic include, but are not limited to, the incorporation of a traffic lane through a development to facilitate safe and direct navigation through, rather than around, an Offshore Development.			Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.6.6, Commercial Shipping; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix R, NavigationSafety Risk Assessment; Appendix CC, Commercial and Recreational Fisheries; and Appendix DD, Fisheries Communication and Outreach Plan;
11.10.7(H)	Any assent holder of an approved Offshore Development shall work with the Council when designing the proposed facility to incorporate where possible mooring mechanisms to allow safe public use of the areas surrounding the installed turbine or other structure.			Section 4.6.8, Other Marine Uses; and Appendix R, NavigationSafety Risk Assessment

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11.10.7(I)	The facility shall be designed in a manner that minimizes adverse impacts to navigation. As part of its application package, the project applicant shall submit a navigation risk assessment under the U.S. Coast Guard's Navigation and Vessel Inspection Circular 02-07, "Guidance on the Coast Guard's Roles and Responsibilities for Offshore Renewable Energy Installations."			Section 4.6.8, Other Marine Uses; and Appendix R, NavigationSafety Risk Assessment
11.10.7(J)	Applications for projects proposed to be sited in state waters pursuant to the Ocean SAMP shall not have a significant impact on marine transportation, navigation, and existing infrastructure. Where the Council, in consultation with the U.S. Coast Guard, the U.S. Navy, NOAA, the U.S. Bureau of Ocean Energy Management, Regulation and Enforcement, the U.S. Army Corps of Engineers, marine pilots, the R.I. Port Safety and Security Forums, or other entities, as applicable, determines that such an impact on marine transportation, navigation, and existing infrastructure is unacceptable, the Council shall require that the applicant modify the proposal or the Council shall deny the proposal. For the purposes of Marine Transportation policies and standards as summarized in Ocean SAMP Chapter 7 impacts would be evaluated according to the same criteria used by the U.S. Coast Guard, as follows; these criteria shall not be construed to apply to any other Ocean SAMP chapters or policies:			Section 4.6.8, Other Marine Uses; and Appendix R, NavigationSafety Risk Assessment
11.10.7(J)(1)	Negligible: No measurable impacts.			
11.10.7(J)(2)	Minor: Adverse impacts to the affected activity could be avoided with proper mitigation; or impacts would not disrupt the normal or routine functions of the affected activity or community; or once the impacting agent is eliminated, the affected activity will return to a condition with no measurable effects from the proposed action without any mitigation.			
11.10.7(J)(3)	Moderate: Impacts to the affected activity are unavoidable; and proper mitigation would reduce impacts substantially during the life of the proposed action; or the affected activity would have to adjust somewhat to account for disruptions due to impacts of the proposed action; or once the impacting agent is eliminated, the affected activity would return to a condition with no measurable effects from the proposed action if proper remedial action is taken.			
11.10.7(J)(4)	Major: Impacts to the affected activity are unavoidable; proper mitigation would reduce impacts somewhat during the life of the proposed action; the affected activity would experience unavoidable disruptions to a degree beyond what is normally acceptable; and once the impacting agent is eliminated, the affected activity may retain measurable effects of the proposed action indefinitely, even if remedial action is taken.			
11.10.7(K)	Prior to construction, the Applicant shall provide a letter from the U.S. Coast Guard showing it meets all applicable U.S. Coast Guard standards.			Section 1.4, Regulatory Framework; Section 1.5, Agency and Public Outreach; and Appendix A, Agency Correspondence
11.10.8 Standards for Construction Activities				
11.10.8(A)	The Assent Holder shall use the best available technology and techniques to minimize impacts to the natural resources and existing human uses in the project area.	These policies are not applicable. The RWF is in federal waters. An assent from the Council is not required for the RWF.	The RWEC is consistent with these policies. The RWEC is located in federal and Rhode Island state waters and complies with the BOEM and Rhode Island requirements for construction activities.	Section 3.0, Description of Proposed Activity; Section 4.7, Summary of Potential Impact and Proposed Environmental Protection Measures
11.10.8(B)	The Council shall require the use of an environmental inspector to monitor construction activities. The environmental inspector shall be a private, third-party entity that is hired by the Assent Holder, but is approved and reports to the Council. The environmental inspector shall possess all appropriate qualifications as determined by the Council. This inspector service may be part of the CVA requirements.			Section 1.7, Certified Verification Agent Nominations; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix C1 and C2, Certified Verification Agent
11.10.8(C)	Installation techniques for all construction activities should be chosen to minimize sediment disturbance. Jet plowing and horizontal directional drilling in nearshore areas shall be required in the installation of underwater transmission cables. Other technologies may be used provided the applicant can demonstrate they are as effective, or more effective, than these techniques in minimizing sediment disturbance.			Section 3.0, Description of Proposed Activity; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix J, Hydrodynamic and Sediment Transport Modeling Report;
11.10.8(D)	All construction activities shall comply with the policies and standards outlined in the Rhode Island Coastal Resources Management Program (RICRMP), as well as the regulations of other relevant state and federal agencies.			Section 1.4, Regulatory Framework; Section 3.0, Description of Proposed Activity; and Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.8(E)	The applicant shall conduct all activities on the applicant's permit under this part in a manner that conforms with the applicant's responsibilities in section 11.10.1(E), and using:			Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.8(E)(1)	Trained personnel; and			
11.10.8(E)(2)	Technologies, precautions, and techniques that shall not cause undue harm or damage to natural resources, including their physical, atmospheric, chemical and biological components.			
11.10.8(F)	The Assent Holder shall be required to use the best available technology and techniques to mitigate any associated adverse impacts of offshore renewable energy development.			
11.10.8(F)(1)	As required, the applicant shall submit to the Council:			
11.10.8(F)(1)(a)	Measures designed to avoid or minimize adverse effects and any potential incidental take of endangered or threatened species as well as all marine mammals;			
11.10.8(F)(1)(b)	Measures designed to avoid likely adverse modification or destruction of designated critical habitat of such endangered or threatened species; and			
11.10.8(F)(1)(c)	The applicant's agreement to monitor for the incidental take of the species and adverse effects on the critical habitat, and provide the results of the monitoring to the Council as required; and			
11.10.8(G)	If the Assent Holder, the Assent Holder's subcontractors, or any agent acting on the Assent Holder's behalf discovers a potential archaeological resource while conducting construction activities, or any other activity related to the Assent Holder's project, the applicant shall:			Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix M, Marine Archaeological Resources Assessment Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm
11.10.8(G)(1)	Immediately halt all seafloor disturbing activities within the area of the discovery;			
11.10.8(G)(2)	Notify the Council of the discovery within 24 hours; and			
11.10.8(G)(3)	Keep the location of the discovery confidential and not take any action that may adversely affect the archaeological resource until the Council has made an evaluation and instructed the applicant on how to proceed.			
11.10.8(G)(3)(a)	The Council may require the Assent Holder to conduct additional investigations to determine if the resource is eligible for listing in the National Register of Historic Places under 36 CFR 60.4. The Council shall do this if:			
11.10.8(G)(3)(a)(1)	The site has been impacted by the Assent Holder's project activities; or			
11.10.8(G)(3)(a)(2)	Impacts to the site or to the area of potential effect cannot be avoided.			
11.10.8(G)(3)(b)	If the Council incurs costs in protecting the resource, under section 110(g) of the NHPA, the Council may charge the applicant reasonable costs for carrying out preservation responsibilities.			
11.10.8(H)	Post construction, the Assent Holder shall provide a side scan sonar survey of the entire construction site to verify that there is no post construction debris left at the project site. These side-scan sonar survey results shall be filed with the Council within 90 days of the end of the construction period. The results of this side-scan survey shall be verified by a third-party reviewer, who shall be hired by the Assent Holder but who is pre-approved by and reports to the Council.			Section 3.0, Description of Proposed Activity
11.10.8(I)	All pile-driving or drilling activities shall comply with any mandatory best management practices established by the Council in coordination with the Joint Agency Working Group and which are incorporated into the RICRMP.			Section 3.0, Description of Proposed Activity; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.8(J)	The Council may require the Assent Holder to hire a CVA to perform periodic inspections of the structure(s) during the life of those structure(s). The CVA shall work for and be responsible to the council.			Section 1.7, Certified Verification Agent Nominations Appendix C1 and C2, Certified Verification Agent
11.10.9 Monitoring Requirements				

Ocean SAMP Section Number 650-RICR-20-05-11	Policy/Requirement	Response to Policy for RWF	Response to Policy for RWEC	COP Sections and Appendices
11.10.9(A)	The Council in coordination with the Joint Agency Working Group, as described in section 11.9.7(J) shall determine requirements for monitoring prior to, during, and post construction. Specific monitoring requirements shall be determined on a project by- project basis and may include but are not limited to the monitoring of:	The RWF is consistent with these policies. Revolution Wind is committed to conducting monitoring prior to, during, and post construction as required by the Council. Revolution Wind will coordinate with the Council and other key stakeholders in the development of specific monitoring plans.	The RWEC is consistent with these policies. Revolution Wind is committed to conducting monitoring prior to, during, and post construction as required by the Council. Revolution Wind will coordinate with the Council and other key stakeholders in the development of specific monitoring plans.	Section 3.0, Description of Proposed Activity; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures
11.10.9(A)(1)	Coastal processes and physical oceanography			Section 4.2.4, Physical Oceanography and Meteorology; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix J, Hydrodynamic and Sediment Transport Modeling Report
11.10.9(A)(2)	Underwater noise			Section 4.1.4, Noise; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix P3, Underwater Acoustic Modeling Analysis
11.10.9(A)(3)	Benthic ecology			Section 4.3.2, Benthic and Shellfish Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; and Appendix L, Essential Fish Habitat Assessment
11.10.9(A)(4)	Avian species			Section 4.3.6, Avian Species; Section 4.3.7, Bat Species Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix AA, Assessment of the Potential Effects of the Revolution Offshore Wind Farm on Birds & Bats
11.10.9(A)(5)	Marine mammals			Section 4.3.4, Marine Mammals; and Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species
11.10.9(A)(6)	Sea turtles			Section 4.3.5, Sea Turtles; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species
11.10.9(A)(7)	Fish and fish habitat			Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix X, Benthic Assessment; Appendix L, Essential Fish Habitat Assessment; and Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species
11.10.9(A)(8)	Commercial and recreational fishing			Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix CC, Commercial and Recreational Fisheries; and Appendix DD, Fisheries Communication and Outreach Plan
11.10.9(A)(9)	Recreation and tourism			Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix CC, Commercial and Recreational Fisheries
11.10.9(A)(10)	Marine transportation, navigation and existing infrastructure			Section 4.6.7, Coastal Land Use and Infrastructure; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix DD, Fisheries Communication and Outreach Plan; and Appendix CC, Commercial and Recreational Fisheries
11.10.9(A)(11)	Cultural and historic resources			Section 4.4, Cultural Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix M, Marine Archaeological Resources Assessment Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm
11.10.9(B)	The Council shall require where appropriate that project developers perform systematic observations of recreational boating intensity at the project area at least three times: pre-construction; during construction; and post-construction. Observations may be made while conducting other field work or aerial surveys and may include either visual surveys or analysis of aerial photography or video photography. The Council shall require where appropriate that observations capture both weekdays and weekends and reflect high-activity periods including the July 4th holiday weekend and the week in June when Block Island Race Week takes place. The quantitative results of such observations, including raw boat counts and average number of vessels per day, will be provided to the Council.	The RWF is consistent with this policy. If appropriate, Revolution Wind will develop plans for observations of boat intensity. Based on coordination with the Council, monitoring will occur prior to, during, and post construction.	The RWEC is consistent with this policy. If appropriate, Revolution Wind will develop plans for observations of boat intensity. Based on coordination with the Council, monitoring will occur prior to, during, and post construction.	Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.6.8, Other Marine Uses; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix CC, Commercial and Recreational Fisheries; and Appendix DD, Fisheries Communication and Outreach Plan
11.10.9(C)	The items listed below shall be required for all Offshore Developments:			
11.10.9(C)(1)	A biological assessment of commercially and recreationally targeted species shall be required within the project area for all Offshore Developments. This assessment shall assess the relative abundance, distribution, and different life stages of these species at all four seasons of the year. This assessment shall comprise a series of surveys, employing survey equipment and methods that are appropriate for sampling finfish, shellfish, and crustacean species at the project's proposed location. Such an assessment shall be performed at least four times: pre-construction (to assess baseline conditions); during construction; and at two different intervals during operation (i.e. 1 year after construction and then postconstruction). At each time this assessment must capture all four seasons of the year. This assessment may include evaluation of survey data collected through an existing survey program, if data are available for the proposed site. The Council will not require this assessment for proposed projects within the Renewable Energy Zone that are proposed within 2 years of the adoption of the Ocean SAMP.	The RWF is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWF. The RWF is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction.	The RWEC is consistent with this policy. Revolution Wind has conducted an assessment of commercial and recreational fisheries within the region, which encompasses the RWEC. The RWEC is not expected to have major long term impacts on commercial or recreational fisheries and Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction.	Section 4.3, Biological Resources; Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix L, Essential Fish Habitat Assessment; Appendix X, Benthic Assessment; Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species; and Appendix CC, Commercial and Recreational Fisheries

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11.10.9(C)(2)	An assessment of commercial and recreational fisheries effort, landings, and landings value shall be required for all proposed Offshore Developments. Assessment shall focus on the proposed project area and alternatives. This assessment shall evaluate commercial and recreational fishing effort, landings, and landings value at three different stages: preconstruction (to assess baseline conditions); during construction; and during operation. At each stage, all four seasons of the year must be evaluated. Assessment may use existing fisheries monitoring data but shall be supplemented by interviews with commercial and recreational fishermen. Assessment shall address whether fishing effort, landings, and landings value has changed in comparison to baseline conditions. The Council will not require this assessment for proposed projects within the Renewable Energy Zone that are proposed within 2 years of the adoption of the Ocean SAMP.			Section 4.3.3, Finfish and Essential Fish Habitat; Section 4.6.4, Recreation and Tourism; Section 4.6.5, Commercial and Recreational Fishing; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix L, Essential Fish Habitat Assessment; Appendix X, Benthic Assessment; Appendix Y, Fisheries and Benthic Monitoring Plan; Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species; and Appendix CC, Commercial and Recreational Fisheries
11.10.9(D)	The Council in coordination with the Joint Agency Working Group may also require facility and infrastructure monitoring requirements, that may include but are not limited to:	The RWF is consistent with this policy. The RWF will be operated and monitored by Revolution Wind and will be inspected and tested on a regular basis based on manufacturer suggestions. A CVA has been nominated to verify design and installation of the RWF via the FDR and FIR.	The RWEC is consistent with this policy. The RWEC will be operated and monitored by Revolution Wind and will be inspected and tested on a regular basis based on manufacturer suggestions. A CVA has been nominated to verify design and installation of the RWEC via the FDR and FIR.	Section 3.0, Description of Proposed Activity; Section 1.7, Certified Verification Agent Nominations Appendix C1 and C2, Certified Verification Agent
11.10.9(D)(1)	Post construction monitoring including regular visual inspection of inner array cables and the primary export cable to ensure proper burial, foundation and substructure inspection.			

Appendix B-2

Massachusetts Office of Coastal Zone Management Program Federal Consistency Review

Policy #	Policy/Requirement	Response to Policy for RWF	Response to Policy for RWEC	COP Section Reference
Massachusetts Coastal Program Policies				
Coastal Hazards				
1	Preserve, protect, restore, and enhance the beneficial functions of storm damage prevention and flood control provided by natural coastal landforms, such as dunes, beaches, barrier beaches, coastal banks, land subject to coastal storm flowage, salt marshes, and land under the ocean.	The Revolution Wind (RWF) is consistent with this policy. The RWF is a wind power facility located within Lease Area Outer Continental Shelf (OCS)-A 0486 (Lease Area) that will preserve and protect the beneficial functions provided by lands under the ocean.	The Revolution Wind Export Cable (RWEC) is consistent with this policy. No direct impacts to coastal landforms will occur. The RWEC has been designed to use construction techniques to avoid or minimize environmental impacts to the greatest extent practicable.	Section 2.0, Project Siting and Design Development; Section 3.0, Description of Proposed Activity; Section 4.2.2, Water Quality and Water Resources; Section 4.3.1 Coastal Habitat; and Section 4.7 Summary of Potential Impacts and Proposed Environmental Protection Measures
2	Ensure that construction in water bodies and contiguous land areas will minimize interference with water circulation and sediment transport. Flood or erosion control projects must demonstrate no significant adverse effects on the project site or adjacent or downcoast areas.	The RWF is consistent with this policy. Construction associated with the RWF will occur approximately 12 statute miles (mi) (10.4 nautical miles [nm], 19 kilometers [km]) southwest off teh coast of Martha's Vineyard, Massachusetts. Construction will not interfere with water circulation and sedimetn transport and does not involve a flood or erosion control project.	The RWEC is consistent with this policy. The RWEC will not be in Massachusetts waters and therefore there will be no construction that interferes with water circulation or sediment transport.	Section 2.0, Project Siting and Design Development; Section 3.0, Description of Proposed Activity; Section 4.1.3, Sediment Suspension and Deposition; Section 4.2.2, Water Quality and Water Resources Section 4.2.3, Geological Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix J, Hydrodynamic and Sediment Transport Modeling Report
3	Ensure that state and federally funded public works projects proposed for location within the coastal zone will: Not exacerbate existing hazards or damage natural buffers or other natural resources. Be reasonably safe from flood and erosion-related damage. Not promote growth and development in hazard-prone or buffer areas, especially in velocity zone and Areas of Critical Environmental Concern. Not be used on Coastal Barrier Resource Units for new or substantial reconstruction of structures in a manner inconsistent with Coastal Barrier Resource/Improvement Acts.	These policies are not applicable because the RWEC will not be located within the Massachusetts coastal zone. This is not a federally funded public works project.	These policies are not applicable because the RWEC will not be located within the Massachusetts coastal zone. This is not a federally funded public works project.	Not applicable
4	Prioritize acquisition of hazardous coastal areas that have high conservation and/or recreation values and relocation of structures out of coastal high-hazard areas, giving due consideration to the effects of coastal hazards at the location to the use and manageability of the area.	This policy is not applicable because the RWF is an offshore wind facility that is outside the Massachusetts coastal zone.	The RWEC will not be located in Massachusetts coastal waters or marine areas; therefore, this policy does not apply.	Not applicable
Energy				
1	For coastally dependent energy facilities, assess siting in alternative coastal locations. For non-coastally dependent energy facilities, assess siting in areas outside of the coastal zone. Weigh the environmental and safety impacts of locating proposed energy facilities at alternative sites.	The RWF is consistent with this policy. The RWF is not proposed for coastal siting in Massachusetts and is not coastally dependent. The RWF is an offsshore wind energy facility located in the Lease Area OCS-A 0486 to enable it to perform its obligations under the Power Purchase Agreement (PPA) by generating electricity from an offshore wind farm located 12 southwest of Martha's Vineyard, Massachusetts and transmitting the electricity to an interconnection location (i.e., Davisville Substation) in Rhode Island. The location of the RWF will not interfere with natural coastal processes, will not cause and increase in erosion, and will not result in adverse impacts to water quality, physical processes, and marine productivity.	This policy is not applicable; the RWEC will not be located within the Massachusetts coastal zone.	Section 2.0, Project Siting and Design Development; Section 3.0, Description of Proposed Activity; Section 4.1.3, Sediment Suspension and Deposition; Section 4.2.2, Water Quality and Water Resources Section 4.2.3, Geological Resources; Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; and Appendix J, Hydrodynamic and Sediment Transport Modeling Report
2	Encourage energy conservation and the use of renewable sources such as solar and wind power in order to assist in meeting the energy needs of the Commonwealth.	The RWF is consistent with this policy. The RWF is not proposed for coastal siting in Massachusetts and is not coastally dependent. The RWF is an offshore wind energy facility located in the Lease Area OCS-A 0486 to enable it to perform its obligations under the PPA (within the states of Connecticut and Rhode Island) by generating electricity from an offshore wind farm located 12 miles southwest of Martha's VIneyard and transmitting the electricity to an interconnection location (i.e., Davisville Substation) located in Rhode Island. The RWF will provide National Grid and the northeast transmission grid with a sustainable source of zero-carbon generation from renewable energy sources.	This policy is not applicable; the RWEC will not be located within the Massachusetts coastal zone.	Section 1.3, Project Purpose
Growth Management				
1	Encourage sustainable development that is consistent with state, regional, and local plans and support the quality and character of the community.	This policy is not applicable. The RWF is located 12 miles offshore the coast of Martha's Vineyard.	This policy is not applicable. The RWEC does not occur in the Massachusetts coastal zone.	Section 1.3, Project Purpose
2	Ensure that state and federally funded infrastructure projects in the coastal zone primarily serve existing developed areas, assigning highest priority to projects that meet the needs of urban and community development centers.	This policy is not applicable. The RWF is an offshore wind facility and is not a state or federally funded infrastructure project in the coastal zone. The RWF is located 12 miles offshore.	This policy is not applicable. The RWEC is not a state or federally funded infrastructure in the Massachusetts coastal zone.	Not applicable

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Policy #	Policy/Requirement	Response to Policy for RWF	Response to Policy for RWEC	COP Section Reference
3	Encourage the revitalization and enhancement of existing development centers in the coastal zone through technical assistance and financial support for residential, commercial, and industrial development.	This policy is not applicable because the RWF is an offshore wind facility. The RWF is located 12 miles offshore.	This policy is not applicable. The RWEC does not occur in the Massachusetts coastal zone.	Not applicable
Habitat				
1	Protect coastal, estuarine, and marine habitats - including salt marshes, shellfish beds, submerged aquatic vegetation, dunes, beaches, barrier beaches, banks, salt ponds, eelgrass beds, tidal flats, rocky shore, bays, sounds, and other ocean habitats - and coastal freshwater streams, ponds, and wetlands to preserved critical wildlife habitat and other important functions and services including nutrient and sediment attenuation, wave and storm damage protection, and landform movement and processes.	The RWEC is not located in the Masaschusetts coastal zone and therefore will not impact habitats.	The RWEC is not located in the Masaschusetts coastal zone and therefore will not impact habitats.	Section 4.2.2, Water Quality and Water Resources; Section 4.3, Biological Resources; Section 4.3.1, Coastal and Terrestrial Habitat; Section 4.3.2, Benthic and Shellfish Resources; Section 4.3.3, Finfish and Essential Fish Habitat Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures; Appendix L, Essential Fish Habitat Assessment; Appendix X, Benthic Assessment; Appendix Z, Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species; and Appendix AA, Assessment of the Potential Effects of the Revolution Offshore Wind Farm on Birds & Bats
2	Advance the restoration of degraded or former habitats in coastal and marine areas.	This policy is not applicable. The RWF does not occur in the Massachusetts coatal waters or marine areas.	This policy is not applicable. The RWEC does not occur in the Massachusetts coatal waters or marine areas.	Not applicable
Ocean Resources				
1	Support the development of sustainable aquaculture, both for commercial and enhancement (public shellfish stocking) purposes. Ensure that the review process regulating aquaculture facility sites (and access routes to those areas) protects significant ecological resources (salt marshes, dunes, beaches, barrier beaches, and salt ponds) and minimizes adverse effects on the coastal and marine environment and other water-dependent uses.	This policy does not apply. The RWF is an offshore wind facility which does not involve aquaculture.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable that does not involve aquaculture.	Not applicable
2	Except where such activity is prohibited by the Ocean Sanctuaries Act, the Massachusetts Ocean Management Plan, or other applicable provision of law, the extraction of oil, natural gas, or marine minerals (other than sand and gravel) in or affecting the coastal zone must protect marine resources, marine water quality, fisheries, and navigational, recreational and other uses.	This policy does not apply. The RWF is an offshore wind facility and does not include the extraction of oil, natural gas, or marine minerals.	This policy is not applicable. The RWEC is a buried (or otherwise protected) export cable that does not include the extraction of oil, natural gas, or marine minerals.	Not applicable
3	Accommodate offshore sand and gravel extraction needs in areas and in ways that will not adversely affect marine resources, navigation, or shoreline areas because of alteration of wave direction and dynamics. Extraction of sand and gravel, when and where permitted, will be primarily for the purpose of beach nourishment or shoreline stabilization.	This policy is not applicable because the RWF does not propose the extraction of sand and gravel.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable and does not propose the extraction of sand and gravel.	Not applicable
Ports and Harbors				
1	Ensure that dredging and disposal of dredged material minimize adverse effects on water quality, physical processes, marine productivity, and public health and take full advantage of opportunities for beneficial re-use.	This policy is not applicable because the RWF does not propose dredging or disposal of dredged material in the Massachusetts coastal zone.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable that will not require dredging or dredged material disposal within Massachusetts coastal waters.	Not applicable
2	Obtain the widest possible public benefit from channel dredging and ensure that Designated Port Areas and developed harbors are given highest priority in the allocation of resources.	This policy is not applicable because the RWF does not propose channel dredging in the Massachusetts coastal waters or a Designated Port Area.	This policy is not applicable because the RWEC does not propose channel dredging in the Massachusetts coastal waters or a Designated Port Area.	Not applicable
3	Preserve and enhance the capacity of Designated Port Areas to accommodate water-dependent industrial uses and prevent the exclusion of such uses from tidelands and any other DPA lands over which an EEA agency exerts control by virtue of ownership or other legal authority.	This policy is not applicable because the RWF is not within a DPA.	This policy is not applicable because the RWF is not within a DPA.	Not applicable
4	For development on tidelands and other coastal waterways, preserve and enhance the immediate waterfront for vessel-related activities that require sufficient space and suitable facilities along the water's edge for operational purposes.	This policy is not applicable because the RWF is an offshore wind facility located in the Lease Area and does not include development on tidelands or other coastal waterways.	This policy is not applicable because the RWEC does not include development on tidelands or other coastal waterways within Massachusetts coastal waters.	Not applicable
5	Encourage, through technical and financial assistance, expansion of water-dependent uses in Designated Port Areas and developed harbors, re-development of urban waterfronts, and expansion of physical and visual access.	This policy is not applicable because the RWF is an offshore wind facility and does not include development or redevelopment of waterfront areas.	This policy is not applicable because the RWEC does not occur in the Massachusetts coastal waters and does not include development or redevelopment of waterfront areas.	Not applicable
Protected Areas				
1	Preserve, restore, and enhance coastal Areas of Critical Environmental Concern, which are complexes of natural and cultural resources of regional or statewide significance.	This policy is not applicable because the RWF is an offshore wind facility and will not affect state-designated Areas of Critical Environmental Concern.	This policy is not applicable because the RWEC does not occur within the Massachusetts coastal zone or within a state-designated Area of Critical Environmental Concern.	Not applicable
2	Protect state designated scenic rivers in the coastal zone.	This policy is not applicable because the RWF is an offshore wind facility and will not affect scenic rivers in the coastal zone.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable that does not occur within the Massachusetts coastal zone and will not affect scenic rivers in the coastal zone.	Not applicable

Massachusetts Office of Coastal Zone Management Program Federal Consistency Review

Policy #	Policy/Requirement	Response to Policy for RWF	Response to Policy for RWEC	COP Section Reference
3	Ensure that proposed developments in or near designated or registered historic places respect the preservation intent of the designation and that potential adverse effects are minimized.	This policy is not applicable because the RWF is not located in the Massachusetts coastal area.	This policy is not applicable because the RWEC is not located in the Massachusetts coastal area.	Section 4.4, Cultural Resources; Appendix U2, Historic Resources Visual Effects Analysis - Revolution Wind Farm
Public Access				
1	Ensure that development (both water-dependent or nonwater-dependent) of coastal sites subject to state waterways regulation will promote general public use and enjoyment of the water's edge, to an extent commensurate with the Commonwealth's interests in flowed and filled tidelands under the Public Trust Doctrine.	This policy is not applicable because the RWF is an offshore facility that is not sited within the Massachusetts coastal zone and will not affect public access.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable that is not sited within the Massachusetts coastal zone and will not affect public access.	Not applicable
2	Improve public access to existing coastal recreation facilities and alleviate auto traffic and parking problems through improvements in public transportation and trail links (land- or water-based) to other nearby facilities. Increase capacity of existing recreation areas by facilitating multiple use and by improving management, maintenance, and public support facilities. Ensure that the adverse impacts of developments proposed near existing public access and recreation sites are minimized.	This policy is not applicable because the RWF is an offshore facility and is not sited in the Massachusetts coastal zone.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable that is not sited within the Massachusetts coastal zone and does not affect public access near recreational facilities.	Not applicable
3	Expand existing recreation facilities and acquire and develop new public areas for coastal recreational activities, giving highest priority to regions of high need or limited site availability. Provide technical assistance to developers of both public and private recreation facilities and sites that increase public access to the shoreline to ensure that both transportation access and the recreation facilities are compatible with social and environmental characteristics of surrounding communities.	This policy is not applicable because the RWF is an offshore facility and is not sited in the Massachusetts coastal zone.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable that is not sited within the Massachusetts coastal zone.	Not applicable
Water Quality				
1	Ensure that point-source discharges and withdrawals in or affecting the coastal zone do not compromise water quality standards and protected designated uses and other interests.	This policy is not applicable because the RWF is an offshore wind facility that will not produce point-source discharges or withdrawals. Construction phase spills or discharges will be managed in accordance with a project-specific Emergency Response Plan/Oil Spill Response Plan.	This policy is not applicable because the RWEC is a buried (or otherwise protected) export cable that does not occur within the Massachusetts coastal zone and will not produce point-source discharges or withdrawals into or affecting the coastal zone. Construction phase spills or discharges will be managed in accordance with a project-specific Emergency Response Plan/Oil Spill Response Plan.	Appendix D, Emergency Response Plan/Oil Spill Response Plan
2	Ensure the implementation of nonpoint source pollution controls to promote the attainment of water quality standards and protect designated uses and other interests.	This policy is not applicable because the RWF is an offshore wind facility. The RWF has been designed to use construction techniques to avoid or minimize environmental impacts, such as nonpoint source discharges of pollutants, to the greatest extent practicable into coastal waters. Construction phase spills or discharges will be managed in accordance with a project-specific Stormwater Pollution prevention Plan and Emergency Response Plan/Oil Spill Response Plan.	This policy is not applicable. The RWEC is a buried export (or otherwise protected) cable that does not occur within the Massachusetts coastal zone and will not produce nonpoint source pollution. Construction phase spills or discharges will be managed in accordance with a Project-specific Stormwater Pollution Prevention Plan and Emergency Response Plan/Oil Spill Response Plan.	Section 4.2.2, Water Quality and Water Resources; and Section 4.7, Summary of Potential Impacts and Proposed Environmental Protection Measures Appendix D, Emergency Response Plan/Oil Spill Response Plan
3	Ensure that subsurface waste discharges conform to applicable standards, including the siting, construction, and maintenance requirements for on-site wastewater disposal systems, water quality standards, established Total Maximum Daily Load limits, and prohibitions on facilities in high-hazard areas.	This policy is not applicable because the RWF is an offshore facility that will not produce subsurface waste discharges that will require an onsite wastewater disposal system.	This policy is not applicable because the RWEC is a buried (or otherwise protected) underwater export cable that does not occur within the Massachusetts coastal zone and will not produce subsurface waste discharges that will require an onsite wastewater disposal system.	Not applicable

THE COMMONWEALTH OF MASSACHUSETTS
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June 8, 2021

Mark Roll
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Federal Consistency Review of Revolution Wind Farm Coastal Zone Management Act Federal Consistency Review - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Mr. Roll:

The Massachusetts Office of Coastal Zone Management (CZM) received your consistency certification and required necessary data and information for the proposed the construction and operation of a 704 to 880 MW wind energy facility offshore Massachusetts with export cables connecting to the onshore electric grid in North Kingstown, Rhode Island on June 7, 2021. The offshore component of the project includes up to 100 WTGs connected by a network of Inter Array Cables measuring up to 155 mi (250 km) in total length; up to two OSSs connected by an up to 9-miles (15-km)-long OSS-Link Cable; and up to two submarine export cables (referred to as the RWEC), generally co-located within a single corridor up to 50 mi (80 km) in length. The purpose of this letter is to provide you with public notice, scheduling, and other procedural requirements pursuant to National Oceanic and Atmospheric Administration's (NOAA) Coastal Zone Management Act (CZMA) regulations (15 CFR 923 *et seq.*), NOAA's Federal Consistency Regulations (15 CFR 930 *et seq.*), and CZM's Coastal Zone Management Program regulations (301 CMR 20 *et seq.*).

CZM will publish a notice that this proposed project is undergoing federal consistency review in the next edition of the *Environmental Monitor,* June 23, 2021. The publication date of that issue of the *Monitor* will commence a 21-day public comment period. Enclosed please find a copy of the schedule that we will follow during our review. CZM must issue our consistency decision within six months of commencement of our review, and we will make every effort to ensure our review is as expeditious as possible. If, after three months, we have been unable to complete our review, we will notify you of outstanding issues or information needed to complete the review. As a networked program, the authorities and expertise of other state agencies are integrated and coordinated in CZM's review of projects to ensure compliance with the policies of our approved coastal program. To keep our review timely, we recommend that you forward copies of filings, licenses, permits, other authorizations, and project related information to CZM as you file or receive them. If necessary, we will contact you in five months to determine whether our review will be completed within the six-month review period, or whether a stay of the review period is recommended.

Note: It is the responsibility of the project proponent to publish a public notice of the federal consistency review by non-electronic means (e.g. local newspaper) concurrently with the public notice published in the *Environmental Monitor*.

Pursuant to the CZMA and NOAA's regulations, a federal agency cannot authorize that any work commence under the federal permit unless the federal permitting agency receives a consistency concurrence letter from CZM for the proposed project, or, if CZM objects and the project proponent appeals CZM's objection to the U.S. Secretary of Commerce and the Secretary overrides CZM's objection.

Communications regarding CZM's federal consistency review of the proposed project should be directed to me at Robert.boeri@mass.gov.

Sincerely,

Robert L. Boeri
Project Review Coordinator

RLB/pb
Enclosure
CZM # 3121

cc: Taylor Bell, NED, US Army Corps of Engineers
Christine Jacek, NED, US Army Corps of Engineers
Stephanie Moura, MA DEP
Millie Garcia-Serrano, MA DEP
Dave Hill, MA DEP
Daniel Gilmore, MA DEP
Dan McKiernan, MA DMF
John Logan, MA DMF
Steve McKenna, CZM Cape Cod Regional Coordinator
Dave Janik, CZM South Coast Regional Coordinator
Todd Callaghan, CZM Coastal and Marine Scientist
Mary Boatman, BOEM

CZM Federal Consistency Review Schedule
for an Activity Requiring Federal License or Permit*

Review Steps

1.	*Document Receipt*	
(a)	Received consistency certification and necessary data and information on	June 7, 2021
(b)	Received copy of federal permit application on	June 7, 2021
(c)	CZM federal consistency review will begin on	June 7, 2021
2.	*Public Notice*	
(a)	Notice of the initiation of this federal consistency review will appear in the next edition of the MEPA *Monitor* which will appear on or about	June 23, 2021
(b)	Publication in the *Monitor* begins a 21 day public comment period which will close on or about	July 14, 2021
3.	Applicant and federal permitting agency will be notified of review status and the basis for any further delay within 3 months of the commencement of review. Last date for review status notification is	September 7, 2021
4.	CZM will contact applicant after 5 months to determine whether all networked state agency reviews will be concluded within the review period or whether the review period should be stayed; this will occur no later than	November 7, 2021
5.	CZM must issue its consistency decision within 6 months of commencement of our review. The review period closes and a consistency decision will be issued no later than	December 7, 2021

* 301 CMR 20.04, 15 CFR 930.50 - 930.66

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July 2, 2021

Mark Roll
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Mr. Roll:

The Massachusetts Office of Coastal Zone Management (CZM) is currently reviewing the proposed project to construct and operate a 704 to 880 MW wind energy facility offshore Massachusetts with export cables connecting to the onshore electric grid in North Kingstown, Rhode Island. The offshore component of the project will be located in federal waters on the Outer Continental Shelf (OCS) in the designated Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0486 (Lease Area). It includes up to 100 wind turbine generators (WTGs) connected by a network of inter array cables measuring up to 155 miles (250 km) in total; up to two offshore substations (OSS) connected by an up to nine-mile (15-km) OSS link Cable; and up to two submarine export cables, generally co-located within a single corridor up to 50 miles (80 km) in length. The project layout includes WTGs situated in an approximate 1.15-mile (1 nm, 1.8 km) by 1.15-mile (1 nm, 1.8 km) grid, aligned with layouts proposed for other projects in the Rhode Island/Massachusetts Wind Energy Area (RI-MA WEA) and Massachusetts Wind Energy Area (MA WEA). CZM received your completed federal consistency certification package on June 7, 2021, and a consistency determination is due on December 7, 2021.

In review of the necessary data and information submitted for the federal consistency review of the proposed wind energy project, we have concluded that additional information is necessary to complete the determination of the proposed project's consistency with enforceable program policies of the Massachusetts coastal management program. Listed below is the applicable enforceable policy, with an excerpt of the relevant policy elements from the *Massachusetts Office of Coastal Zone Management Policy Guide* (Policy Guide) and the supplemental information requested.

Ports and Harbor Policy #4

Ports and harbors hold important state, regional, and national significance because they possess critical characteristics necessary for the successful operation of the Massachusetts maritime industry including access to deep navigation channels, flat lands appropriate for industrial uses, connections to utilities and road/rail networks, and developed shorelines characterize which facilitate the transfer of goods from ship to shore. The enforceable Ports and Harbors Policies (#1 - 4) specifically relate to the dredging and disposal of dredged

material, public benefit priorities for channel dredging, Designated Port Area management, and *the protection of water-dependent uses.*

Ports and Harbors Policy #4 states the need to preserve and enhance waterways for water dependent uses and vessel-related activities. However, the policy recognizes that protection of waterways and the water dependent uses operating within them is challenging given limited resources and the constant demand for redevelopment that may not be compatible with existing water dependent uses. The policy addresses this challenge by providing opportunities for protection by appropriately siting new uses so they do not interfere with existing operating water dependent uses. Additionally, the policy states that where existing water dependent uses are disrupted as a result of new water dependent uses at an off-site location within the proximate vicinity of the project site, adequate mitigation shall be provided.

The proposed Revolution Wind project will be constructed in areas of state and federal waters where Massachusetts commercial and recreational fishing is known to occur as evidenced by information and data provided through the state and federal review processes and corroborated by fisheries agencies and the Massachusetts commercial fishing industry. Massachusetts fishing activity currently operating in the project area will be disrupted by the proposed project because fishing activity will be precluded in portions of the project area during construction and decommissioning, the abundance or availability of fish may be temporarily displaced during construction, fishing activities may be restricted during operations, and landings may be adversely impacted.

Information requested

For CZM to determine the consistency of the project with the enforceable program policies of the Massachusetts coastal management program, Revolution Wind should provide an assessment of the potential economic impact of the project on the water dependent uses of Massachusetts, specifically addressing the potential economic exposure of the Massachusetts commercial and recreational fishing industry. The assessment should consider potential changes in fishing activity across ports, gear type, and fish species as a result of the project. In addition to the assessment of economic impacts, Revolution Wind should develop and provide mitigation to the Massachusetts commercial fishing industry to offset disruption, changes, or loss in fishing resulting from the project. The assessment of economic exposure and mitigation should incorporate data and input provided by Bureau of Ocean Energy Management (BOEM), the National Oceanic and Atmospheric Administration (NOAA), the MA Division of Marine Fisheries, MA CZM, the Massachusetts fishing industry, and other data sources, as applicable.

If you have questions about the federal consistency review process, please contact me at the above address or robert.boeri@mass.gov.

Sincerely,

Robert Boeri
Project Review Coordinator

CZM # 3121

cc: Taylor Bell, NED, US Army Corps of Engineers
Christine Jacek, NED, US Army Corps of Engineers
Stephanie Moura, MA DEP
Millie Garcia-Serrano, MA DEP
Dave Hill, MA DEP
Daniel Gilmore, MA DEP
Dan McKiernan, MA DMF
John Logan, MA DMF
Steve McKenna, CZM Cape Cod Regional Coordinator
Dave Janik, CZM South Coast Regional Coordinator
Todd Callaghan, CZM Coastal and Marine Scientist
David Kaiser, NOAA
Mary Boatman, BOEM

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July 2, 2021

Mark Roll
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Mr. Roll:

The Massachusetts Office of Coastal Zone Management (CZM) is currently reviewing the proposed project to construct and operate a 704 to 880 MW wind energy facility offshore Massachusetts with export cables connecting to the onshore electric grid in North Kingstown, Rhode Island. The offshore component of the project will be located in federal waters on the Outer Continental Shelf (OCS) in the designated Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0486. It includes up to 100 wind turbine generators (WTGs) connected by a network of inter array cables measuring up to 155 miles (250 km) in total length; up to two offshore substations (OSS) connected by an up to nine mile (15-km) long OSS-Link Cable; and up to two submarine export cables, generally co-located within a single corridor up to 50 miles (80 km) in length. The project layout includes WTGs situated in an approximate 1.15-mile (1 nm, 1.8 km) by 1.15-mile (1 nm, 1.8 km) grid, aligned with layouts proposed for other projects in the Rhode Island/Massachusetts Wind Energy Area and Massachusetts Wind Energy Area. CZM received the completed federal consistency certification package on June 7, 2021, and a consistency determination is due on December 7, 2021.

CZM's federal consistency review is ongoing. As a networked program, the authorities and expertise of other state agencies are integrated and coordinated in CZM's review of projects to ensure compliance with the policies of our approved coastal program. Because consistency with CZM's enforceable policies cannot be achieved without compliance with their underlying state authorities, CZM will generally not issue a consistency decision until our networked agencies have completed their reviews of necessary data and information. As transmitted to Revolution Wind in a letter dated July 2, 2021, CZM also requires the requested additional information regarding consistency with the Ports and Harbors enforceable policies to complete this review.

As discussed, the Coastal Zone Management Act Federal Consistency Regulations at 15 CFR 930.60(b) allow for a stay of the six-month review period, if mutually agreed upon by both the applicant and the state agency. The rules hold that the stay shall only be for a defined period and the agreement must state the specific date on which the stay will end. In order for CZM to review the additional material requested as well as information to be provided in the Draft Environmental Impact Statement to ensure that the proposed activity is consistent with CZM's enforceable policies, we propose a stay of the review, for eight

months, beginning on July 7, 2021, with CZM's review re-starting on March 7, 2022, and completed by August 7, 2022. Unless Revolution and CZM mutually agree in writing to another later date, CZM will issue its consistency determination on or before August 7, 2022. Please indicate agreement to this schedule by signing below and returning this letter to CZM.

Pursuant to applicable provisions of NOAA's Federal Consistency Regulations at 15 CFR 930.63, CZM may object to the consistency certification if the project fails to meet the standards of CZM's enforceable policies, if any application for a specified state permit is denied, or if the applicant has failed to provide copies of final decisions on all applications identified as necessary data and information. CZM may stipulate conditions as may be necessary to achieve consistency with enforceable policies pursuant to provisions of NOAA's Federal Consistency Regulations (15 CFR 930.4, and 930.62). In the event an applicable plan, project proposal, or application is not modified accordingly, such conditional concurrence shall be treated as an objection to a federal consistency certification.

If you have questions about the federal consistency review process, please contact me at the above address or at robert.boeri@mass.gov.

Sincerely,

Robert L. Boeri

Robert Boeri
Project Review Coordinator

RLB/pb
CZM # 3121

Agreed to by Applicant Claus B. Møller

Claus Bøjle Møller – Authorized Representative
Director, North East Offshore, LLC
claum@orsted.com

cc: Taylor Bell, NED, US Army Corps of Engineers
Christine Jacek, NED, US Army Corps of Engineers
Stephanie Moura, MA DEP
Millie Garcia-Serrano, MA DEP
Dave Hill, MA DEP
Daniel Gilmore, MA DEP
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September 7, 2021

Mark Roll
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Federal Consistency Review of Revolution Wind Farm Coastal Zone Management Act Federal Consistency Review - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Mr. Roll:

The Massachusetts Office of Coastal Zone Management (CZM) is currently reviewing the proposed project to construct and operate a 704 to 880 MW wind energy facility offshore Massachusetts with export cables connecting to the onshore electric grid in North Kingstown, Rhode Island. The offshore component of the project will be located in federal waters on the Outer Continental Shelf (OCS) in the designated Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0486. It includes up to 100 wind turbine generators (WTGs) connected by a network of inter array cables measuring up to 155 miles (250 km) in total length; up to two offshore substations (OSS) connected by an up to nine mile (15-km) long OSS-Link Cable; and up to two submarine export cables, generally co-located within a single corridor up to 50 miles (80 km) in length. The project layout includes WTGs situated in an approximate 1.15-mile (1 nm, 1.8 km) by 1.15-mile (1 nm, 1.8 km) grid, aligned with layouts proposed for other projects in the Rhode Island/Massachusetts Wind Energy Area and Massachusetts Wind Energy Area. CZM received your completed federal consistency certification package on June 7, 2021, and a consistency determination would ordinarily be issued no later than December 7, 2021, however CZM and the sponsor have agreed to a stay of the federal consistency review beginning on July 7, 2021, with CZM's review re-starting on March 7, 2022, and completed by August 7, 2022.

CZM's federal consistency review is ongoing. As a networked program, the authorities and expertise of other state agencies are integrated and coordinated in CZM's review of projects to ensure compliance with the policies of our approved coastal program. Because consistency with CZM's enforceable policies cannot be achieved without compliance with their underlying state authorities, CZM will generally not issue a consistency decision until our networked agencies have completed their reviews of license, permit, and certificate applications identified as necessary data and information. CZM looks forward to reviewing subsequent filings under NEPA for consistency with state enforceable policies. As transmitted to Revolution Wind on July 2, 2021, CZM will also need the requested additional information on our Ports and Harbors enforceable policies necessary to complete this review prior to the expiration of the stay period. If we do not receive the NEPA documentation before July 7, 2022, CZM will contact you regarding a stay in the federal consistency review period, pursuant to NOAA's CZMA federal consistency regulations at 15 CFR 930.60(b).

Pursuant to applicable provisions of NOAA's Federal Consistency Regulations at 15 CFR 930.63, CZM may object to the consistency certification if any application for a specified state permit is denied, or if the applicant has failed to provide copies of final decisions on all applications identified as necessary data and information. CZM may stipulate conditions as may be necessary to achieve consistency with enforceable policies pursuant to provisions of NOAA's Federal Consistency Regulations (15 CFR 930.4, and 930.62). In the event an applicable plan, project proposal, or application is not modified accordingly, such conditional concurrence shall be treated as an objection to a federal consistency certification.

Communications regarding CZM's federal consistency review of the proposed project should be directed to Bob Boeri, at Robert.Boeri@state.ma.us.

Sincerely,

Robert Boeri
Project Review Coordinator

RLB/pb
CZM # 3121

cc: Taylor Bell, NED, US Army Corps of Engineers
Christine Jacek, NED, US Army Corps of Engineers
Stephanie Moura, MA DEP
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March 7, 2022

Mark Roll
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Mr. Roll:

The Massachusetts Office of Coastal Zone Management (MACZM) and Orsted Revolution Wind (Revolution Wind) hereby agree as follows.

Pursuant to Section 307 of the Coastal Zone Management Act (CZMA) and 15 CFR § 930.57, Revolution Wind filed a federal consistency certification with the MACZM on June 7, 2021, for the proposed Revolution Wind Farm project. The proposed project is a listed activity subject to MACZM federal consistency review pursuant to the CZMA, and the CZMA's implementing regulations at 15 C.F.R. Part 930, Subpart D – Consistency for Activities Requiring a Federal License or Permit.

In accordance with 15 CFR § 930.60 (b), and in consideration of the parties' mutual interest that the State have additional time to fully assess the proposed Revolution Wind project's consistency with the State's enforceable policies (requested additional information regarding consistency with the Ports and Harbors enforceable policies, as well as the State's request to review information to be provided in the Draft Environmental Impact Statement), the MACZM and Revolution Wind mutually agree to the following dates and to stay the MACZM CZMA six-month review period as specified herein.

- Date the MACZM 6-month review period commenced: June 7, 2021
- Date the 6-month review period was to end: December 7, 2021
- Date the first stay began: July 7, 2021
- Date the first stay ended: March 7, 2022
- Date the decision was due; August 7, 2022
- Date the second stay begins: March 7, 2022
- Date that the second stay ends: May 7, 2022

  (154 days remaining in the 6-month review period)

- Date the state's consistency decision is due: October 7, 2022

The MACZM will issue its federal consistency decision on or before October 7, 2022**.** The MACZM and Revolution Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information.

Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Revolution Wind.

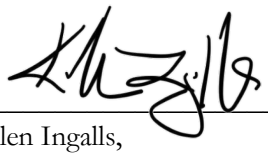
This agreement made and entered by:

March 7, 2022

Robert L. Boeri
Project Review Coordinator, MACZM

Date

North East Offshore, LLC
By its agent, Orsted Wind Power North America LLC



March 7, 2022

Kellen Ingalls,
Authorized Person
KELIN@orsted.com

Date

CZM # 3121

cc: Christine Jacek, NED, US Army Corps of Engineers
Kate Segarra, BOEM
Trevis Olivier, BOEM
Mary Boatman, BOEM
Daniel Gilmore, MA DEP
Dan McKiernan, MA DMF
John Logan, MA DMF
Steve McKenna, CZM Cape Cod Regional Coordinator
Samuel Haines, CZM South Coast Regional Coordinator
Todd Callaghan, CZM Coastal and Marine Scientist

THE COMMONWEALTH OF MASSACHUSETTS
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August 8, 2022

Megan Eakin
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Ms. Eakin:

The Massachusetts Office of Coastal Zone Management (MACZM) and Orsted Revolution Wind (Revolution Wind) hereby agree as follows.

Pursuant to Section 307 of the Coastal Zone Management Act (CZMA) and 15 CFR § 930.57, Revolution Wind filed a federal consistency certification with the MACZM on June 7, 2021, for the proposed Revolution Wind Farm project. The proposed project is a listed activity subject to MACZM federal consistency review pursuant to the CZMA, and the CZMA's implementing regulations at 15 C.F.R. Part 930, Subpart D – Consistency for Activities Requiring a Federal License or Permit.

In accordance with 15 CFR § 930.60 (b), and in consideration of the parties' mutual interest that the State have additional time to fully assess the proposed Revolution Wind project's consistency with the State's enforceable policies (requested additional information regarding consistency with the Ports and Harbors enforceable policies, as well as the State's request to review information to be provided in the Draft Environmental Impact Statement), the MACZM and Revolution Wind mutually agree to the following dates and to stay the MACZM CZMA six-month review period as specified herein.

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- Date the 6-month review period was to end: December 7, 2021
- Date the first stay began: July 7, 2021
- Date the first stay ended: March 7, 2022
- Date the decision was due; August 7, 2022
- Date the second stay began: March 7, 2022
- Date that the second stay ended May 7, 2022
- Date the decision was due: October 7, 2022
- Date the third stay begins: August 8, 2022
- Date that the third stay ends: October 12, 2022

  (61 days remaining in the 6-month review period)
- Date the state's consistency decision is due: December 7, 2022

The MACZM will issue its federal consistency decision on or before December 7, 2022. The MACZM and Revolution Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Revolution Wind.

This agreement made and entered by:

Robert L. Boeri
Project Review Coordinator, MACZM

August 8, 2022
Date

North East Offshore, LLC
By its agent, Orsted Wind Power North America LLC

Kellen Ingalls,
Authorized Person
KELIN@orsted.com

August 8, 2022
Date

CZM # 3121

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November 21, 2022

Megan Eakin
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

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- Date the decision was due: October 7, 2022
- Date the third stay began: August 8, 2022
- Date that the third stay ended: October 12, 2022
- Date the decision was due: December 7, 2022

• Date the fourth stay begins: November 21, 2022

• Date that the fourth stay ends: February 12, 2023

(16 days remaining in the 6-month review period)

• Date the state's consistency decision is due: February 28, 2023

The MACZM will issue its federal consistency decision on or before February 28, 2023**.** The MACZM and Revolution Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information and completed its review. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Revolution Wind.

This agreement made and entered by:

November 21, 2022

Robert L. Boeri
Project Review Coordinator, MACZM

Date

North East Offshore, LLC
By its agent, Orsted Wind Power North America LLC

November 21, 2022

Kellen Ingalls,
Authorized Person
KELIN@orsted.com

Date

CZM # 3121

cc: Christine Jacek, NED, USACE
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Todd Callaghan, CZM Coastal and Marine Scientist
Lisa Berry Engler, CZM Director

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February 17, 2023

Megan Eakin
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Ms. Eakin:

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- Date the decision was due: October 7, 2022
- Date the third stay began: August 8, 2022
- Date that the third stay ended: October 12, 2022
- Date the decision was due: December 7, 2022

- Date the fourth stay began: November 21, 2022
- Date that the fourth stay ended: February 12, 2023
- Date the decision was due: February 28, 2023
- Date the fifth stay begins: February 17, 2023
- Date that the fifth stay ends: March 23, 2023

  (12 days remaining in the 6-month review period)
- Date the state's consistency decision is due: April 4, 2023

The MACZM will issue its federal consistency decision on or before April 4, 2023**.** The MACZM and Revolution Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information and completed its review. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Revolution Wind.

This agreement made and entered by:

February 17, 2023

Robert L. Boeri
Project Review Coordinator, MACZM

Date

North East Offshore, LLC
By its agent, Orsted Wind Power North America LLC

February 17, 2023

Kellen Ingalls,
Authorized Person
KELIN@orsted.com

Date

CZM # 3121

cc: Christine Jacek, NED, USACE
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Kate Segarra, BOEM
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Dan McKiernan, MA DMF

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Samuel Haines, CZM
Todd Callaghan, CZM
Hollie Emery, CZM
Lisa Berry Engler, CZM

THE COMMONWEALTH OF MASSACHUSETTS
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March 27, 2023

Megan Eakin
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action; Massachusetts.

Dear Ms. Eakin:

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In accordance with 15 CFR § 930.60 (b), and in consideration of the parties' mutual interest that the State have additional time to fully assess the proposed Revolution Wind project's consistency with the State's enforceable policies (requested additional information regarding consistency with the Ports and Harbors enforceable policies, as well as the State's request to review information to be provided in the Draft Environmental Impact Statement), the MACZM and Revolution Wind mutually agree to the following dates and to stay the MACZM CZMA six-month review period as specified herein.

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- Date the first stay began: July 7, 2021
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- Date the decision was due: August 7, 2022
- Date the second stay began: March 7, 2022
- Date that the second stay ended: May 7, 2022
- Date the decision was due: October 7, 2022
- Date the third stay began: August 8, 2022
- Date that the third stay ended: October 12, 2022
- Date the decision was due: December 7, 2022

- Date the fourth stay began: November 21, 2022
- Date that the fourth stay ended: February 12, 2023
- Date the decision was due: February 28, 2023
- Date the fifth stay began: February 17, 2023
- Date that the fifth stay ends: March 23, 2023
- Date the decision was due: April 4, 2023
- Date the sixth stay begins: March 27, 2023
- Date that the Sixth stay ends: April 25, 2023

  (8 days remaining in the 6-month review period)
- Date the state's consistency decision is due: May 3, 2023

The MACZM will issue its federal consistency decision on or before May 3, 2023**.** The MACZM and Revolution Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information and completed its review. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Revolution Wind.

This agreement made and entered by:

Robert L. Boeri
Project Review Coordinator, MACZM

March 27, 2023
Date

North East Offshore, LLC
By its agent, Orsted Wind Power North America LLC

Kellen Ingalls,
Authorized Person
KELIN@orsted.com

March 27, 2023
Date

CZM # 3121

cc: Christine Jacek, USACE
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Laura Lee Wolfson, BOEM

Whitney Hauer, BOEM
Isis Farmer, BOEM
Kate Segarra, BOEM
Trevis Olivier, BOEM
Tim Timmermann, USEPA
Susan Tuxbury, NMFS
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Lisa Berry Engler, CZM

THE COMMONWEALTH OF MASSACHUSETTS
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May 1, 2023

Megan Eakin
Permit Manager
Orsted Revolution Wind
56 Exchange Terrace, Suite 300
Providence, RI 02903

Re: CZM Coastal Zone Management Act Federal Consistency Review of the Revolution Wind Farm - Bureau of Ocean Energy Management (BOEM) Action and U.S. Army Corps of Engineers USACE) Permit; Massachusetts. 15 C.F.R. Part 930, Subpart E – Consistency for Outer Continental Shelf (OCS) Exploration, Development and Production Activities and Subpart D – Consistency for Activities Requiring a Federal License or Permit

Dear Ms. Eakin:

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- Date the 6-month review period was to end: December 7, 2021
- Date the first stay began: July 7, 2021
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- Date that the third stay ended: October 12, 2022
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- Date that the fifth stay ends: March 23, 2023
- Date the decision was due: April 4, 2023
- Date the sixth stay began: March 27, 2023
- Date that the sixth stay ends: April 25, 2023
- Date the decision was due: May 3, 2023
- Date the seventh stay begins: May 1, 2023
- Date that the seventh stay ends: May 9, 2023

  (2 days remaining in the 6-month review period)
- Date the state's consistency decision is due: May 10, 2023

The MACZM will issue its federal consistency decision on or before May 10, 2023**.** The MACZM and Revolution Wind mutually agree that the MACZM may issue its consistency decision during the stay period and before the end of the stay if the MACZM determines it has received sufficient information and completed its review. Any revocation or modification (including extension) of this agreement shall require mutual consent by MACZM and Revolution Wind.

This agreement was made and entered by:

Robert L. Boeri
Project Review Coordinator, MACZM

May 1, 2023
Date

North East Offshore, LLC
By its agent, Orsted Wind Power North America LLC

Kellen Ingalls,
Authorized Person
KELIN@orsted.com

May 1, 2023
Date

CZM # 3121

cc: Christine Jacek, USACE
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Todd Callaghan, CZM
Hollie Emery, CZM
Lisa Berry Engler, CZM

Fisheries Exposure in Massachusetts from the Revolution Wind Lease Area and the Federal Waters Section of the Revolution Export Cable Route

Hauke Kite-Powell, Di Jin, and Michael Weir
Marine Policy Center
Woods Hole Oceanographic Institution

14 January 2023

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List of Abbreviations

COP – Construction and Operations Plan

ECC – Export Cable Corridor

ECR – Export Cable Route

ECR WA – Export Cable Route Working Area

ECRA – Export Cable Route Area

GDP – Gross Domestic Product

MA DMF – Massachusetts Division of Marine Fisheries

NEMFIS – Northeast Marine Fisheries Information System

NMFS – National Marine Fisheries Service

NOAA – National Oceanographic and Atmospheric Administration

PPI – Producer Price Index

RICRMC – Rhode Island Coastal Resources Management Council

RIDEM – Rhode Island Department of Environmental Management

RW – Revolution Wind

RWEC – Revolution Wind Export Cable

SBRM – Standardized Bycatch Reporting Methodology

VMS – Vessel Monitoring System

VTR – Vessel Trip Report

WLA – Wind Lease Area

WTGA – Wind Turbine Generator Area

Summary

Based on NOAA data from 2008 to 2019, and adjusting for underreporting of lobster and Jonah crab landings in the VTR data, and for some dockside sales of lobster and Jonah crab, we estimate the average annual value of commercial landings from the Revolution Wind Lease Area to be $1.51 million (2020$), or $4,510/ km^2/year. Of this, $627,000 is landed in Massachusetts. Including indirect and induced effects, these landings generate average annual economic impacts of $1.38 million in Massachusetts.

As of early 2023, Revolution Wind has identified more than 20 of the WLA's 100 turbine tower locations as infeasible for development with current technology. These include the nine locations in the southwest corner of the lease area. We estimate that the average annual value of commercial landings in Massachusetts from the Wind Turbine Generator Area (the WLA minus the southwest corner section that will not be developed) is $575,000, or $1.27 million including indirect and induced effects.

We estimate the average annual value of commercial landings from the federal waters portion of the Revolution Wind Export Cable Corridor (defined here as two 180 m wide lanes surrounding each of the two export cables) to be between $61,000 and $128,000 (between $5,640 and $11,900/$km^2$/year). Of this, about 16% (between $10,000 and $20,000/year) is landed in Massachusetts. These landings generate estimated total annual economic impacts between $20,000 and $44,000 in Massachusetts.

We estimate that a total (lump sum) of $1.24 million (2020$) of commercial fisheries value landed in Massachusetts is potentially exposed to Revolution Wind development. This accounts for about 41% of the total potentially exposed commercial landed value from Revolution Wind. It includes about $844,000 in direct landed value forgone due to construction-related effects, $347,000 from forgone fishing during the wind farm's operation, and $54,000 in present value of foregone landings due to effects related to decommissioning. Including indirect and induced effects, the potentially affected commercial landings result in about $2.74 million in total (lump sum) present value economic impact in Massachusetts.

We estimate the average annual economic impact from Massachusetts-based for-hire charter fishing near the Revolution Wind development areas to be between $167,000 and $270,000. We estimate that a total (lump sum) of about $271,000 in economic impact from Massachusetts-based charter fishing is potentially exposed during construction and decommissioning activities at Revolution Wind.

There is considerable variability in the baseline data of landings and landed value from the Revolution Wind lease area and export cable corridor. Baseline future landings will vary due to natural and fisheries-related fluctuations in stocks and prices. There is also uncertainty about the effects of wind farm construction and operation on fish stocks and landings, and about the ways that fishers will adapt their fishing practices in response to wind farm development. We consider our combined estimate of about $3.0 million in economic exposure for Massachusetts commercial and charter fishing from Revolution Wind development to be a conservative upper bound on likely actual losses.

Introduction

This report estimates the level of pre-development fishing operations intersecting with, and landings and landed value from, the Revolution Wind Lease Area and federal waters portion of the Revolution Wind Export Cable Corridor associated with landings in Massachusetts ports, and the potential effects of Revolution Wind Farm construction, operations, and decommissioning on the commercial and for-hire charter fishing industries of Massachusetts. Revolution Wind, LLC is a joint venture between Ørsted and Eversource. The shaded area in Figure 1 is the export cable envelope within which the project's two export cables will ultimately be located.

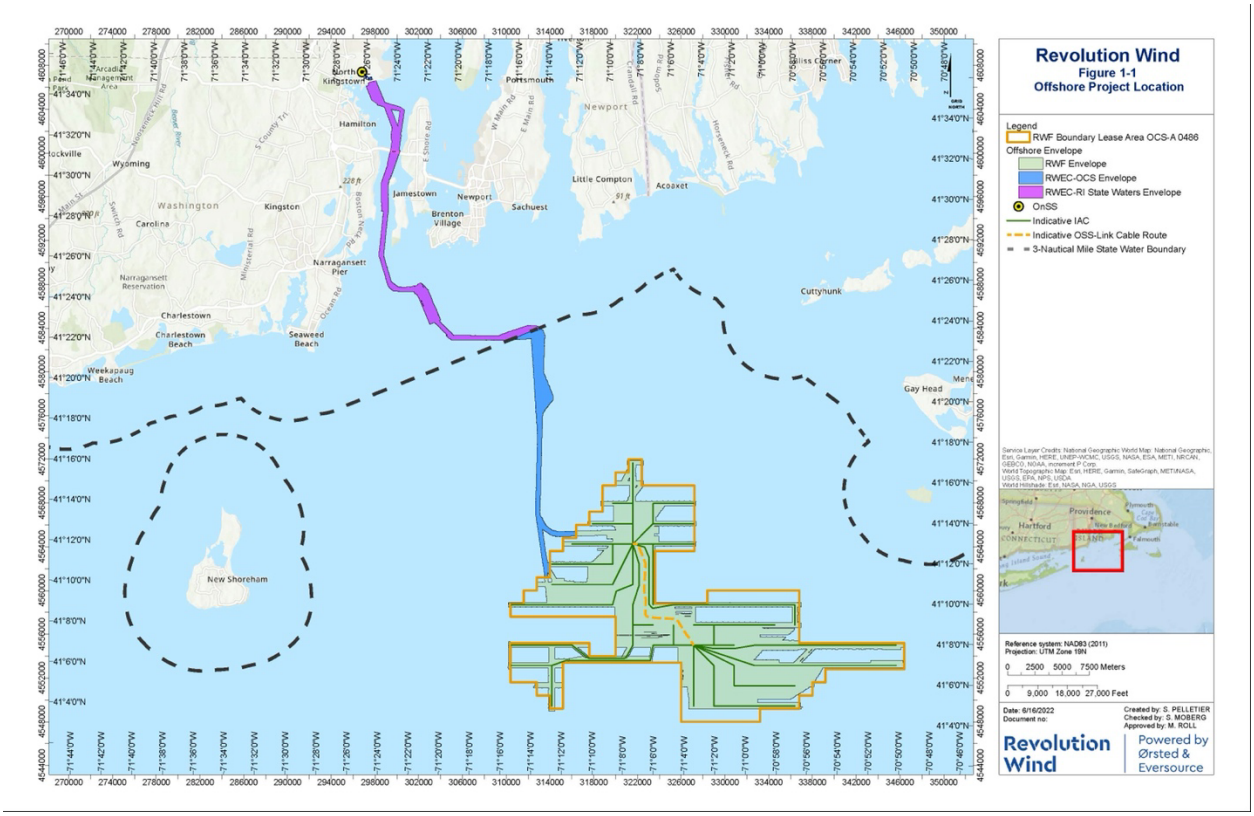

Figure 1. Revolution Wind project area and Export Cable Route envelope. Source: Revolution Wind.

The Wind Lease Area (WLA) for Revolution Wind lies in federal waters, some 30 km south of the mainland coast near the border between Rhode Island and Massachusetts. The export cable route runs north from the western edge of the WLA to the state waters boundary, and then west-north-west to the entrance of Narragansett Bay to the west of Conanicut Island. From there, the cable route runs north again to the landing location at Quonset Point in North Kingstown, Rhode Island.

To estimate commercial fish landings along the export cable route, we define a 10 km wide Export Cable Route Area (ECRA) extending 5 km on either side of the cable route. The 10 km wide ECRA has no physical significance in the context of the Revolution Wind lease, and is defined only for the purpose of identifying fisheries landings data that reflect what may be landed from fishing along the Export Cable Route (ECR).

We define the Revolution Wind Export Cable Corridor (ECC) as the combined footprint of two 180 m wide lanes centered on the two export cables. We base our calculations on the combined area of two distinct 180 m wide lanes. In practice, the lanes will overlap to some extent, as the cables will be placed less than 180 m apart at some locations along their routes.

Table 1 shows the approximate dimensions of the Revolution Wind-related areas used in this report. In the sections that follow, fishery landings and values for the Export Cable Route (ECR) are estimated and reported for the Export Cable Corridor (ECC), as defined above.

Table 1. Revolution Wind area parameters

Wind Lease Area (WLA) footprint (km^2)	334.8
Footprint of 10km Export Cable Route Area (ECRA) (km^2)	502.1
ECRA footprint in RI state waters (km^2)	264.2
RI state waters fraction of ECRA area	52.6%
ECRA footprint in federal waters (km^2)	237.9
Federal waters fraction of ECRA area	47.4%
Export Cable Corridor (ECC) length (km)	63.0
Footprint of ECC (km^2)	22.68
ECC area fraction of ECRA area	4.52%
Export Cable Corridor (ECC) length in RI state waters (km)	38.0
ECC footprint in RI state waters (km^2)	13.68
RI state waters fraction of ECC area	60.3%
ECC footprint in federal waters (km^2)	9.00
Federal waters fraction of ECC area	39.7%

Methodology

Our approach to estimating the potential effects of Revolution Wind development on commercial fishing is to first estimate the annual landed weight and value of fish from the Revolution WLA and ECC, and then to estimate the fraction of this annual value that may be exposed to wind farm construction, operation, and decommissioning. Our assessment method is consistent with the general framework described in the reports by Kirkpatrick *et al.*/BOEM (2017a and 2017b) on socio-economic impact of offshore wind energy development on commercial fisheries, and builds on the approach of Livermore (RIDEM 2017, 2018, and 2019), which develops high-end estimates of fishery impacts by including in baseline estimates the entire trip revenues from all trips that overlap with a wind lease area, regardless of how much fishing occurred inside or outside the area.

Separately, we estimate the gross revenue associated with for-hire charter boat fishing activity originating in Massachusetts, and the fraction of this revenue that may be exposed to Revolution Wind development.

We estimate the annual commercial landings and landed value of fish from the Revolution WLA and ECC using a dataset provided by NOAA's National Marine Fisheries Service. This dataset uses modeled representations of federal Vessel Trip Report (VTR) and clam logbook fishing trip data to produce a more accurate spatial allocation of landings from each fishing trip (DePiper 2014; Benjamin *et al.* 2018). As we document below, there has been considerable variability in annual landings from these areas over the past decade; we use the average landings and landed value from 2008 to 2019 as indicative of what the areas may yield in the future.

We then estimate the fraction of this average annual value that may be at risk ("exposed") due to Revolution Wind development, based on the nature and schedule of construction activities, operating plans, and decommissioning plans, and on information from the scientific literature on the effects of wind farm construction and operation on commercial fish stocks and landings.

The effect of offshore wind farm construction and operation on marine ecosystems, fish stocks and fish behavior, and fishery landings is an area of ongoing research. To date, almost all offshore wind farm development has taken place outside the US. The only wind farm off the coast of New England from which lessons might be drawn directly for Revolution Wind is the Block Island Wind Farm, a five-turbine, 30 MW project about 4 miles from Block Island, RI.

Investigations of offshore wind farms outside the US have found both positive and negative effects on marine biota, habitats, and ecological function. The effects include the aggregation of finfish and other marine life via the creation of artificial reefs (Bergström *et al.* 2014; Langhamer 2012; Lindeboom *et al.* 2011; Wilhelmsson and Malm 2008) and disturbance of existing ecosystems (Bergström *et al.* 2014; Wilhelmsson *et al*. 2006). Bartley *et al.* (2019) have reported on monitoring of physical and chemical conditions in the benthic environment around Block Island Wind Farm turbine towers over two years after the towers were installed; they found some changes in the benthos in the immediate tower foundation footprint at one out of three turbine towers they investigated, and found no changes beyond 30m from any of the towers studied.

In their 2018 study, ten Brink and Dalton interviewed commercial and recreational fishers active in the waters around the Block Island Wind Farm about the perceived effects of the farm on fish stocks and fishing activity. Respondents reported murky water, underwater noise, and vibration during construction, and a lower abundance of fish such as striped bass on the side of Block Island closest to the wind farm site during the construction time window. They also reported the presence of shellfish and finfish on and around the wind turbine towers, including an increase in the abundance of cod, within months of the conclusion of construction activities. The transient negative effect on mobile species within 5-10km of wind farm construction activities observed at Block Island is consistent with findings from Europe (Bergström *et al.* 2014; Vallejo *et al.* 2017).

Hooper *et al.* (2017) report on a survey of recreational fishers and wind farms in the United Kingdom. The authors found that most fishers in their survey either had fished near a wind farm or were interested in doing so, and concluded that most UK anglers were unlikely to change their behavior in response to wind farm development.

More recently, Dalton *et al.* (2020) reported on surveys of Rhode Island recreational boaters' preferences for boating in the vicinity of offshore wind farms. Although some survey respondents identified as fishers, the survey did not explicitly target boaters interested in fishing; the mean age of

respondents was above 62 years, mean boat length in excess of 37 feet, and more than 43% of respondents owned sailboats. Overall, boaters expressed a preference for not boating near (within 100 ft of) an offshore wind turbine; but boaters who fish were less negatively impacted by boating near a turbine, and boaters who had visited the Block Island Wind Farm were more accepting of trips near turbine towers than other boaters.

Given the current state of knowledge about the effects of wind farm construction and operation on fish stocks and fishery landings, we consider five categories of possible exposure for commercial fishing from the Revolution Wind project:

- Transient effects on fish availability due to construction activities and noise
- Transient effects due to constrained access to certain areas during construction
- Changes in fishing in the WLA during operations
- Transient effects due to constrained access to certain areas during decommissioning
- Transient effects on fish availability due to decommissioning activities

We also consider transient effects on the for-hire charter fishing industry due to construction and decommissioning of the wind farm. To the extent that for-hire charter fishing vessels from Massachusetts use the WLA and ECC, it is possible that their activities may be affected during construction and decommissioning. We consider it unlikely that the Revolution Wind development will negatively affect the personal recreational fishing activities of Massachusetts boaters.

Estimating the effect of wind farm development on fishing activity and landings is complicated by several sources of variability and uncertainty. There is considerable year-to-year fluctuation in the historical baseline commercial landings from the wind development areas; and future fishery landings from these areas are likely to differ from historical baselines due to climate change effects (Free *et al.* 2019; Oremus 2019). There is uncertainty about the extent and duration of effects of wind farm construction on fish availability in the vicinity of the wind farm, and about the habitat and other effects (if any) of the wind farm over decades of operation. There is also uncertainty about the response of the commercial fishing industry and of for-hire charter fishing vessels to the altered "landscape" resulting from wind farm development. The current state of the science about wind farm effects on commercial fishing does not support a precise estimate of effects on fish stocks; and the future decisions of fishers are by their nature not precisely predictable, especially decades into the future, because they depend on personal assessments and decisions of individual fishers.

Acknowledging these sources of variability and uncertainty, we seek to develop a realistic, conservative estimate of the potential effect of Revolution Wind development on Massachusetts commercial landings, landed value, and charter boat revenue. We make conservative assumptions about fishing industry response, assuming that landings from an area where access is constrained during construction, operations, or decommissioning are simply forgone, and not compensated by landings from fishing elsewhere instead. Further, we estimate impact as the landed value (gross revenue) at risk, not the net income or profit. Landed value is, by definition, larger than net income or profit from fishing. For these reasons, we consider our impacts estimate to represent an upper bound on the likely net effects of the wind farm on the Massachusetts fishing industry.

Throughout this report, we use "landed value" to refer to the direct value of fisheries landings, "impact" to refer to the economic activity generated by fisheries, including indirect and induced effects (see

below), and "exposure" to refer to the portion of landed value or impacts that may be at risk due to wind farm development.

Baseline commercial fishery landings and values, 2008-2019

Commercial fisheries data description

The following data description is based on information provided by the National Marine Fisheries Service (NMFS) on March 20 and April 1, 2020.[1] NOAA has been collecting and improving the Vessel Trip Report (VTR) data for decades. The data have been widely used for fisheries research, management, and economic impact assessments. The footprint of the Revolution Wind Lease Area is 334.8 km^2. To gauge landings value and quantity at this spatial scale, NOAA has developed a procedure to produce high-resolution spatial information using a combination of VTR and fishery observer data. As described below, we follow the general approach developed by NOAA, which is the best approach at present, with a recognition that relevant data are not perfect. All estimates of fishery landings and values in this report are based on these NMFS data; and the data have not been amended, adjusted, or augmented in any way, with two exceptions: we make adjustments to the lobster and Jonah crab landed values to account for possible underreporting; and we make adjustments to the Rhode Island lobster and Jonah crab landings to account for dockside sales. These adjustments are described in detail in the section on Adjustment of Lobster and Jonah Crab Data below. The adjusted data appear only in Tables 11 and 12 below.

The data presented below summarize estimates of fisheries landings and values for fishing trips that intersected with the Revolution Wind WLA and ECRA from 2008 to 2019 (calendar years). Modeled representations of federal VTR and clam logbook fishing trip data were queried for spatial overlap with the WLA and the ECRA, and linked to dealer data for value and landings information. As detailed in DePiper (2014) and Benjamin *et al.* (2018), to improve the spatial resolution of VTR, a spatial distribution model was developed by combining vessel trip information from VTR with matching NOAA fishery observer data, including geocoordinates of detailed fishing locations. From this model, landings and value can be summarized for a specified geographic area according to (1) species, (2) gear type, (3) port of landing, and (4) state of landing.

In essence, the DePiper approach utilizes a spatial model to distribute the total landings for each commercial fishing trip over a circular area with its center located at the geocoordinate reported in the VTR, following a distribution decreasing with the radius. The model was estimated using VTR data (for the centroid) and vessel observer data (for haul beginning and endpoints). DePiper (2014) reported that the observer data matched VTR records well (488,251 hauls in the observer data were matched to 27,358 VTR records, representing 87.5% of all hauls with either a beginning or end point of a haul recorded).

The primary purpose of the observer data collection is to monitor fishery bycatch. NOAA's Standardized Bycatch Reporting Methodology (SBRM) dictates what types of vessels (gear, species, area of operation,

[1] Our primary contact at NMFS was Benjamin Galuardi, a statistician at the NOAA Greater Atlantic Regional Fisheries Office. He has worked extensively on fishery data analyses in general and the VTR data in particular, and has authored or coauthored more than 30 publications on fisheries sciences and spatial statistics.

etc.), participating in various fisheries, should be sampled and at what rate. The numbers of sea days needed to achieve a 30% coefficient of variation (CV = standard deviation divided by mean) of total discards for each species group were derived for different SBRM fleets covering different gears, access areas, states, and mesh sizes (NEFSC 2013). For Massachusetts vessels, the observer program covered close to 20% of trips with trawl gear, around 5% of trips with dredge gear, and around 20% of trips with gillnet gear (Jin 2015).

Following the DePiper approach, the resulting high spatial resolution data were converted into raster maps. Use of this VTR raster model produces a more accurate estimate of the spatial distribution of landings than other approaches that rely entirely on the self-reported VTR/clam logbook locations, which associate all landings from the trip with a single point location. At 10 nautical mile resolution, the confidence intervals of the DePiper model estimates are around 90% for trip lengths of one to two days.

The only alternative to the DePiper approach is a model to distribute the total landings from a VTR report over the vessel's track using the Vessel Monitoring System (VMS) data. The main challenge for this approach is accurate identification of fishing and non-fishing segments of a trip. Muench *et al.* (2018) have shown that using vessel speed alone can lead to a severe misrepresentation of fishing locations. NOAA has adopted the DePiper approach as a standard procedure to generate spatial data; and we agree with NOAA that this is the best approach currently available. The main advantages of the DePiper approach are that (1) it is based on observations of actual fishing locations noted by observers at sea, and (2) it provides a systematic and consistent way to meet the increasing demand for spatial fishing data for relatively small areas in the ocean, which is important for cross project comparison.

Landings associated with the ECC and Export Cable Route Working Area (ECR WA) are calculated by applying the factors in Table 1 to the landings estimated for the ECRA. This assumes that landings are distributed uniformly across the fished sections of the ECRA.

In order to maintain the legally required data confidentiality, summaries by species, gear type, and landing location are presented individually. In addition, for records that do not meet the "rule of three" (three or more unique dealers and three or more unique permits), values are summarized in a category labeled "ALL OTHERS." The following notes also pertain to the NOAA data:

- All landed values have been converted to 2020 dollars using the Producer Price Index for "unprocessed and prepared seafood."
- Pounds are reported in Landed Pounds, unless otherwise noted.
- Data summarized here are from federal sources only.
- Fishing vessels that carry only lobster permits for federal waters are not subject to VTR requirements. Landings from trips with no VTR are not reflected in this summary.
- Other fisheries exist in state waters that may not be reflected in data from federal sources (e.g. whelk, quahog, striped bass).

We also obtained the average monthly number of trips intersecting with each area, for the period of 2014-2019.

Commercial fishery landings from Wind Lease Area and Export Cable Corridor

Table 2 shows the average annual level and standard deviation of total values and landings associated with fishing in the Revolution WLA and the ECC from 2008 to 2019.

The average annual landings from the Revolution WLA are about 1.41 million lbs (standard deviation 575,000 lbs) with a value of about $1.11 million (standard deviation $303,000). Average annual landings from the ECC are about 219,000 lbs (standard deviation 142,000 lbs) with a value of $95,000 (standard deviation $22,000).

Table 2. Average annual value and quantity of commercial fisheries landings by area

	Mean		***Standard Deviation***	
Area	**Value/year** (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
Revolution WLA	1,111,520	1,409,661	303,088	575,227
Revolution ECC	94,506	219,380	21,750	141,726

About 52.6% of the 502 km^2 ECRA and about 60.3% of the 22.7 km^2 ECC are located in Rhode Island state waters; and 47.4% and 39.7%, respectively, are in federal waters. If we assume that landings are uniformly distributed over the ECC, this suggests that landings from the federal waters portion of the ECC average $37,519 per year. As we discuss below, the assumption of uniform distribution likely leads to an underestimate of the true value of landings from the federal portion of the ECC.

Table 3 shows the total landings and values, for each year from 2008 to 2019, associated with fishing in the Revolution WLA and ECC.

Table 4 summarizes the average annual landings and value of fisheries production from the Revolution WLA and ECC by the top five species or species groups. Lobster, scallops, monkfish, and skate wings are among the species/products generating the greatest value from the Revolution WLA during the 2008-2019 time period.

Table 3. Annual value and quantity of commercial fisheries landings by area.

Area	**Revolution WLA**		**Revolution ECC**	
Year	**Value** (2020 $)	**Landings** (lbs)	**Value** (2020 $)	**Landings** (lbs)
2008	1,536,395	1,036,114	98,544	117,618
2009	1,530,787	2,164,702	105,082	240,398
2010	871,719	898,253	86,720	150,650
2011	1,130,275	1,072,961	106,078	196,432
2012	985,312	1,550,209	138,310	512,126
2013	1,074,375	2,172,428	110,010	393,782
2014	1,305,547	1,823,589	106,112	373,100
2015	1,315,460	1,512,205	95,854	222,086
2016	1,352,878	2,207,727	91,596	209,436
2017	708,637	741,564	62,640	75,972
2018	627,644	642,333	66,692	62,180
2019	899,210	1,093,844	66,436	78,780

Table 4. Average annual landings of major species by area, 2008-2019.

	Mean		***Standard Deviation***	
Area/Species	**Value/year** (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
Revolution WLA				
Lobster, American	216,526	39,033	90,284	15,007
Scallops	161,804	14,982	155,706	16,242
ALL_OTHERS	130,334	197,741	112,472	195,923
Monkfish	110,376	65,752	52,747	23,647
Skate Wings	93,077	351,557	45,462	161,671
Revolution ECC				
Herring, Atlantic	17,562	132,076	16,902	137,256
Lobster, American	17,352	3,196	9,126	1,500
Squid/Loligo	9,804	7,186	5,120	3,946
Flounder, Summer/Fluke	9,538	2,408	1,842	658
Scup/Porgy	7,804	11,906	2,748	5,206

Both mobile (e.g., trawl and dredge) and fixed (e.g., pots and gillnet) gears are used in fishing operations. The trawl gear is primarily used for harvesting groundfish, dredges for harvesting scallops, and pots for lobster and crabs. The fixed gears are fished using trawls (a series of lobster pots attached to one line) with string lengths of 0.4–0.8 km (up to 1.829 km) or gillnets with typical string lengths of 0.2–3.0 km. Tables 5a and 5b break out annual landings for each area by gear type. Trawl and pot fisheries and gillnets are the most significant in both areas, followed by gillnets and dredges. The "ALL_OTHERS" category includes landings using purse seines, other seines, and weirs/traps, and others that fall under the "rule of three" exclusion.

Table 5a. Average annual landings in Revolution WLA by gear type.

	Mean		***Standard Deviation***	
Gear	**Value/year** (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
Dredge – Clam	-	-	-	-
Dredge – Scallop	154,207	14,568	149,030	15,835
Gillnet – Sink	176,002	204,502	72,178	70,998
Gillnet – Other	-	-	-	-
Handline	2,224	599	3,096	714
Longline – Bottom	-	-	-	-
Pot – Other	266,092	73,946	83,498	16,523
Trawl – Bottom	330,166	596,198	87,013	191,165
Trawl – Midwater	39,307	315,244	51,543	402,464
Other	320	28	1,107	97
ALL_OTHERS	143,202	204,576	110,496	193,776

Table 5b. Average annual landings in Revolution ECC by gear type.

Gear	*Mean*		*Standard Deviation*	
	Value/year (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
Dredge – Clam	-	-	-	-
Dredge – Scallop	2,654	242	1,852	152
Gillnet – Sink	7,726	10,316	2,402	4,790
Gillnet – Other	-	-	-	-
Handline	314	94	116	28
Longline – Bottom	-	-	-	-
Pot – Other	22,008	6,782	7,674	1,842
Trawl – Bottom	45,296	97,640	10,172	34,130
Trawl – Midwater	12,222	98,992	12,556	111,684
Other	-	-	-	-
ALL_OTHERS	4,286	5,316	2,810	4,114

Table 6 summarizes annual landings and landed value for the major ports receiving landings from both areas. Point Judith and Little Compton (both in Rhode Island) and New Bedford in Massachusetts are among the most significant ports for landings from the Revolution Wind areas. Tables A5 through A7 in the Appendix show the complete data on average annual landings and landed value by port for Rhode Island and Massachusetts.

Tables 7a and 7b show average annual landings and landed value from the two areas by state where the catch is landed. Rhode Island and Massachusetts together account for more than 95% of landings and landed value from the WLA and more than 96% of landings from the ECC. The "others" category includes landings in Maine, Connecticut, New York, New Jersey, Maryland, North Carolina, and Virginia, as well as data flagged by the "rule of three" exclusion.

Table 6. Average annual landings at major ports in Rhode Island and Massachusetts.

Area/Port	*Mean*		*Standard Deviation*	
	Value/year (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
Revolution WLA				
Point Judith, RI	395,422	372,813	94,641	117,967
New Bedford, MA	345,249	531,251	148,331	361,113
Little Compton, RI	118,582	117,951	40,381	46,312
Westport, MA	65,122	25,925	32,456	12,768
Newport, RI	61,342	177,188	35,395	141,446
Revolution ECC				
Point Judith, RI	49,630	84,938	8,184	41,964
Newport, RI	12,996	29,990	6,354	19,748
New Bedford, MA	11,154	70,578	7,936	83,742
Little Compton, RI	8,468	9,534	4,620	6,828
ALL_OTHERS	2,846	8,258	3,696	14,334

Table 7a. Average annual landings from Revolution WLA by state.

State	Mean		Standard Deviation	
	Value/year (2020 $)	Landings/year (lbs)	Value/year (2020 $)	Landings/year (lbs)
Rhode Island	592,816	705,478	139,434	203,746
Massachusetts	475,849	668,182	181,263	418,179
Others	42,855	35,463	--	--

Table 7b. Average annual landings from Revolution ECC by state.

State	Mean		Standard Deviation	
	Value/year (2020 $)	Landings/year (lbs)	Value/year (2020 $)	Landings/year (lbs)
Rhode Island	75,858	131,252	15,808	52,728
Massachusetts	15,508	82,018	9,096	88,402
Others	3,140	5,666	--	--

Landed value and trips by month

Table 8 and Figures 2 and 3 show the average monthly landings and values from the two areas. Table 9 reports the average monthly number of fishing trips that intersect each area.

Table 8. Average monthly value of landings, 2020$, 2014-2019.

Month	Revolution WLA	Revolution ECC
Jan	54,438	3,126
Feb	47,949	1,462
Mar	67,934	1,932
Apr	43,472	1,858
May	78,689	7,818
Jun	130,371	11,112
Jul	141,304	10,564
Aug	136,187	10,550
Sep	113,114	8,278
Oct	85,819	6,942
Nov	72,166	5,944
Dec	75,563	13,070

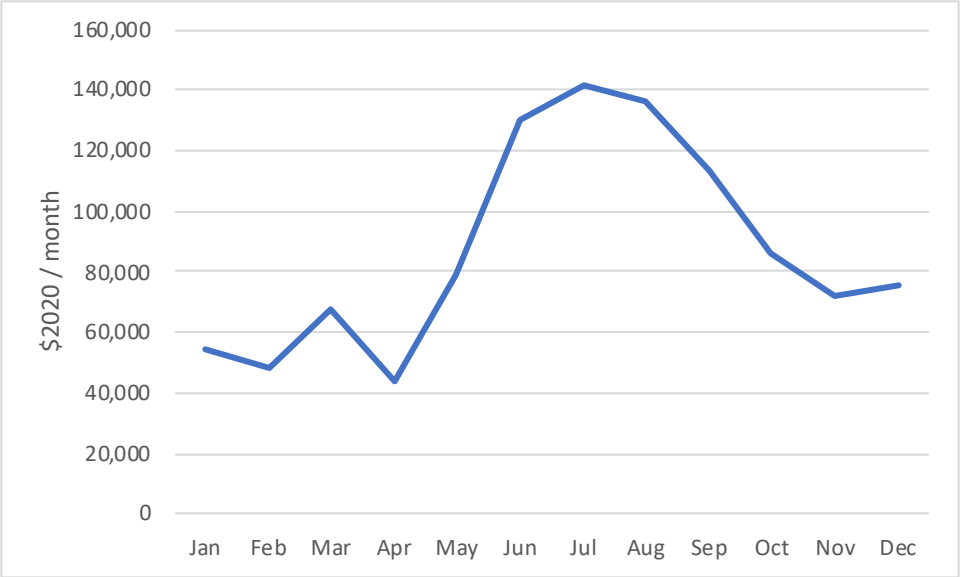

Figure 2. Average monthly value of landings, Revolution WLA, 2014-2019.

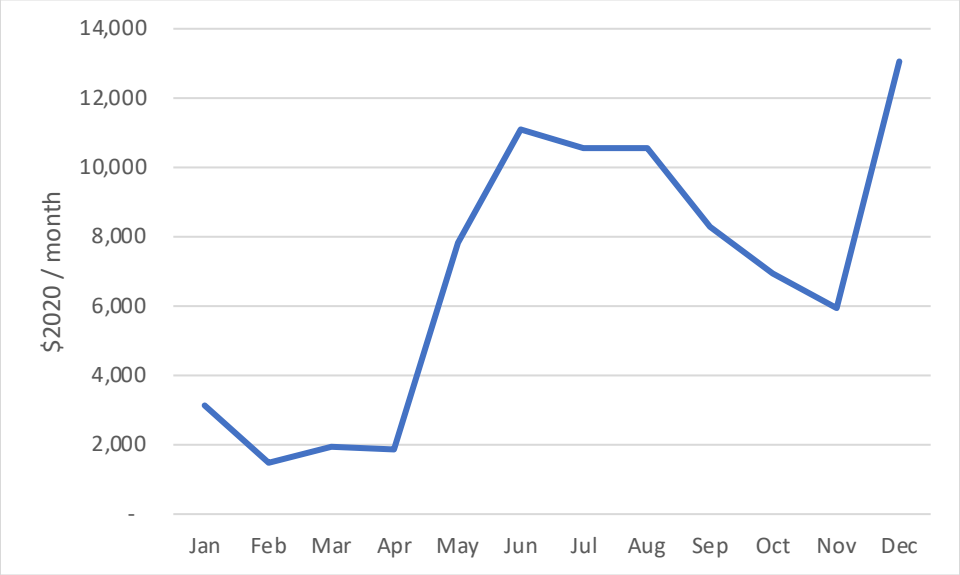

Figure 3. Average monthly value of landings, Revolution ECC, 2014-2019.

Table 9. Average monthly number of fishing trips, 2014-2019.

Month	Revolution WLA	Revolution ECRA
Jan	258	260
Feb	132	120
Mar	119	104
Apr	210	201
May	549	876
Jun	762	1,032
Jul	972	1,180
Aug	904	1,053
Sep	737	872
Oct	498	660
Nov	399	511
Dec	341	398

Inter-annual price adjustments

We use the Bureau of Labor Statistics' Producer Price Index (PPI) for "unprocessed and prepared seafood"[2] to convert ex-vessel value of fish landings, because this index is specifically for the fishery sector. PPI is a family of indexes that measures the average change over time in selling prices received by domestic producers of goods and services; they measure price change from the perspective of the seller. In contrast, the Bureau of Economic Analysis' general Gross Domestic Product (GDP) deflator[3] measures changes in the prices of goods and services produced in the United States, including those exported to other countries, and captures price changes across all economic sectors. Table 10 shows both indexes from 2000 to 2021.

Note that the variation in the sector (i.e., fishery) specific price index is considerably larger than that of the GDP deflator. PPI decreases have been observed in several years since 2000. The GDP deflator exhibits a steady trend. We recognize that many seafood prices rose sharply in 2021, as reflected by the sharp increase in fish PPI for that year. We consider it unlikely that this will significantly alter the long-term trend, and maintain that the historical average is the best predictor of future values.

We report all values in 2020$ for consistency. These values can be easily adjusted to any other-year dollars by applying the appropriate index adjustment. Landed value may be adjusted using the PPI index. For impact values, including upstream and downstream effects (see below), it is more appropriate to use the GDP deflator to adjust, because the multipliers capture economy-wide impacts.

[2] https://www.bls.gov/ppi/#data

[3] https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=2&isuri=1&1921=survey

Table 10. Price indexes.

Year	GDP implicit price deflator	Percent change	PPI fish	Percent change
2000	78.0		198.1	
2001	79.8	2.25%	190.8	-3.69%
2002	81.0	1.56%	191.2	0.21%
2003	82.6	1.97%	195.3	2.14%
2004	84.8	2.68%	206.3	5.63%
2005	87.5	3.14%	222.6	7.90%
2006	90.2	3.09%	237.4	6.65%
2007	92.6	2.70%	242.8	2.27%
2008	94.4	1.92%	255.4	5.19%
2009	95.0	0.64%	250.9	-1.76%
2010	96.2	1.20%	272.4	8.57%
2011	98.2	2.08%	287.6	5.58%
2012	100.0	1.87%	287.6	-0.02%
2013	101.8	1.75%	299.4	4.12%
2014	103.7	1.87%	322.4	7.68%
2015	104.7	1.00%	322.0	-0.13%
2016	105.7	1.00%	327.6	1.74%
2017	107.7	1.90%	337.9	3.15%
2018	110.3	2.39%	344.5	1.96%
2019	112.3	1.79%	349.9	1.55%
2020	113.6	1.21%	350.8	0.27%
2021	118.4	4.15%	413.0	17.74%
Annual average		2.01%		3.66%

Adjustment of lobster and Jonah crab data

As noted above, lobster vessels that carry only lobster permits are not subject to a VTR requirement. Trips without VTR are not reflected in the numbers shown in Tables 2 through 9 (cf. King 2019). To account for potentially unreported lobster and Jonah crab landings, and for dockside sales (see below), we make adjustments to the landed value data as shown in Table 11. Data in the first three rows are based on VTR data, and are taken from Table 2 and Tables A1 through A3 in the Appendix. An earlier study by Industrial Economics (2015) indicates that active lobster vessels not subject to trip report requirements in Lobster Management Area 2 may account for as much as 57% of the total lobster fishing activity in that area. (Lobster Management Area 2[4] encompasses the waters south of Rhode Island and Cape Cod to a distance of about 40 nm, and includes the Revolution Wind project areas.) We assume conservatively that landings from 60% of the lobster vessels in the Revolution WLA and ECRA could therefore be unreported, and that the VTR data represent 40% of the true lobster and Jonah crab revenues. We use this as an adjustment factor, and estimate the adjusted lobster and Jonah crab revenues at 2.5 times of those in the VTR data.

Some fraction of lobster and Jonah crab landings are sold directly from boats at dockside, at a price above that reported in the dealer information on which the NOAA values above are based. Neither the

[4] http://fisheries.noaa.gov/resource/map/lobster-management-areas

fraction of landings sold in this way nor the price premium is known exactly. Based on information provided by a group of Rhode Island fishermen (pers. comm., 24 Nov. 2020), we estimate that a 15% premium on the landed value derived from NOAA data (Table 11) adequately captures this dockside sales effect for Rhode Island landings. Dockside sales are not a common practice in Massachusetts (Mass. DMF pers. comm. May 2021), so we do not apply this multiplier to Massachusetts landings.

The combined adjustment for VTR data and dockside sales is shown in rows 5 and 6 in Table 11. The net increase is shown in row 7, and the adjusted total annual landed values are shown in row 8. This adjustment results in a 36% increase in the estimated total annual landed value.

Table 11. Adjustment of landed value for landings not captured in VTR data and for RI dockside sales.

Value (2020$)	**Revolution WLA**	**Revolution ECC**
Avg. VTR total $/year (Table 2)	1,111,520	94,506
Avg. VTR lobster $/year (Tables A1-A3)	216,526	17,351
Avg. VTR Jonah crab $/year (Tables A1-A3)	18,145	1,255
% of total captured by VTR	40%	40%
Adjusted lobster $/year	584,621	48,601
Adjusted Jonah crab $/year	48,992	3,514
Net increase over VTR $/year (row 5+6-2-3)	398,941	33,509
Adjusted total landed value $/year	1,510,461	128,015
Adjusted increase over VTR total value	35.9%	35.5%

Adjustment for infeasible turbine tower locations

As of January 2023, Revolution Wind has deemed more than 20 of the 100 possible turbine tower locations in the WLA to be infeasible for tower installation given current technology constraints. This includes the nine turbine tower locations in the triangular section on the southwestern corner of the WLA. We define the Wind Turbine Generator Area (WTGA) as the subset of WLA that encloses the turbine tower locations that will be developed; the WTGA thus excludes the “appendage” in the southwestern corner of the WLA (Figure 4).

The footprint of the WTGA as defined above is approximately 91.8% of the footprint of the WLA. Assuming that landed value per unit area is uniform across the WLA, this results in an estimated average annual landed value from the WTGA of $1,387,056 (2020$), of which $575,357 is landed in Massachusetts.

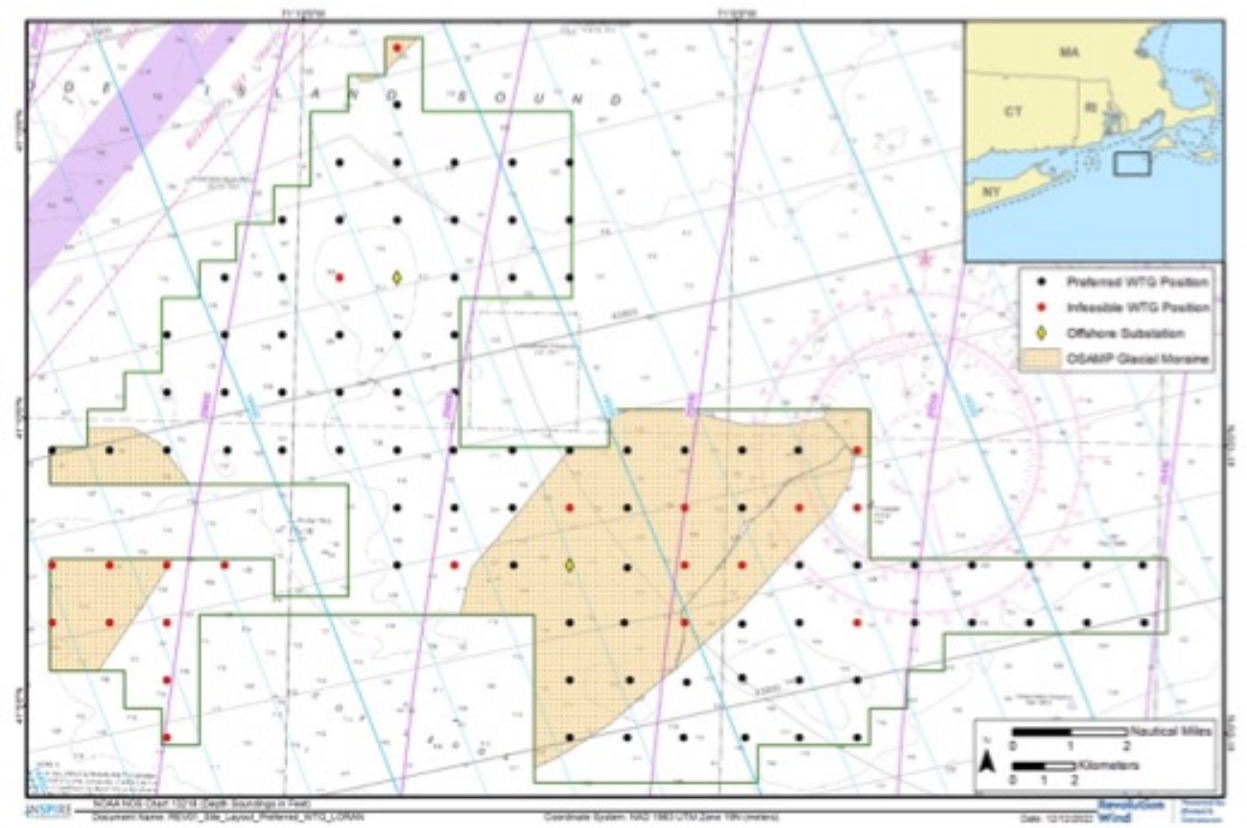

Figure 4. Preferred and infeasible wind turbine generator positions. Source: Revolution Wind.

Estimated indirect and induced economic impacts

Economic impact multipliers reflect the linkages between economic activity in different sectors of the economy. For example, when landings increase in the commercial fishing sector, there is an associated increase in the purchases of ice and other supplies in the region, and an increase in onshore transportation and processing of seafood. The resulting increases in economic activity in the commercial fishing supply and transportation and processing sectors are indirect effects of increased landings. In addition, because fishermen and workers in the supply, transportation, and processing industries earn greater income as a result of this increased activity, and spend some of that extra income on local goods and services, there is also an induced effect of greater spending in other sectors. The multipliers capture the combined effect of indirect and induced spending that results from higher commercial landings.

We have developed regional economic models for Massachusetts using the IMPLAN model software (IMPLAN 2004) and data for 2018 and 2019. IMPLAN software and data are commercial products widely used by researchers and management agencies to perform economic impact analyses for a specified study region (IMPLAN 2004; Steinback and Thunberg 2006; Hoagland *et al.* 2015; UMass Dartmouth. 2018; Cape Cod Commission 2020). Based on these models, the upstream output multiplier for the commercial fishing industry in Massachusetts is 1.775. (The 2019 version of IMPLAN shows a lower multiplier of 1.770 for Massachusetts; we choose to use the conservative higher 2018 value.)

We have also taken into account downstream economic activity, such as seafood processing, that may take place at Massachusetts businesses as a result of commercial fisheries landings. This linkage is less direct than the upstream activities, because not all seafood landed in a state is processed in the state, and seafood processors may import more seafood from elsewhere for processing when in-state landings fall short. Nonetheless, to be conservative, we add a downstream adjustment of 0.43, as cited by BOEM (2021) in the Vineyard Wind analysis, to the multiplier for Massachusetts landings, bringing the combined multiplier to 2.205, to account for both upstream effects and downstream effects to seafood processors. We apply the combined upstream and downstream multiplier to all Massachusetts landings. The corresponding combined multiplier for Rhode Island landings is 2.219; for landings in other states, we use the average of the Massachusetts and Rhode Island multipliers.

While we use a single output multiplier for the entire commercial fishing sector in a given state, we recognize that the multiplier may vary across specific fisheries, species, and gear. We also recognize that other types of multipliers, such as those focusing on employment effects, have been used in other analyses. We maintain that the output multipliers we use provide a robust and accurate measure of indirect and inducted effects averaged across the fishing sectors.

Using these multipliers, and including the lobster and Jonah crab adjustment described in the previous section, we estimate the average annual total economic impact from commercial fishing activity in the Revolution WLA to be about $1.38 million in Massachusetts (Table 12). The same approach leads to an estimate of the average annual total economic impact from commercial fishing activity in the ECC around $44,000 in Massachusetts. Including landings in other states, the total average annual economic impact from commercial fishing activity in the WLA is $3.21 million and in the ECC it is $267,000. These estimates are based on average annual landings value from 2008 to 2019, with lobster and Jonah crab landed value adjusted to account for boats not subject to VTR requirements.

Table 12. Estimated annual economic impact in Massachusetts (all values in 2020$)

		Average value of landings/year			**Total impact/year**
Area	**State**	VTR data only (Table 11, row 1)	with lobster & Jonah crab adjustment	with dockside sales adjustment (15% premium on RI lobster & JC landings)	"dockside sales" column multiplied by upstream & downstream multipliers, except RI lobster & JC
Revolution WLA	total	1,111,520	1,463,527	1,510,461	3,206,170
Rev. WTGA	total	1,020,709	1,343,957	1,387,056	2,944,226
Revolution ECC	total	94,506	122,415	128,015	267,483
Revolution WLA	MA	475,849	626,545	626,545	1,381,532
Rev. WTGA	MA	436,972	575,356	575,356	1,268,661
Revolution ECC	MA	15,508	20,088	20,088	44,293

Table 13 shows the breakdown of landed value from the Revolution Wind ECC by the Rhode Island state waters and federal waters portions of the ECC. This assumes that landed value is uniformly distributed across the ECRA.

Table 13. Estimated annual economic impact from state and federal sections of the ECC (2020$)

		Average value of landings/year			Total impact/year
Landings port location(s)	**ECC portion**	VTR data only	with lobster & Jonah crab adjustment	with dockside sales adjustment	with all adjustments
All ECC landings	Total	94,506	122,415	128,015	267,483
	RI state	56,987	73,816	77,193	161,292
	Federal	37,519	48,599	50,822	106,191
Landings in MA	Total	15,508	20,088	20,088	44,293
	RI state	9,351	12,113	12,113	26,709
	Federal	6,157	7,975	7,975	17,584

The estimate of landings ($7,975/year) and impact ($17,584/year) in Massachusetts from fishing in the federal waters portion of the ECC (bottom row of Table 13) is likely to underestimate the true values because the NOAA data on which they are based do not include landings associated with Rhode Island state fishing permits, and therefore may reflect mainly landings from federal waters rather than the entire ECC. An alternative, likely upper bound estimate of landings and impact in Massachusetts from fishing in the federal waters portion of the Revolution ECC can be obtained by assuming that the NOAA data do not include any landings from Rhode Island state waters. This results in an upper bound estimate of $20,088/year in landed value and $44,293/year in total impacts, as shown in row 4 ("Landings in MA Total") of Table 13.

Exposure of commercial fishery resources and fishing to wind farm development

In the following sections, we consider five categories of possible exposure of commercial fishery landings and landed value from the Revolution Wind project:

- Transient effects on fish availability due to construction activities and noise
- Transient effects due to constrained access to certain areas during construction
- Changes in fishing in the WLA during operations
- Transient effects due to constrained access to certain areas during decommissioning
- Transient effects on fish availability due to decommissioning activities

The assumptions and effects on fish availability and fishing activity/landings are summarized in Table 14 for each category and project area. For the purpose of estimating construction noise-related effects, we define a Wind Turbine Generator Area (WTGA) as the subset of the WLA in which turbine generator

towers are to be located. The WTGA lies within the WLA and is smaller in total footprint, since not all of the WLA is utilized for turbine generator towers. In the sections that follow Table 14, we describe how we arrived at the assumptions, with references in the text corresponding to the row codes (a), (b), (c), etc. in the table. The assumptions are based in part on information from the Revolution Wind Construction and Operations Plan (COP; Revolution Wind LLC 2021) and from acoustic modeling work for wind farm turbine foundation installation (Denes *et al.* (JASCO) 2018).

Table 14. Assumptions for exposure of commercial fisheries to wind farm development.

Categories of Potential Exposure			Assumptions/Effects	Duration
Availability effects due to construction	WTGA+5km		100% of finfish leave area (a)	1 year
	WTGA		Lobster/crab landings reduced 10% (b) Other shellfish landings reduced 10% (c)	1 year 4 years
	ECRA	1.6km WA	All landings reduced 10% (d)	1 year
		180m ECCs	Lobster/crab landings reduced 25% (e) Other shellfish landings reduced 25% (f)	1 years 4 years
Construction constrained access	WTGA		No fishing in 50% of area (g)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (h)	6 months
		180m ECCs	No fishing in 100% of area (i)	2 months
Effects during operations	WTGA		Landings reduced by 5% (j)	30 years
	ECRA	1.6km WA	None	
		180m ECCs	None	
Availability effects due to decommissioning	WTGA		None beyond constrained access	
	ECRA	1.6km WA	All landings reduced 5% (k)	1 year
		180m ECCs	Lobster/crab landings reduced 12.5% (l) Other shellfish landings reduced 12.5% (m)	1 year 4 years
Decommissioning constrained access	WTGA		No fishing in 50% of area (n)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (o)	2 months
		180m ECCs	No fishing in 100% of area (p)	2 months

(a), (b), (c) etc. refer to detailed explanations in the text that follows

The estimates we present in the following sections include all commercial fishing in the Revolution Wind project areas; we then estimate the portion of this total associated with the Massachusetts fishing sector, based on the sector's share of the Revolution Wind area landed value. The baseline values for each project area and species group are shown in Table 15.

Table 15. Baseline landed values (2020$) used for exposure calculations.

	WTGA	WTGA+5km	1.6km ECC WA	2x180m ECC
Total landed value:	**1,387,056**		**568,956**	**128,015**
Lobster & Jonah crab	581,846		231,621	52,115
Other crabs	2,249		1,575	354
Scallops	148,585		12,670	2,851
Other shellfish	7,871		8,139	1,831
Finfish/mobile species	646,506	1,900,561	314,950	70,864
MA landed value:	**575,357**		**89,279**	**20,088**
Lobster & Jonah crab	230,641		33,924	7,633
Other crabs	963		674	152
Scallops	63,610		5,424	1,220
Other shellfish	3,370		3,485	784
Finfish/mobile species	276,774	831,643	134,832	30,337

Transient availability effects due to construction

The construction schedule (Revolution Wind LLC 2021) envisions construction activity in the WLA taking place mainly during the second, third, and fourth quarters of 2024, with some work on the inter-array cables and offshore sub-stations/link cable taking place in the first quarters of 2024 and 2025. Work along the ECC is scheduled to take place during the third and fourth quarters of 2024. To convert future effects to a common basis, we apply a real discount rate of 5% – the average of the rate usually applied in natural resource valuation (3%) and the rate usually applied by the US government for public investment and regulatory analyses (7%).

Construction noise during drilling and pile driving, and disturbance of bottom sediments and rocks, is likely to have an impact on fish and shellfish in and around the Revolution Wind project areas. Mobile species may leave the area because of construction noise, and species that rely on seafloor habitat may be injured or displaced.

Our estimate of the effect of construction in and around the WLA is based on a pile driving scenario involving 11 m monopiles, each installed within 24 hours, using a 4,000 kJ hammer, and 10 dB of noise attenuation. We assume conservatively that pile driving may extend over as much as nine months. We consider separately the likely effect of pile driving and turbine tower installation on shellfish (lobster, scallops, Jonah crab) and on finfish.

We assume conservatively that all finfish will leave all areas in and around the WTGA where pile driving noise exceeds 160 dB. There is no scientific evidence that the 150 dB threshold sometimes cited for "temporary behavioral changes" (Cal Trans 2015) leads to substantive relocation of finfish; and even 160 dB is far below any documented injury threshold. The maximum range for pile driving noise in the Revolution Wind setting is likely to be about 4,800 m for 160 dB (Denes *et al.* (JASCO) 2018, p. G-52, row 4 of Table G-7). We therefore assume conservatively that all finfish leave the WTGA and a 5 km buffer zone around the WTGA for the duration of pile driving (up to nine months) and return after a further three months (total of one year; Table 14 (a)). This is consistent with reported anecdotal observations

by fishers around the Block Island Wind Farm (ten Brink and Dalton 2018), which suggest that the construction noise effect may extend 5-10km from its source, and that many finfish will return to the area within months of the end of construction. To estimate the value associated with this effect for Revolution Wind, we obtained data from NOAA on average annual landings from a region enclosed by a 5 km buffer around the Revolution WTGA. Based on these NOAA data, the annual value of finfish landings for this buffer area is about $1.90 million (2020$). The discounted value (at 5%) from the 2024 construction year is about $1.56 million (2020$), of which $669,000 is attributable to Massachusetts.

The closest approximation in the literature for a construction noise injury/mortality threshold for shellfish is the "mortality and potential mortal injury" 24-hour exposure threshold of 219 dB for "fish without swim bladders" (Popper *et al.* 2014; Denes *et al.* (JASCO) 2018). This level of exposure will extend no more than 160 m from tower locations (Denes *et al.* (JASCO) 2018, p. G-54, top row of Table G-9), a radius that covers about 2% of the WTGA footprint, assuming 81 towers. The 200 to 250 km of inter-array cables, with a maximum disturbance corridor width of 40m, represent another 3% of the WTGA footprint that may be affected by cable burial activities. To be conservative, we increase the estimate of the combined effect by a factor of two, to 10% of the WTGA footprint, and assume that 10% of the lobster, crab, scallop, and other shellfish populations within the WTGA are adversely affected by pile driving noise and/or cable burial work during construction, and thus lost to fishing (Table 14 (b and c)). This assumption also accounts for any shellfish that may be buried and lost due to construction activities around the foundations of the turbine towers. We assume that lobster and crab will repopulate the portions of the WTGA from which they are displaced within a year after pile driving ends, and that scallop and other non-mobile shellfish stocks in those portions of the WTGA will rebuild over the course of four years after pile driving ends (Table 14(c)).

Along the ECC, the greatest effects are likely to be due to habitat disruption along the immediate cable route; cable laying does not involve the same disturbance from drilling or pile driving as turbine tower installation. We therefore consider significant displacement of mobile species from the ECC and Working Area to be unlikely. The habitat disruptions that impact non-mobile benthic species are likely to extend on average no more than 5-10m on either side of the immediate cable routes – at most 12% of the ECC and 2% of the ECC WA area. To be conservative, we model a 25% reduction in landings of all shellfish for one year and in non-mobile shellfish over four years from the ECC (Table 14 (e and f)), and a 10% reduction in landings for all species for one year from the 1.6km ECC Working Area (Table 14 (d)).

Transient effects from constrained access during construction

During wind farm construction activities, fishing may be temporarily constrained in parts of the WLA and along the export cable routes. For example, Revolution Wind anticipates a 500-yard-radius construction safety zone around tower locations during construction activities, and around any vessel installing cables. In practice, during these construction and cable-laying activities, some fishing that would have taken place in those areas is likely to shift to other nearby locations, replacing some of the forgone landings. If fishers prefer to fish within the construction areas, that is likely because these are thought to be more productive than alternatives. As an upper bound on effects from these temporary constraints, we estimate the full average value of landings linked to the affected areas.

We assume conservatively that fishing is constrained in half of the Revolution WLA for 12 months (Table 14, (g)), and in 5% of the 1.6km ECC Working Area for six months (Table 14 (h)), during construction activities. In addition, we assume that fishing is constrained within all of the ECC area immediately

around the export cable routes for a period of two months (Table 14 (i)) as the cable is laid and then buried by a separate vessel.

We use as a basis for our calculations the average annual values for each area (Table 15), prorated according to the availability effects described above and the fraction of the year affected, and discounted to 2020$ at 5%. Note that the assumption about all finfish leaving the WTGA for a year means that there is no further effect from constrained access to finfish in the WLA. To be conservative, we do not adjust for double-counting of effects in the overlap between the 5km buffer around the WTGA and the ECC.

Table 16 shows the combined results of the availability and constrained access effects (Table 14 (a)-(i)). The total value of landings associated with construction effects is estimated to be about $1.76 million (202$), of which about $726,000 is associated with landings in Massachusetts.

Table 16. Estimated value of landings associated with construction effects.

Area	**Estimated Landed Value Exposure** (2020$)	
	Total	**Massachusetts**
Revolution WLA / WTGA + 5km	1,964,201	831,779
Export Cable Corridor / WA	74,410	12,538

Effects due to fishing constraints during operations

If fishing activity is constrained at certain locations within the wind farm area during the operating life of the project, it may be appropriate to treat these areas as lost to fishing during that time. For example, areas in the immediate vicinity of turbine towers may not be accessible to bottom trawl fishing once the wind farm is built. Fishers are likely to adapt to such constraints by shifting fishing effort slightly from previous locations or tracks. This sort of adaptation by the fishing industry is made easier by the regular one-by-one nautical mile east-west/north-south grid spacing for wind turbine towers that has been adopted for Revolution Wind and other wind development projects (Deepwater Wind South Fork 2020). Because it is not possible to know exactly how the fishing industry will respond to this change in future years, or what the implications of that adaptation will be for catch and landings, we assume here that the landings from affected areas are simply not realized. This is a conservative assumption that likely overstates the actual loss of landings due to wind farm development.

Fishing activity constraints during wind farm operations apply only to the WTGA; we do not expect any constraints along the ECC during operations. The footprint of the Revolution Wind project area is 33,480 hectares, of which permanent structures occupy less than 10 hectares, or 0.03% of the total area. A 100m radius area around each of the turbine towers accounts for about 0.8% of the total WTGA, suggesting that less than 1% of the WTGA area may be lost to fishing. Mobile gear (dredge, trawl) fishing accounts for about one third of landed value from the Revolution WTGA, while about half of landed value is due to lobster and Jonah crab, which will move from inaccessible areas to find bait in traps; lobster fishers are skilled at setting traps in the vicinity of rock outcroppings that present similar

challenges to navigation as turbine towers. We thus assume conservatively that as much as 5% of total baseline landings from all stocks within the WTGA may be lost to fishing during operations Table 14 (j)).

Since the Revolution Wind project will be operating for 30 years, we estimate the potential loss associated with these forgone landings by calculating the present value of 5% of baseline landings for a 30-year period beginning in 2025.

The resulting estimate of the total value of potential lost landings during project operations is $835,335, of which $346,500 is associated with landings in Massachusetts.

Transient effects from constrained access and availability effects during decommissioning

After approximately 30 years of operations, Revolution Wind plans to decommission the project. This involves removing the turbine towers and foundations, and the cables including the export cable.

We estimate that the duration of decommissioning, and resulting access constraints in the WLA during decommissioning, will be similar to those experienced during construction of the wind farm. Because relatively little noise is associated with decommissioning compared to construction, we do not model decommissioning effects in the WLA beyond the effects that overlap with access constraints (Table 14 (n)).

We expect that access constraints along the ECR will be similar to those during cable laying operations, but likely for a shorter duration. We therefore model access constraints on 5% of the ECC WA and 100% of the ECC itself for a total of two months (Table 14 (o) and (p)). Because cable removal is less disruptive that burial, we model half of the availability effect for decommissioning as we do for cable installation (Table 14 (l) and (m)).

We then discount the value of affected landings from decommissioning to 2020$ by applying a 5% discount rate. The resulting present value (2020$) estimate of potential lost landings due to access constraint and availability effects during decommissioning is $135,812, of which $53,832 is associated with landings in Massachusetts.

In summary, the total landed value from fishing in federal waters potentially exposed to Revolution Wind project development is estimated to be about $3.01 million (2020$), of which $2.93 million is associated with the WLA/WTGA (plus 5km perimeter) and $84,000 is associated with the federal waters portion of the ECC. Massachusetts landings account for 42% of total landings from the WLA and 16% of total landings from the federal portion of the ECC. The landed value of Massachusetts commercial landings potentially exposed by Revolution Wind development is therefore about $1.24 million. This includes about $844,000 in forgone landings due to construction, $347,000 during operations, and $54,000 during decommissioning.

Applying the upstream and downstream multipliers as described above results in an estimate of $1.50 million in indirect and induced effects in Massachusetts, for a total impact of $2.74 million.

Massachusetts-based charter fishing

To obtain data on for-hire charter fishing activity in the Revolution Wind Lease Area and Export Cable Corridor, we conducted an online survey of Rhode Island- and Massachusetts-based charter vessel operators. The survey asked operators to identify their fishing locations on a chart, and report for each location:

- the total number of annual for-hire fishing trips that vessel took in each of the years 2017-2021,
- the average number of passengers onboard for-hire trips in each of the years 2017-2021, and
- the average amount of time spent targeting highly migratory species (HMS) relative to bottom fishing or trolling for other species during for-hire trips.

The survey was first distributed on April 18, 2022 through email lists maintained by Rhode Island Department of Environmental Management (RIDEM), Rhode Island Coastal Resources Management Council (RICRMC) and Massachusetts Division of Marine Fisheries (MADMF), and also via email by for-hire fishing industry representatives, including the Rhode Island Party and Charter Boat Association. The survey was active from April 18, 2022 until May 14, 2022.

The survey received 91 total responses from for-hire charter owners and/or operators. Sixty-six of these respondents (72%) reported that they fish in the area from Block Island to Nantucket, depicted in Figure 5. These 66 respondents reported 62 unique vessels, and reported effort data for 29 of those vessels across the five-year period of 2017-2021 (Table 17). Similar studies published in the peer-reviewed academic literature using paper mail, email, or mixed mode survey distributions typically have survey response rates around 20-30% (e.g., Dalton *et al*. 2020, Carr-Harris and Steinback 2020). Based on discussions with for-hire industry representatives, approximately 100 vessels actively engage in for-hire fishing activity in the waters depicted in Figure 4, suggesting the fishing reported by survey respondents accounts for about 29% of the total. Thus, the response rate for the primary population of interest is within an appropriate range to consider our survey distribution a success. An important note to also consider is that there are vessels in our sample that require the submission of federal VTRs. A common

Table 17. For-hire charter fishing survey summary statistics.

Description	Number
Fished in the area and responded to the survey	66
Provided vessel names	62
of which based in Massachusetts	37.5
Provided annual vessel trip numbers	31
Observations with vessel trips reported (2017-2021)	142
Total trips per year	1 – 235
Average total trips per year	47.30
Passengers per vessel trip	2 – 25
Average passengers per vessel trip	5.41
Identified fishing locations on maps	29
of which based in Massachusetts	18.5

trend identified in the data was that some respondents did not provide data for their vessels that require VTRs. This is not a problem for this analysis as this effort data is already accounted for by the NOAA databases and summary reports used as a baseline for our subsequent analyses.

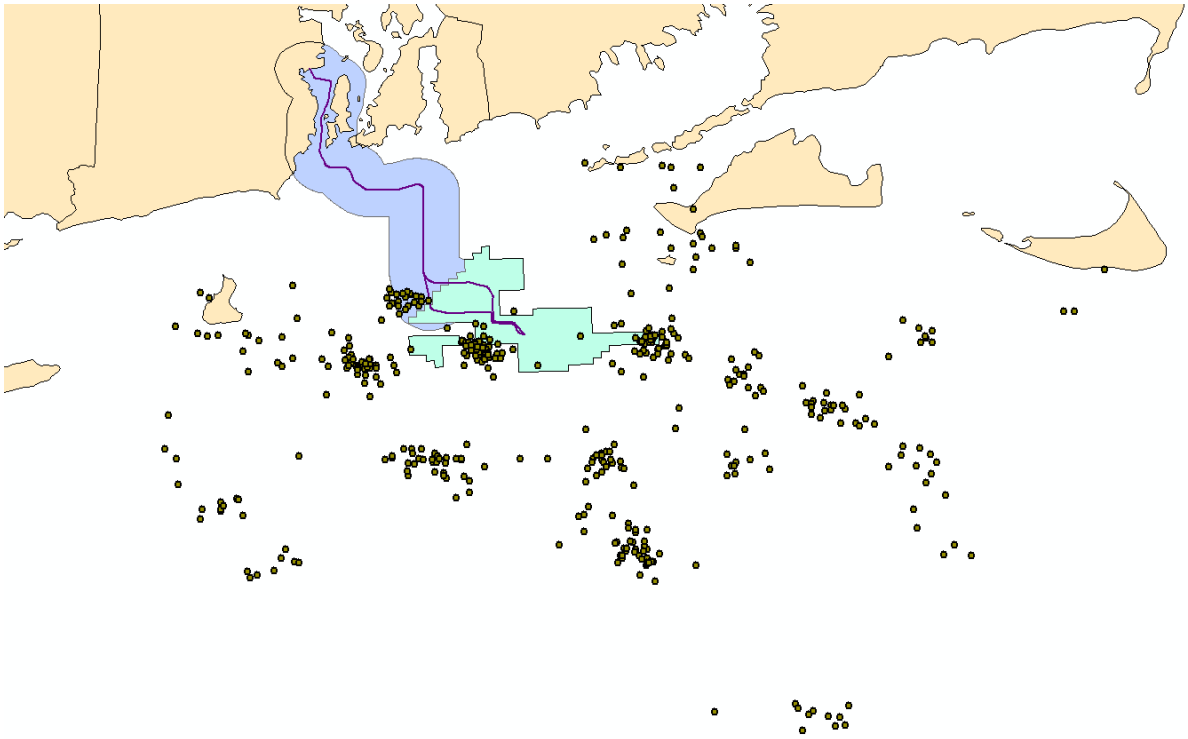

Figure 5. Charter fishing locations, 2017-2021, identified in survey responses.

The number of anglers per year is estimated by multiplying the vessel trip number in a year and the average number of anglers per trip in that year for each vessel, and the results are then summed across vessels by area (WLA, WTGA with 5km buffer, or ECRA). Tables 18 and 19 show the annual vessel trips and angler counts in the survey responses for charter vessels based in Massachusetts. The Wind Turbine Generator Area (WTGA) is the area defined by the turbine tower locations and lies within, but does not include all of, the WLA shows in Figure 5. Note that the trips shown for the ECRA (Table 19) are also included in the numbers for the WTGA + 5km buffer (Table 18).

Table 18. Number of MA-based vessel trips and anglers by year, Revolution Wind areas.

Year	WLA		WTGA + 5km buffer	
	Vessel Trips	Anglers	Vessel Trips	Anglers
2017	7	20	61.5	816
2018	6	24	69	965
2019	65	1,108	49	143
2020	7.5	35	37.5	169
2021	21	91	65	295
Average	***21.3***	***255.6***	***56.4***	***477.6***

Table 19. Number of Massachusetts-based vessel trips and anglers by year in Revolution ECRA.

Year	Vessel Trips	Anglers
2017	30	750
2018	0	0
2019	0	0
2020	0	0
2021	0	0
Average	**6**	**150**

Table 20. Revolution Wind area for-hire vessel revenue from NOAA VTR data. Source: NOAA (2021).

Year	**Revenue per angler** (2019$)
2008	93.75
2009	100.00
2010	112.57
2011	123.53
2012	117.65
2013	113.21
2014	110.62
2015	105.77
2016	104.24
2017	93.75
2018	80.00
Average	**105.01**

We use the revenue per angler estimates from NOAA shown in the Table 20 above for our revenue calculation. We recognize that the per angler revenue from charter boats may be an order of magnitude larger than that from party boats. The NOAA data in Table 20 represent an average across both sectors, influenced by the fact that many more people participate in party boat fishing than in charter fishing. For consistency, we convert the average revenue per angler from 2019$ ($105.01) to 2020$ ($106.22) using the GDP implicit price deflator (2019: 112.3; 2020: 113.6).

The annual revenue for each area is estimated by multiplying the number of anglers in Tables 18 and 19 by the average revenue per angler ($106.22). The result is then adjusted using a scale factor. For a low-end estimate, the scale factor is the ratio of the number of Massachusetts vessels responding to the survey (37.5) to the number of these vessels for which specific fishing locations were provided (18.5). For a high-end estimate, we increase the scale factor to reflect the estimated total of 100 vessels operating in the survey area (see above), versus the 62 for which survey responses were received. Finally, an economic impact multiplier is used to reflect the overall economic impacts associated with the charter fishing direct revenue. The multiplier is calculated using data in the NOAA report by Lovell *et al.* (2020). The results are shown in Table 21 for the WLA, the WTGA with 5km buffer, and the ECRA.

Table 21. Annual revenue and value generated from MA-based charter fishing in Revolution Wind areas.

Area	Annual anglers	Revenue per angler (2020$)	Scale factor	Annual revenue (2020$)	Economic multiplier	Annual value generated (2020$)
WLA	255.6	106.22	Low: 2.027	55,033	1.627	89,538
			High: 3.269	88,753	1.627	144,401
WTGA+5km buffer	477.6	106.22	Low: 2.027	102,831	1.627	167,306
			High: 3.269	165,839	1.627	269,819
ECRA	150.0	106.22	Low: 2.027	32,296	1.627	52,546
			High: 3.269	52,085	1.627	84,742

As Figure 5 and Table 18 illustrate, there is substantial charter fishing activity just outside the boundary of the Revolution WLA. We assume that the value of charter fishing at the Revolution Wind development areas, including a 5km buffer around the WTGA, is foregone in the construction and decommissioning years of the project, since we expect finfish to leave this area due to construction noise. This is likely an overestimate of the actual impact, since charter fishing that would have taken place in these areas may in fact be carried out elsewhere.

Given the fact that much of the charter fishing around the Revolution WLA takes place outside the WLA footprint, and the 1nm spacing of the turbine towers, we expect that charter fishing boats will be able to operate in and near the WLA with minor adjustments to current practice once construction is complete. We therefore do not expect charter fishing revenue to be materially impacted during the operations phase of the project.

The charter fishing activity in the ECRA (Figure 5) overlaps substantially with that in the 5km buffer around the WTGA. We therefore base our calculation of exposure on the WTGA with 5km buffer only. We use the high-end revenue and impact estimates ($165,839 and $269,819/year, respectively), and assume that this value is forgone during the construction and decommissioning years. Using a 5% discount rate, the present value of the two years of effects, using the high-end estimates, is about $167,000 (2020$) in revenue, and $271,000 in total impact in Massachusetts.

As noted above, we consider it unlikely that the Revolution Wind development will substantially change the personal recreational fishing activities of Massachusetts boaters.

Conclusions

Based on NOAA data from 2008 to 2019, and adjusting for underreporting of lobster and Jonah crab landings in the VTR data, and for some dockside sales of lobster and Jonah crab, we estimate the average annual value of commercial landings from the Revolution Wind Lease Area to be about 1,510,000 (2020$). Of this, about $627,000 is landed in Massachusetts. Including indirect and induced effects, these landings generate average annual economic impacts of $1.38 million in Massachusetts.

As of early 2023, Revolution Wind has identified more than 20 of the WLA's 100 turbine tower locations as infeasible for development with current technology. These include the nine locations in the southwest corner of the lease area. We estimate that the average annual value of commercial landings in Massachusestts from the Wind Turbine Generator Area (the WLA minus the southwest corner section that will not be developed) is $575,000, or $1.27 million including indirect and induced effects.

We estimate the average annual value of commercial landings from the federal waters portion of the Revolution Wind Export Cable Corridor to be about $128,000. Of this, about $20,000 is landed in Massachusetts. These landings generate estimated total annual economic impacts of $44,000 in Massachusetts.

We estimate that a total (lump sum) of $1,245,000 (2020$) of commercial fisheries value landed in Massachusetts is potentially exposed to the Revolution Wind development. This accounts for about 42% of the total potentially exposed landed value for Revolution Wind. It includes about $844,000 in direct landed value forgone due to construction activities, $347,000 from forgone landings during the wind farm's operation, and $54,000 in present value of foregone landings due to decommissioning.

In the context of overall commercial fishery landings in Massachusetts of more than $500 million per year (NMFS 2020), the landings potentially affected by Revolution Wind represents about 0.25% of Massachusetts' total annual landings, with much of this exposure concentrated in the early part of Revolution Wind's project life.

Massachusetts-based charter fishing revenue exposure to the Revolution Wind development is estimated to have a present value of $166,000.

Including indirect and induced effects, the potentially affected commercial landings and charter fishing revenue together result in about $3,015,000 in total (lump sum, 2020$) present value economic impact in Massachusetts. Table 22 summarizes these values.

There is considerable variability in the baseline data of landings and landed value from the Revolution Wind areas. Baseline future landings will vary due to natural and fisheries-related fluctuations in stocks that are likely to be amplified by climate change effects. There is also uncertainty about the impact of wind farm construction and operation on fish stocks and landings, and about the ways that fishers will adapt their fishing practices in response to wind farm development. We consider our combined estimate of $3.0 million in economic impacts to Massachusetts from Revolution Wind development effects on commercial and charter fishing to be a conservative upper bound on likely actual impacts.

Table 22. Estimated Massachusetts fishing industries exposure from Revolution Wind development

Categories of Potential Exposure		**MA Direct Landed Value/Revenue (2020$)**
Construction-related effects	WLA+	$832,000
	ECRA	$13,000
Effects during operations	WLA	$347,000
	ECRA	---
Decommissioning-related effects	WLA	$52,000
	ECRA	$1,000
Subtotal MA commercial direct effects		**$1,245,000**
MA for-hire charter fishing direct effects		$166,000
Total Massachusetts direct effects		**$1,411,000**

Categories of Potential Exposure	**MA Total Impact with Multipliers (2020$)**
Subtotal MA commercial fishing	$2,744,000
MA for-hire charter fishing	$271,000
Total Massachusetts impacts	**$3,015,000**

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Appendix

Table A1. Average annual landings by species from the Revolution WLA, 2008-2019.

Note: lobster and Jonah crab data in this table have not been adjusted for landings not reported via VTR.

	Mean		*Standard Deviation*	
Species	**Value/year** (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
ALL_OTHERS	130,334	197,741	112,472	195,923
AMBERJACK, SPECIES NOT SPECIFIED	0	0	0	0
BLACK BELLIED ROSEFISH	0	0	0	0
BLACK SEA BASS	22,262	4,404	18,654	2,952
BLUEFISH	2,310	3,477	780	1,592
BONITO	326	113	505	187
BUTTERFISH	8,895	12,452	6,182	8,714
CLAM, SURF/BUSHEL	0	0	0	0
COBIA	0	0	0	0
COD	18,270	5,910	19,016	5,077
CRAB, BLUE/BUSHEL	32	29	88	78
CRAB, CANCER	0	0	0	0
CRAB, HORSESHOE	7	7	12	13
CRAB, JONAH	18,145	23,562	8,115	9,895
CRAB, ROCK/BUSHEL	2,395	3,837	1,718	2,663
CRAB, SPECIES NOT SPECIFIED	15	24	18	30
CREVALLE	0	0	0	0
CROAKER, ATLANTIC	18	40	31	68
CUNNER	235	88	321	106
CUSK	0	0	0	0
DOGFISH, SMOOTH	318	536	216	444
DOGFISH, SPINY	10,054	44,384	8,744	32,131
DOLPHIN FISH / MAHI-MAHI	0	0	0	0
DRUM, BLACK	0	0	0	0
EEL, AMERICAN	3	3	4	4
EEL, CONGER	96	137	80	120
EEL, SPECIES NOT SPECIFIED	11	12	13	8
FLOUNDER, AMERICAN PLAICE /DAB	57	28	90	41
FLOUNDER, FOURSPOT	6	12	10	17
FLOUNDER, SAND-DAB / WINDOWPANE / BRILL	93	131	178	256
FLOUNDER, SOUTHERN	0	0	0	0
FLOUNDER, SUMMER / FLUKE	49,005	13,553	17,902	6,461
FLOUNDER, WINTER / BLACKBACK	13,840	4,887	11,281	4,050
FLOUNDER, WITCH / GRAY SOLE	124	45	127	42
FLOUNDER, YELLOWTAIL	14,230	6,922	14,112	7,863
FLOUNDER,NOT SPECIFIED	0	0	0	0
HADDOCK ROE	194	184	396	425
HAKE, OFFSHORE	434	579	1,066	1,456

HAKE, RED / LING	5,566	19,206	2,296	9,996
HAKE, SILVER / WHITING	55,489	93,848	29,944	64,440
HAKE, WHITE	1,135	840	3,414	2,564
HAKE,SPOTTED	0	0	0	0
HALIBUT, ATLANTIC	23	2	68	7
HARVEST FISH	0	0	0	0
HERRING, ATLANTIC	43,955	332,643	49,621	395,365
HERRING, BLUE BACK	0	0	0	0
JOHN DORY	39	29	48	35
LOBSTER, AMERICAN	216,526	39,033	90,284	15,007
MACKEREL, ATLANTIC	10,537	63,096	29,303	198,693
MACKEREL, CHUB	8	8	29	29
MACKEREL, KING	0	0	0	0
MACKEREL, SPANISH	1	1	3	1
MENHADEN	5	28	12	54
MONK	110,376	65,752	52,747	23,647
MULLETS	5	5	15	16
OCEAN POUT	6	6	15	16
OTHER FINFISH	0	0	0	1
PERCH, WHITE	0	0	0	0
POLLOCK	19	17	21	21
PUFFER, NORTHERN	0	0	0	0
QUAHOGS/BUSHEL	0	0	0	0
RED PORGY	0	0	0	0
REDFISH / OCEAN PERCH	5	6	11	14
SCALLOPS,BAY/SHELLS	0	0	0	0
SCALLOPS/BUSHEL	161,804	14,982	155,706	16,242
SCORPIONFISH	1	1	3	2
SCUP / PORGY	32,306	45,048	11,739	20,089
SEA RAVEN	95	59	107	65
SEA ROBINS	16	73	13	51
SEATROUT, SPECIES NOT SPECIFIED	7	11	10	13
SHAD, AMERICAN	0	1	1	1
SHAD, HICKORY	0	0	0	0
SHARK, SANDBAR	0	0	0	0
SHARK, THRESHER	31	22	106	78
SHEEPSHEAD	0	0	0	0
SKATE WINGS	93,077	351,557	45,462	161,671
SKATE WINGS, CLEARNOSE	2	7	6	22
SPOT	1	2	3	7
SQUID / ILLEX	444	696	942	1,385
SQUID / LOLIGO	76,235	57,379	59,273	46,255
STARGAZER,NORTHERN	0	0	0	0
STRIPED BASS	1,737	369	2,706	558
SWORDFISH	0	0	0	0
TAUTOG	349	97	185	51
TILEFISH	0	0	0	0
TILEFISH, BLUELINE	1	1	2	1

TILEFISH, GOLDEN	614	171	575	148
TILEFISH, SAND	0	0	0	0
TRIGGERFISH	65	38	145	67
TUNA, ALBACORE	27	22	61	50
TUNA, LITTLE	25	44	36	70
TUNA, SKIPJACK	0	0	0	0
WEAKFISH	181	84	123	55
WHELK, CHANNELED/BUSHEL	8,540	997	15,529	1,785
WHELK, KNOBBED/BUSHEL	31	11	22	11
WHELK, LIGHTNING	0	0	0	0
WHELK,WAVED	0	0	0	0
WHITING, KING / KINGFISH	358	328	765	683
WOLFFISH / OCEAN CATFISH	1	1	3	2

Table A2. Average annual landings by species from the Revolution Wind ECRA, 2008-2019.

Note: lobster and Jonah crab data in this table have not been adjusted for landings not reported via VTR. (These data are for the 10km wide ECRA, not the 180 m wide ECC.)

	Mean		*Standard Deviation*	
Species	**Value/year** (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
ALL_OTHERS	46,080	66,526	38,875	63,435
AMBERJACK, SPECIES NOT SPECIFIED	0	0	0	0
BLACK BELLIED ROSEFISH	0	0	0	0
BLACK SEA BASS	51,635	11,399	13,823	3,401
BLUEFISH	44,173	60,668	19,627	22,712
BONITO	7,686	2,684	4,584	1,714
BUTTERFISH	49,194	61,825	22,844	30,012
CLAM, SURF/BUSHEL	0	0	0	0
COBIA	9	2	30	8
COD	10,928	3,611	8,919	2,241
CRAB, BLUE/BUSHEL	138	88	287	170
CRAB, CANCER	0	113	0	249
CRAB, HORSESHOE	137	65	364	139
CRAB, JONAH	27,758	39,019	16,448	22,516
CRAB, ROCK/BUSHEL	7,491	12,867	3,357	5,756
CRAB, SPECIES NOT SPECIFIED	76	127	142	251
CREVALLE	0	0	0	0
CROAKER, ATLANTIC	46	73	103	153
CUNNER	257	94	232	64
CUSK	0	0	0	0
DOGFISH, SMOOTH	3,324	5,291	2,663	4,485
DOGFISH, SPINY	30,069	112,462	28,624	95,710
DOLPHIN FISH / MAHI-MAHI	3	3	11	9
DRUM, BLACK	0	0	0	0
EEL, AMERICAN	4	6	9	12
EEL, CONGER	339	475	365	525
EEL, SPECIES NOT SPECIFIED	71	68	103	79
FLOUNDER, AMERICAN PLAICE /DAB	93	47	194	100
FLOUNDER, FOURSPOT	0	1	1	2
FLOUNDER, SAND-DAB / WINDOWPANE / BRILL	77	124	147	250
FLOUNDER, SOUTHERN	0	0	0	0
FLOUNDER, SUMMER / FLUKE	211,016	53,290	40,767	14,563
FLOUNDER, WINTER / BLACKBACK	18,821	7,382	12,715	5,129
FLOUNDER, WITCH / GRAY SOLE	142	52	180	66
FLOUNDER, YELLOWTAIL	8,546	3,988	6,346	3,121
FLOUNDER,NOT SPECIFIED	0	0	0	0
HADDOCK ROE	253	203	515	394
HAKE, OFFSHORE	271	411	617	863
HAKE, RED / LING	8,657	29,436	3,608	12,808
HAKE, SILVER / WHITING	87,995	151,706	67,318	126,264
HAKE, WHITE	1,320	958	3,705	2,817
HAKE,SPOTTED	0	0	0	0
HALIBUT, ATLANTIC	28	3	95	10

HARVEST FISH	0	0	0	0
HERRING, ATLANTIC	388,559	2,922,015	373,921	3,036,624
HERRING, BLUE BACK	1,017	1,760	3,066	4,801
JOHN DORY	40	31	41	31
LOBSTER, AMERICAN	383,874	70,701	201,911	33,195
MACKEREL, ATLANTIC	25,430	103,362	31,477	191,332
MACKEREL, CHUB	4	22	12	75
MACKEREL, KING	0	0	0	0
MACKEREL, SPANISH	90	116	256	330
MENHADEN	140	558	207	884
MONK	30,036	16,800	13,602	6,056
MULLETS	0	0	0	0
OCEAN POUT	17	18	50	53
OTHER FINFISH	0	2	0	5
PERCH, WHITE	0	0	0	0
POLLOCK	23	21	27	28
PUFFER, NORTHERN	0	0	0	0
QUAHOGS/BUSHEL	0	0	0	0
RED PORGY	0	0	0	0
REDFISH / OCEAN PERCH	0	0	0	0
SCALLOPS, BAY/SHELLS	0	0	0	0
SCALLOPS/BUSHEL	63,070	5,662	44,171	3,672
SCORPIONFISH	1	1	3	2
SCUP / PORGY	172,656	263,387	60,815	115,190
SEA RAVEN	389	243	457	277
SEA ROBINS	447	1,493	432	1,138
SEATROUT, SPECIES NOT SPECIFIED	102	302	112	372
SHAD, AMERICAN	2	3	3	4
SHAD, HICKORY	2	4	4	8
SHARK, SANDBAR	0	0	0	0
SHARK, THRESHER	26	24	91	84
SHEEPSHEAD	0	0	0	0
SKATE WINGS	117,102	661,784	63,833	326,533
SKATE WINGS, CLEARNOSE	2	7	4	19
SPOT	26	54	89	186
SQUID / ILLEX	1,093	2,811	3,359	9,206
SQUID / LOLIGO	216,885	158,965	113,278	87,285
STARGAZER, NORTHERN	0	0	0	0
STRIPED BASS	13,126	2,852	13,715	3,059
SWORDFISH	0	0	0	0
TAUTOG	6,041	1,909	2,196	849
TILEFISH	0	0	0	0
TILEFISH, BLUELINE	1	1	3	2
TILEFISH, GOLDEN	432	127	571	167
TILEFISH, SAND	0	0	0	0
TRIGGERFISH	117	76	113	76
TUNA, ALBACORE	1,460	1,123	2,766	2,045
TUNA, LITTLE	1,264	2,532	1,514	3,192
TUNA, SKIPJACK	0	0	0	0
WEAKFISH	1,929	891	1,602	727
WHELK, CHANNELED/BUSHEL	38,339	4,686	37,045	3,999
WHELK, KNOBBED/BUSHEL	2,172	672	4,624	1,265
WHELK, LIGHTNING	6	3	22	9

WHELK,WAVED	0	0	0	0
WHITING, KING / KINGFISH	1,933	1,683	2,263	1,833
WOLFFISH / OCEAN CATFISH	10	6	35	20

Table A3. Complete species list (including those in ALL_OTHERS).

Species	Species
ALEWIFE	OCTOPUS, SPECIES NOT SPECIFIED
AMBERJACK, SPECIES NOT SPECIFIED	OTHER FINFISH
AMBERJACK,GREATER	PERCH, SAND
ANCHOVY,BAY	PERCH, WHITE
ARGENTINES,SPECIES NOT SPECIFIED	POLLOCK
ATLANTIC SALMON	POMPANO, COMMON
BLACK BELLIED ROSEFISH	PORGY,JOLTHEAD
BLACK SEA BASS	PUFFER, NORTHERN
BLUE RUNNER	QUAHOGS/BUSHEL
BLUEFISH	RED PORGY
BONITO	REDFISH / OCEAN PERCH
BULLHEADS	RIBBONFISH
BUTTERFISH	ROUGH SCAD
CLAM, ARCTIC SURF	SCALLOPS,BAY/SHELLS
CLAM, RAZOR	SCALLOPS/BUSHEL
CLAM, SPECIES NOT SPECIFIED	SCORPIONFISH
CLAM, SURF/BUSHEL	SCUP / PORGY
COBIA	SEA RAVEN
COD,MILT	SEA ROBINS
CRAB, BLUE/BUSHEL	SEA URCHINS
CRAB, CANCER	SEATROUT, SPECIES NOT SPECIFIED
CRAB, GREEN/BUSHEL	SHAD, AMERICAN
CRAB, HERMIT	SHAD, GIZZARD
CRAB, HORSESHOE	SHAD, HICKORY
CRAB, JONAH	SHARK, ANGEL
CRAB, LADY	SHARK, BLACKTIP
CRAB, RED/BUSHEL	SHARK, BLUE
CRAB, ROCK/BUSHEL	SHARK, MAKO, LONGFIN
CRAB, SPECIES NOT SPECIFIED	SHARK, MAKO, SHORTFIN
CRAB, SPIDER	SHARK, MAKO, SPECIES NOT SPECIFIED
CREVALLE	SHARK, NOT SPECIFIED
CROAKER, ATLANTIC	SHARK, NURSE
CRUSTACEANS,SPECIES NOT SPECIFIED	SHARK, PORBEAGLE
CUNNER	SHARK, SANDBAR
CUSK	SHARK, THRESHER
CUTLASSFISH, ATLANTIC	SHARK, THRESHER, BIGEYE
DOGFISH, CHAIN	SHARK, TIGER
DOGFISH, SMOOTH	SHARK, WHITE
DOGFISH, SPECIES NOT SPECIFIED	SHARK, WHITETIP
DOGFISH, SPINY	SHEEPSHEAD
DOLPHIN FISH / MAHI-MAHI	SHRIMP (MANTIS)
DRUM, BLACK	SHRIMP (PANAEID)
DRUM, SPECIES NOT SPECIFIED	SHRIMP (PANDALID)
EEL, AMERICAN	SHRIMP, SPECIES NOT SPECIFIED
EEL, CONGER	SILVERSIDES, ATLANTIC
EEL, SPECIES NOT SPECIFIED	SKATE WINGS
FLOUNDER, AMERICAN PLAICE /DAB	SKATE WINGS, CLEARNOSE
FLOUNDER, FOURSPOT	SNAIL,MOON
FLOUNDER, SAND-DAB / WINDOWPANE / BRILL	SNAPPER, OTHER
FLOUNDER, SOUTHERN	SNAPPER, RED

FLOUNDER, SUMMER / FLUKE
FLOUNDER, WINTER / BLACKBACK
FLOUNDER, WITCH / GRAY SOLE
FLOUNDER, YELLOWTAIL
FLOUNDER,NOT SPECIFIED
GROUPER, OTHER
GROUPER, SNOWY
HADDOCK ROE
HAKE, OFFSHORE
HAKE, RED / LING
HAKE, SILVER / WHITING
HAKE, WHITE
HAKE,SPOTTED
HALIBUT, ATLANTIC
HARD QUAHOG
HARVEST FISH
HERRING, ATLANTIC
HERRING, BLUE BACK
HERRING,ATLANTIC THREAD
HERRING/SARDINES,SPECIES NOT SPECIFIED
JACK,ALMACO
JOHN DORY
LADYFISH
LOBSTER, AMERICAN
LUMPFISH
MACKEREL, ATLANTIC
MACKEREL, CHUB
MACKEREL, FRIGATE
MACKEREL, KING
MACKEREL, SPANISH
MARLIN, BLUE
MENHADEN
MOLLUSKS,SPECIES NOT SPECIFIED
MONK LIVERS
MULLETS
NEEDLEFISH, ATLANTIC
OCEAN POUT
OCEAN SUNFISH / MOOLA
SPADEFISH
SPOT
SQUID / ILLEX
SQUID / LOLIGO
SQUID, SPECIES NOT SPECIFIED
SQUIRRELFISH
STARFISH
STARGAZER,NORTHERN
STING RAYS,SPECIES NOT SPECIFIED
STRIPED BASS
STURGEON, ATLANTIC
SWORDFISH
TAUTOG
TILEFISH
TILEFISH, BLUELINE
TILEFISH, GOLDEN
TILEFISH, SAND
TOADFISH, OYSTER
TRIGGERFISH
TRIGGERFISH,GRAY
TUNA, ALBACORE
TUNA, BIG EYE
TUNA, BLUEFIN
TUNA, LITTLE
TUNA, SKIPJACK
TUNA, SPECIES NOT SPECIFIED
TUNA, YELLOWFIN
TURTLE, LEATHERBACK
WAHOO
WEAKFISH / SQUETEAGUE / GRAY SEA TROUT
WEAKFISH, SPOTTED / SPOTTED SEA TROUT
WHELK, CHANNELED/BUSHEL
WHELK, KNOBBED/BUSHEL
WHELK, LIGHTNING
WHELK,WAVED
WHITING, KING / KINGFISH
WOLFFISH / OCEAN CATFISH

Table A4. Average annual landings from Revolution WLA by port.

Port	*Mean* Value/year (2020 $)	*Mean* Landings/year (lbs)	*Standard Deviation* Value/year (2020 $)	*Standard Deviation* Landings/year (lbs)
ALL_OTHERS	18,214	53,501	26,881	144,557
ATLANTIC CITY	0	0	0	0
BARNEGAT	0	0	0	0
BARNSTABLE	63	27	217	95
BEAUFORT	1,792	615	2,892	981
BELFORD	0	0	0	0
BOSTON	599	2,560	1,497	8,273
BRISTOL	3	2	10	5
CAPE MAY	387	607	780	1,506
CHATHAM	1,248	588	2,552	1,218
CHILMARK	12,766	2,358	13,169	2,352
CHINCOTEAGUE	0	0	0	0
DAVISVILLE	923	1,513	2,454	4,933
FAIRHAVEN	13,186	10,109	9,469	8,496
FALL RIVER	4,095	16,039	4,393	18,313
FALMOUTH	165	19	571	67
FREEPORT	0	0	0	0
GLOUCESTER	887	5,088	1,929	11,706
HAMPTON	1,827	792	2,522	1,245
HAMPTON BAY	0	0	0	0
HARWICHPORT	2,286	271	7,861	884
HYANNIS	0	0	0	0
ISLIP	0	0	0	0
JAMESTOWN	0	0	0	0
LITTLE COMPTON	118,582	117,951	40,381	46,312
LONG BEACH	0	0	0	0
MENEMSHA	4,972	901	5,934	1,098
MONTAUK	16,661	10,885	8,914	6,378
MOREHEAD CITY	0	0	0	0
MORICHES	0	0	0	0
NANTUCKET	80	18	278	62
NEW BEDFORD	345,249	531,251	148,331	361,113
NEW LONDON	5,884	5,633	6,004	7,226
NEW SHOREHAM	235	78	164	89
NEWPORT	61,342	177,188	35,395	141,446
NEWPORT NEWS	1,717	949	4,413	2,665
NORTH KINGSTOWN	0	0	0	0
OCEAN CITY	0	0	0	0
ORIENTAL	0	0	0	0
OTHER NASSAU	0	0	0	0
OTHER WASHINGTON(COUNTY)	0	0	0	0
POINT JUDITH	395,422	372,813	94,641	117,967

POINT LOOKOUT	0	0	0	0
POINT PLEASANT	2,347	938	4,271	1,659
SANDWICH	40	16	139	55
SHINNECOCK	29	24	100	84
STONINGTON	7,162	4,144	5,045	3,117
TIVERTON	6,583	12,722	6,389	14,226
VINEYARD HAVEN	40	6	140	19
WANCHESE	263	103	618	243
WESTPORT	65,122	25,925	32,456	12,768
WILDWOOD	0	0	0	0
WOODS HOLE	3,131	525	6,114	961

Table A5. Average annual landings from ECRA (note: not ECC) by ports.

	Mean		***Standard Deviation***	
Port	**Value/year** (2020 $)	**Landings/year** (lbs)	**Value/year** (2020 $)	**Landings/year** (lbs)
ALL_OTHERS	62,948	182,678	81,757	317,122
ATLANTIC CITY	0	0	0	0
BARNEGAT	0	0	0	0
BARNSTABLE	126	89	329	259
BEAUFORT	1,221	419	1,825	625
BELFORD	0	0	0	0
BOSTON	2,538	15,452	8,792	53,527
BRISTOL	1,395	962	3,600	2,644
CAPE MAY	9,058	2,169	27,487	6,358
CHATHAM	30	15	105	50
CHILMARK	1,217	429	1,788	850
CHINCOTEAGUE	0	0	0	0
DAVISVILLE	2,046	4,668	6,299	15,793
FAIRHAVEN	3,002	2,286	3,403	2,832
FALL RIVER	16,808	53,961	19,239	67,519
FALMOUTH	0	0	0	0
FREEPORT	0	0	0	0
GLOUCESTER	3,443	19,899	10,049	57,975
HAMPTON	1,497	592	2,028	790
HAMPTON BAY	0	0	0	0
HARWICHPORT	0	0	0	0
HYANNIS	0	0	0	0
ISLIP	0	0	0	0
JAMESTOWN	4,460	941	15,450	3,258
LITTLE COMPTON	187,366	210,927	102,231	151,068
LONG BEACH	0	0	0	0
MENEMSHA	836	145	1,429	231
MONTAUK	15,159	9,702	10,580	7,123
MOREHEAD CITY	0	0	0	0
MORICHES	0	0	0	0
NANTUCKET	83	16	287	55

NEW BEDFORD	246,773	1,561,473	175,557	1,852,712
NEW LONDON	6,776	9,223	8,571	14,053
NEW SHOREHAM	409	250	306	484
NEWPORT	287,521	663,483	140,564	436,885
NEWPORT NEWS	939	525	2,208	1,328
NORTH KINGSTOWN	24,297	22,854	56,755	53,757
OCEAN CITY	0	0	0	0
ORIENTAL	0	0	0	0
OTHER NASSAU	0	0	0	0
OTHER WASHINGTON(COUNTY)	0	0	0	0
POINT JUDITH	1,098,000	1,879,144	181,053	928,417
POINT LOOKOUT	0	0	0	0
POINT PLEASANT	2,344	914	3,609	1,375
SANDWICH	0	0	0	0
SHINNECOCK	2	2	8	8
STONINGTON	6,847	5,034	4,456	3,862
TIVERTON	5,735	9,331	5,028	10,844
VINEYARD HAVEN	0	0	0	0
WANCHESE	195	80	481	200
WESTPORT	33,777	12,999	9,665	5,127
WILDWOOD	0	0	0	0
WOODS HOLE	1,044	204	2,527	494

Table A5. Complete list of ports (including those in ALL_OTHERS).

AMAGANSETT	*NEW YORK CITY*
ATLANTIC CITY	*NEWINGTON*
BARNEGAT	*NEWPORT*
BARNSTABLE	*NEWPORT NEWS*
BASS RIVER	*NIANTIC*
BEAUFORT	*NOANK*
BELFORD	*NORTH KINGSTOWN*
BOSTON	*OCEAN CITY*
BRISTOL	*OLD SAYBROOK*
BROAD CHANNEL	*ORIENT*
BROOKLYN	*ORIENTAL*
CAPE MAY	*OTHER BEAUFORT(COUNTY)*
CHATHAM	*OTHER BRONX*
CHESAPEAKE BEACH	*OTHER CAPE MAY*
CHILMARK	*OTHER CITY OF HAMPTON*
CHINCOTEAGUE	*OTHER CURRITUCK*
CITY OF SEAFORD	*OTHER DUKES*
DANVERS	*OTHER MAINE*
DARTMOUTH	*OTHER NEWPORT*
DAVISVILLE	*OTHER NORTHAMPTON*

DUXBURY
EAST HAMPTON
ENGELHARD
FAIRHAVEN
FALL RIVER
FALMOUTH
FREEPORT
GLOUCESTER
GREENPORT
GROTON
GUILFORD
HAMPTON
HAMPTON BAY
HARWICHPORT
HIGHLANDS
HOBUCKEN
HYANNIS
ISLIP
JAMESTOWN
LITTLE COMPTON
LONG BEACH
MANASQUAN
MARBLEHEAD
MARSHFIELD
MASTIC
MATTITUCK
MENEMSHA
MONMOUTH
MONTAUK
MONTVILLE
MOREHEAD CITY
MORICHES
MYSTIC
NANTUCKET
NEW BEDFORD
NEW LONDON
NEW SHOREHAM
OTHER NY
OTHER SUFFOLK
OTHER VIRGINIA
OTHER WASHINGTON
OTHER WASHINGTON(COUNTY)
OYSTER
POINT JUDITH
POINT LOOKOUT
POINT PLEASANT
PORTLAND
PROVIDENCE
PROVINCETOWN
PT. PLEASANT
ROCKLAND
ROCKPORT
SACO
SANDWICH
SHELTER ISLAND
SHINNECOCK
SMITHTOWN
SOUTH KINGSTOWN
SOUTHOLD
STONINGTON
SWAN QUARTER
TIVERTON
VINALHAVEN
VINEYARD HAVEN
VIRGINIA BEACH
WAKEFIELD
WANCHESE
WARREN
WATERFORD
WESTERLEY
WESTPORT
WILDWOOD
WOODS HOLE

Revolution Wind Fisheries Exposure Analysis - Massachusetts

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Marine Policy Center, Woods Hole Oceanographic Institution

January 2023

Revolution Wind Fisheries Exposure Analysis

What is the value to Massachusetts from commercial and charter fishing around the Rev Wind lease area and the federal waters portion of the export cable route, and how will this change as a result of Rev Wind development?

Baseline value from NOAA data on landings and landed value

Baseline for-hire charter fishing revenue from 2022 charter captain survey

Indirect and induced impacts in Massachusetts estimated via multipliers

Exposure of fisheries values estimated based on likely effects on fishing during

- Construction
- Operations
- Decommissioning

Rev Wind project areas

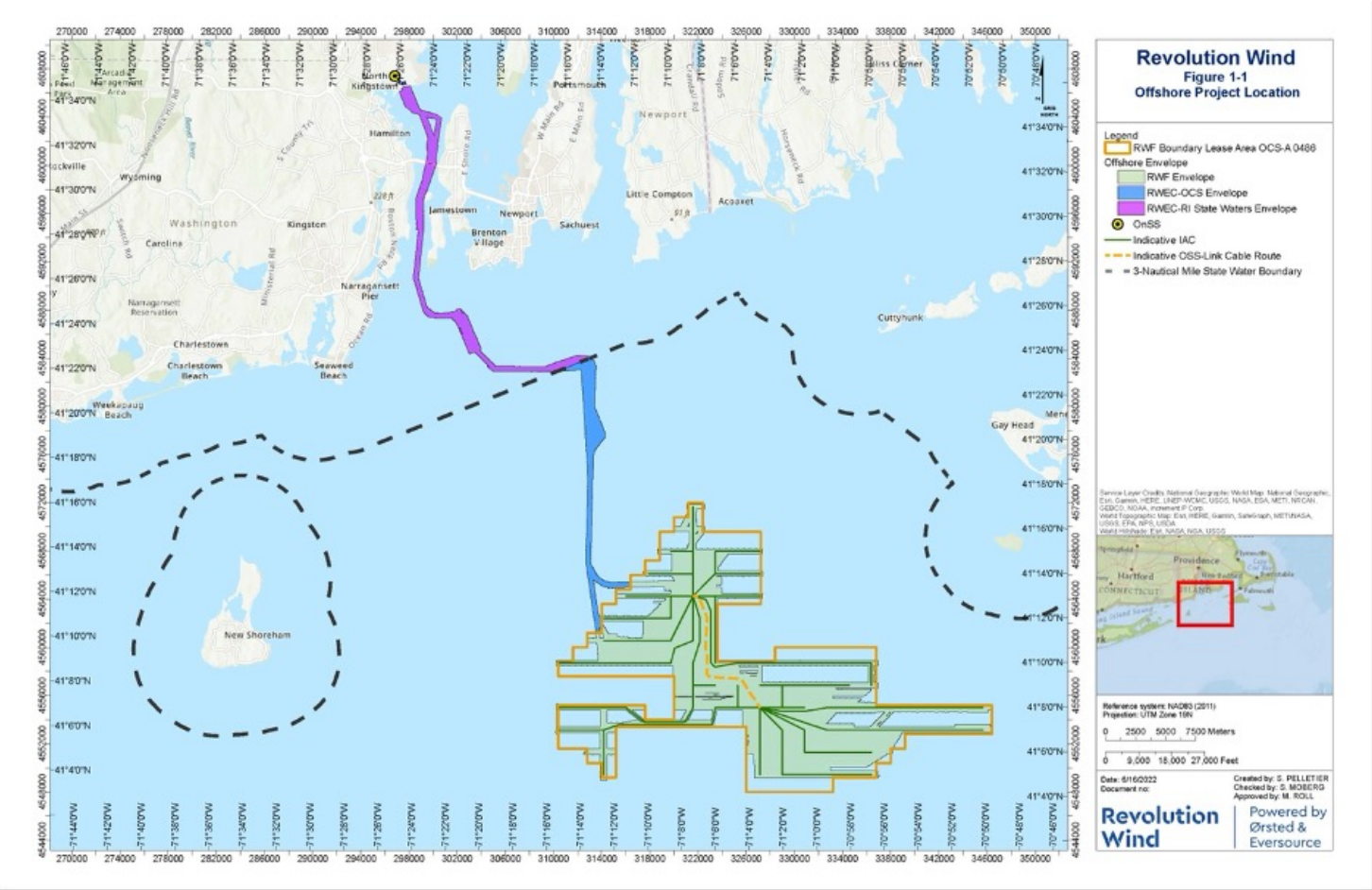


Figure 1. Revolution Wind project area and export cable route. Source: Revolution Wind.

NOAA baseline data, adjusted for WTGA

Average of 11 years of NOAA data (2008-2019) on commercial landings from the Wind Lease Area (WLA) and Export Cable Corridor (ECC), defined as two 180m lanes

Landed value (2020$) from MA commercial fishing:

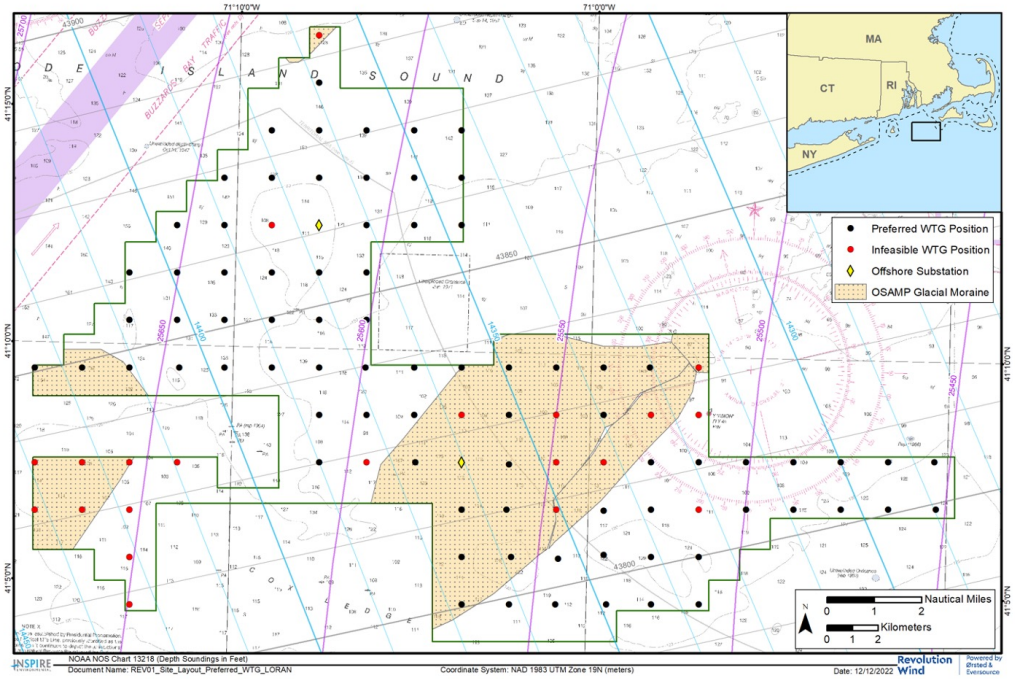
$575,000/year in WTGA
$20,000/year in ECC

$1.31 million/year in total, including indirect and induced effects

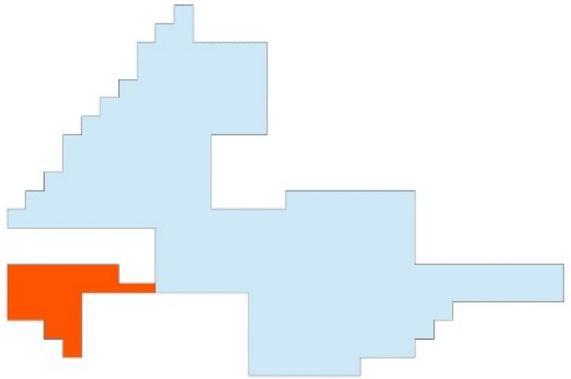
Estimated annual economic impact in Massachusetts (all values in 2020$)

Area	State	Average value of landings/year: NOAA VTR data only	Average value of landings/year: with lobster & Jonah crab adjustment	Average value of landings/year: with dockside sales adjustment (15% premium on RI lobster & JC landings)	Total impact/year: dockside sales column multiplied by upstream & downstream multipliers, except RI lobster & JC
Revolution WLA	total	1,111,520	1,463,527	1,510,461	3,206,170
Rev. WTGA	total	1,020,709	1,343,957	1,387,056	2,944,226
Revolution ECC	total	94,506	122,415	128,015	267,483
Revolution WLA	MA	475,849	626,545	626,545	1,381,332
Rev. WTGA	MA	436,972	575,356	575,356	1,268,661
Revolution ECC	MA	15,508	20,088	20,088	44,293

Adjustment for “infeasible” WTG positions



WTGA = portion of WLA that encompasses WTGs that will actually be built



WTGA = WLA minus SW “rudder”

WTGA footprint = 91.8% of WLA

Baseline landed values (2020$) used for exposure calculations.

	WTGA	WTGA+5km	1.6km ECC WA	2x180m ECC
Total landed value:	**1,387,056**		**568,956**	**128,015**
Lobster & Jonah crab	581,846		231,621	52,115
Other crabs	2,249		1,575	354
Scallops	148,585		12,670	2,851
Other shellfish	7,871		8,139	1,831
Finfish/mobile species	646,506	1,900,561	314,950	70,864
MA landed value:	**575,357**		**89,279**	**20,088**
Lobster & Jonah crab	230,641		33,924	7,633
Other crabs	963		674	152
Scallops	63,610		5,424	1,220
Other shellfish	3,370		3,485	784
Finfish/mobile species	276,774	831,643	134,832	30,337

For-hire charter fishing survey (2022)

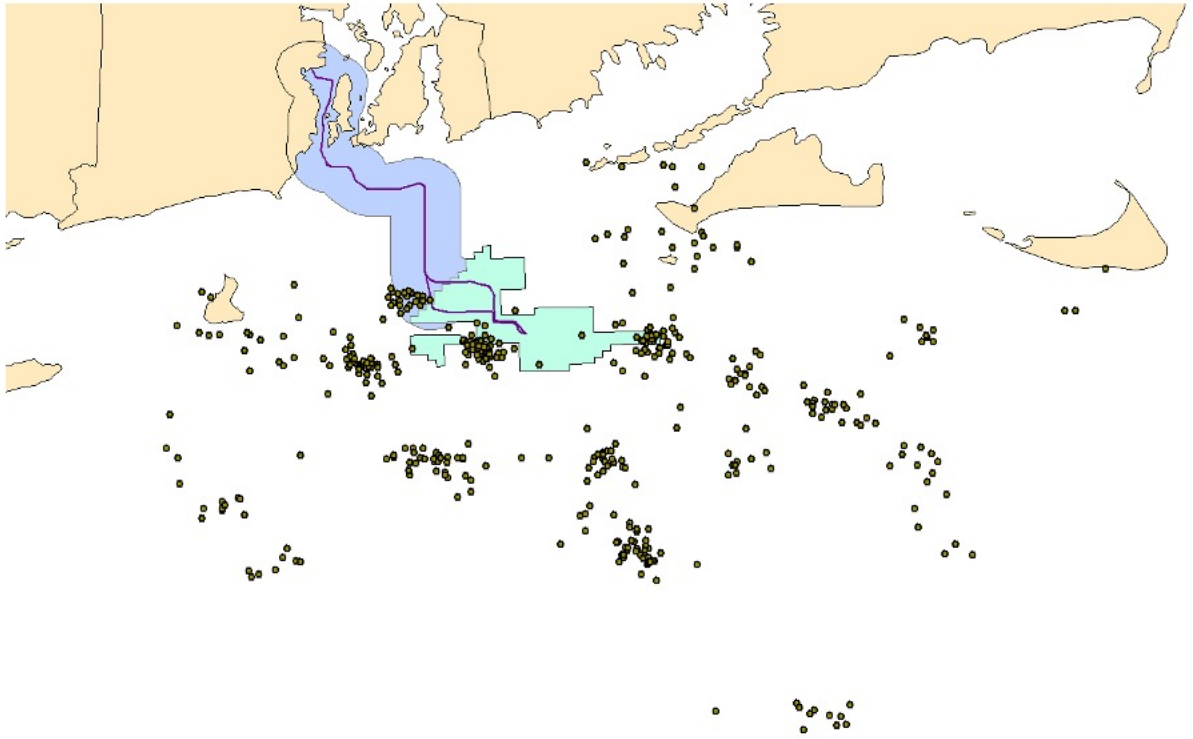


Figure 4. Charter fishing locations, 2017-2021, identified in survey responses.

Table 17. For-hire charter fishing survey summary statistics.

Description	Number
Fished in the area and responded to the survey	66
Provided vessel names	62
of which based in Massachusetts	37.5
Provided annual vessel trip numbers	31
Observations with vessel trips reported (2017-2021)	142
Total trips per year	1 – 235
Average total trips per year	47.30
Passengers per vessel trip	2 – 25
Average passengers per vessel trip	5.41
Identified fishing locations on maps	29
of which based in Massachusetts	18.5

Charter fishing baseline

Number of MA-based vessel trips and anglers by year, Revolution Wind areas.

Year	WLA		WTGA + 5km buffer	
	Vessel Trips	Anglers	Vessel Trips	Anglers
2017	7	20	61.5	816
2018	6	24	69	965
2019	65	1,108	49	143
2020	7.5	35	37.5	169
2021	21	91	65	295
Average	***21.3***	***255.6***	***56.4***	***477.6***

Annual revenue and value generated from MA-based charter fishing in Revolution Wind areas.

Area	Annual anglers	Revenue per angler (2020$)	Scale factor	Annual revenue (2020$)	Economic multiplier	Annual value generated (2020$)
WLA	255.6	106.22	Low: 2.027	55,033	1.627	89,538
			High: 3.269	88,753	1.627	144,401
WTGA+5km buffer	477.6	106.22	Low: 2.027	102,831	1.627	167,306
			High: 3.269	165,839	1.627	269,819
ECRA	150.0	106.22	Low: 2.027	32,296	1.627	52,546
			High: 3.269	52,085	1.627	84,742

Summary of baseline economics in Massachusetts

Commercial fishing:

Massachusetts landings from WTGA and ECC:	$595,000/year
Massachusetts landings with multipliers:	$1,313,000/year

For-hire charter fishing:

Massachusetts revenue from WTGA and ECC:	$166,000/year
Massachusetts revenue with multipliers:	$270,000/year

Rev Wind development exposure assumptions

Assumptions for exposure of commercial fisheries to wind farm development.

Categories of Potential Exposure			Assumptions/Effects	Duration
Availability effects due to construction	WTGA+5km		100% of finfish leave area (a)	1 year
	WTGA		Lobster/crab landings reduced 10% (b) Other shellfish landings reduced 10% (c)	1 year 4 years
	ECRA	1.6km WA	All landings reduced 10% (d)	1 year
		180m ECCs	Lobster/crab landings reduced 25% (e) Other shellfish landings reduced 25% (f)	1 years 4 years
Construction constrained access	WTGA		No fishing in 50% of area (g)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (h)	6 months
		180m ECCs	No fishing in 100% of area (i)	2 months
Effects during operations	WTGA		Landings reduced by 5% (j)	30 years
	ECRA	1.6km WA	None	
		180m ECCs	None	
Availability effects due to decommissioning	WTGA		None beyond constrained access	
	ECRA	1.6km WA	All landings reduced 5% (k)	1 year
		180m ECCs	Lobster/crab landings reduced 12.5% (l) Other shellfish landings reduced 12.5% (m)	1 year 4 years
Decommissioning constrained access	WTGA		No fishing in 50% of area (n)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (o)	2 months
		180m ECCs	No fishing in 100% of area (p)	2 months

Exposure due to construction effects

Pile driving scheduled for < 9 months

Assume finfish leave when noise exceeds 160 dB: 5km buffer around WTGA

Assume shellfish mortality at 219 dB / 24 hours: 160m radius around 81 turbine towers ≅ 2% of WTGA

250 km of inter-array cables @ 40 m max disturbance ≅ 3% of WTGA

Availability effects due to construction	WTGA+5km		100% of finfish leave area (a)	1 year
	WTGA		Lobster/crab landings reduced 10% (b)	1 year
			Other shellfish landings reduced 10% (c)	4 years
	ECRA	1.6km WA	All landings reduced 10% (d)	1 year
		180m ECCs	Lobster/crab landings reduced 25% (e)	1 years
			Other shellfish landings reduced 25% (f)	4 years
Construction constrained access	WTGA		No fishing in 50% of area (g)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (h)	6 months
		180m ECCs	No fishing in 100% of area (i)	2 months

Exposure during operations

Mobile gear (bottom trawl, scallop dredge) accounts for about half of landed value from WLA

100m radius around turbine towers < 1% of WTGA footprint

Effects during operations	WTGA		Landings reduced by 5% (j)	30 years
	ECRA	1.6km WA	None	
		180m ECCs	None	

Exposure due to decommissioning

Similar to construction but less severe (no pile driving)

Availability effects due to decommissioning	WTGA		None beyond constrained access	
	ECRA	1.6km WA	All landings reduced 5% (k)	1 year
		180m ECCs	Lobster/crab landings reduced 12.5% (l)	1 year
			Other shellfish landings reduced 12.5% (m)	4 years
Decommissioning constrained access	WTGA		No fishing in 50% of area (n)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (o)	2 months
		180m ECCs	No fishing in 100% of area (p)	2 months

Potential exposure of Mass. fishing to Rev Wind

Categories of Potential Exposure		MA Direct Landed Value/Revenue (2020$)
Construction-related effects	WLA+	$832,000
	ECRA	$13,000
Effects during operations	WLA	$347,000
	ECRA	---
Decommissioning-related effects	WLA	$52,000
	ECRA	$1,000
Subtotal MA commercial direct effects		**$1,245,000**
MA for-hire charter fishing direct effects		$166,000
Total Massachusetts direct effects		**$1,411,000**

Categories of Potential Exposure	MA Total Impact with Multipliers (2020$)
Subtotal MA commercial fishing	$2,744,000
MA for-hire charter fishing	$271,000
Total Massachusetts impacts	**$3,015,000**

Revolution Wind Fisheries Exposure Analysis - Massachusetts

Hauke Kite-Powell, Di Jin, and Michael Weir
Marine Policy Center, Woods Hole Oceanographic Institution

March 2023

Revolution Wind Fisheries Exposure Analysis

Quantitative and data-driven approach

NOAA data on commercial landings for 2008-2019 for Rev WLA, WTGA +5km buffer, and ECC

- Adjusted for lobster/Jonah crab unreported landings and dockside sales (RI)

For-hire charter fishing revenue at WLA estimated from 2022 charter captain survey

Indirect and induced impacts in Massachusetts estimated via multipliers (I/O model)

Exposure of fisheries values estimated based on likely impacts to fishing during

- Construction
- Operations
- Decomissioning

Rev Wind project areas

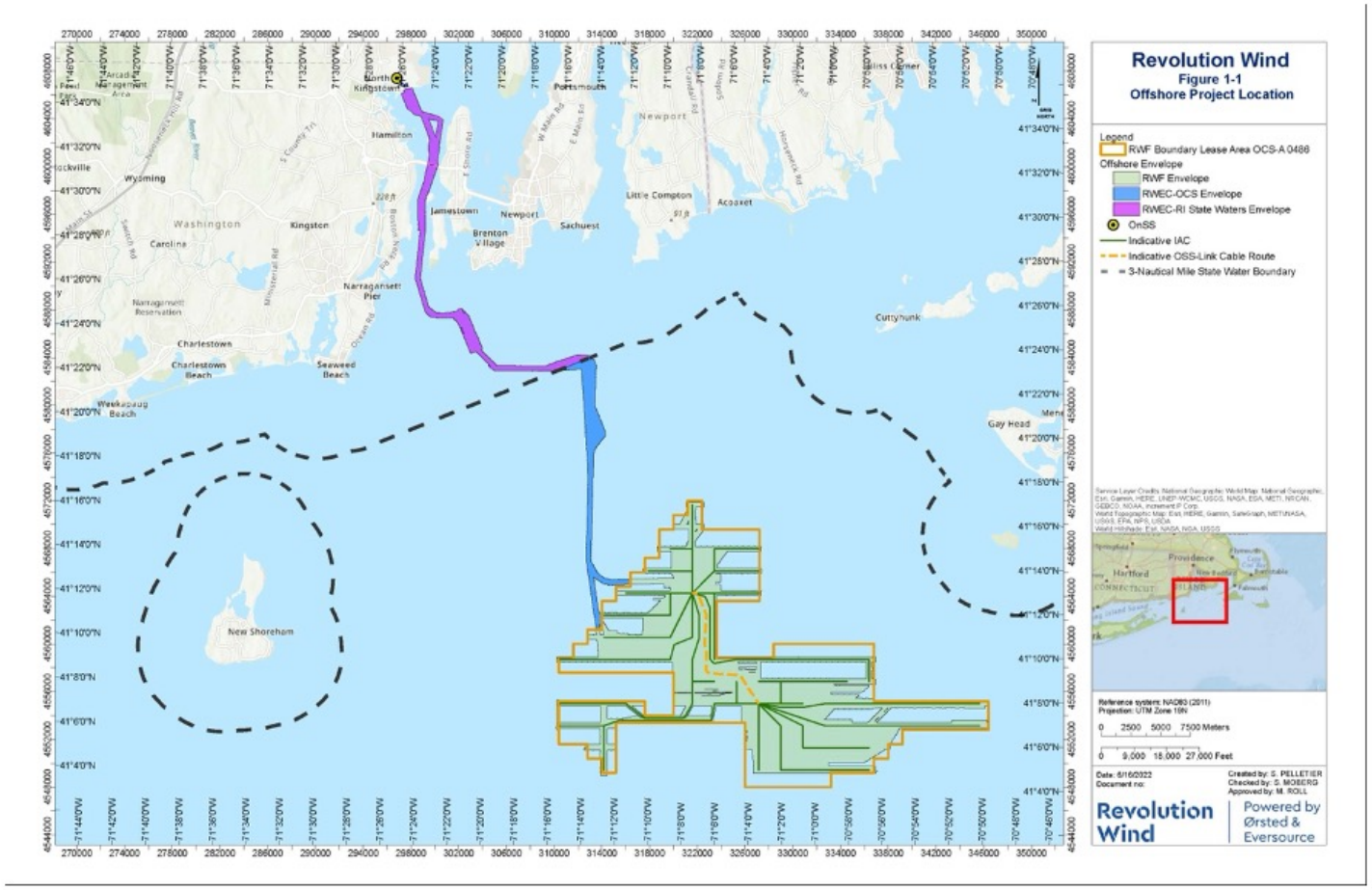


Figure 1. Revolution Wind project area and export cable route. Source: Revolution Wind.

NOAA baseline data

Average of 11 years of NOAA data (2008-2019) on commercial landings by weight and value from the Wind Lease Area (WLA) and Export Cable Corridor (ECC)

(ECC defined as two 180m lanes)

Updated NOAA dataset uses federal Vessel Trip Report (VTR) and clam logbook fishing trip data with observer data

Major species: Lobster, scallops, monkfish (WLA); Lobster, herring, squid, flounder (ECC)

Major gear types: bottom trawls, pots, gillnets, and dredges (WLA)

Table 7a. Average annual landings from Revolution WLA by state.

State	Mean		Standard Deviation	
	Value/year (2020 $)	Landings/year (lbs)	Value/year (2020 $)	Landings/year (lbs)
Rhode Island	592,816	705,478	139,434	203,746
Massachusetts	475,849	668,182	181,263	418,179
Others	42,855	35,463	--	--

Table 7b. Average annual landings from Revolution ECC by state.

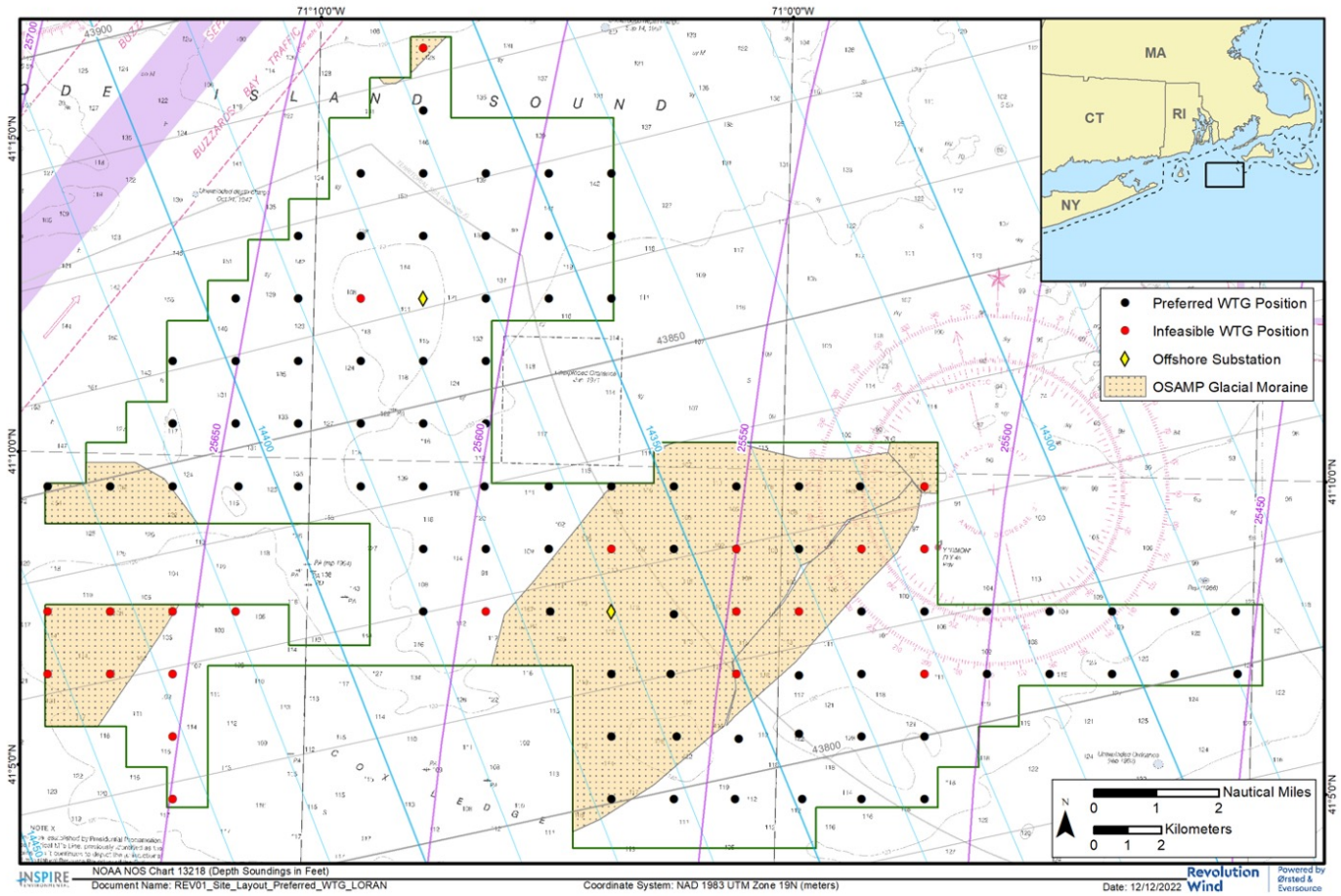
State	Mean		Standard Deviation	
	Value/year (2020 $)	Landings/year (lbs)	Value/year (2020 $)	Landings/year (lbs)
Rhode Island	75,858	131,252	15,808	52,728
Massachusetts	15,508	82,018	9,096	88,402
Others	3,140	5,666	--	--

Indirect and induced economic impact

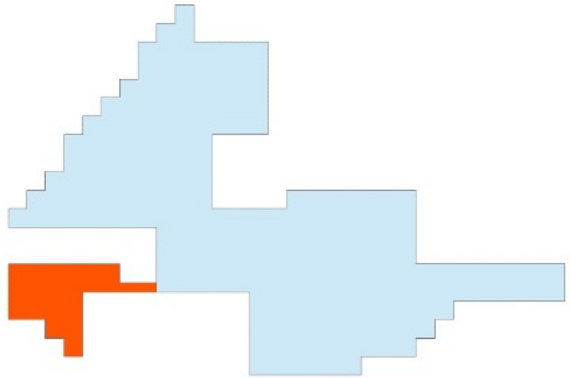
Table 12. Estimated annual economic impact in Massachusetts (all values in 2020$)

Area	State	Average value of landings/year: VTR data only (Table 11, row 1)	Average value of landings/year: with lobster & Jonah crab adjustment	Average value of landings/year: with dockside sales adjustment (15% premium on RI lobster & JC landings)	Total impact/year "dockside sales" column multiplied by upstream & downstream multipliers, except RI lobster & JC
Revolution WLA	total	1,111,520	1,463,527	1,510,461	3,206,170
Revolution ECC	total	94,506	122,415	128,015	267,483
Revolution WLA	MA	475,849	626,545	626,545	1,381,532
Revolution ECC	MA	15,508	20,088	20,088	44,293

Adjustment for infeasible WTG positions



WTGA = portion of WLA that encompasses WTGs actually built



WTGA = WLA minus SW “hook”

WTGA footprint = 91.8% of WLA

Note: earlier version of analysis used a WTGA footprint that excluded 8 WTG positions at eastern end of WLA

For-hire charter fishing survey (2022)

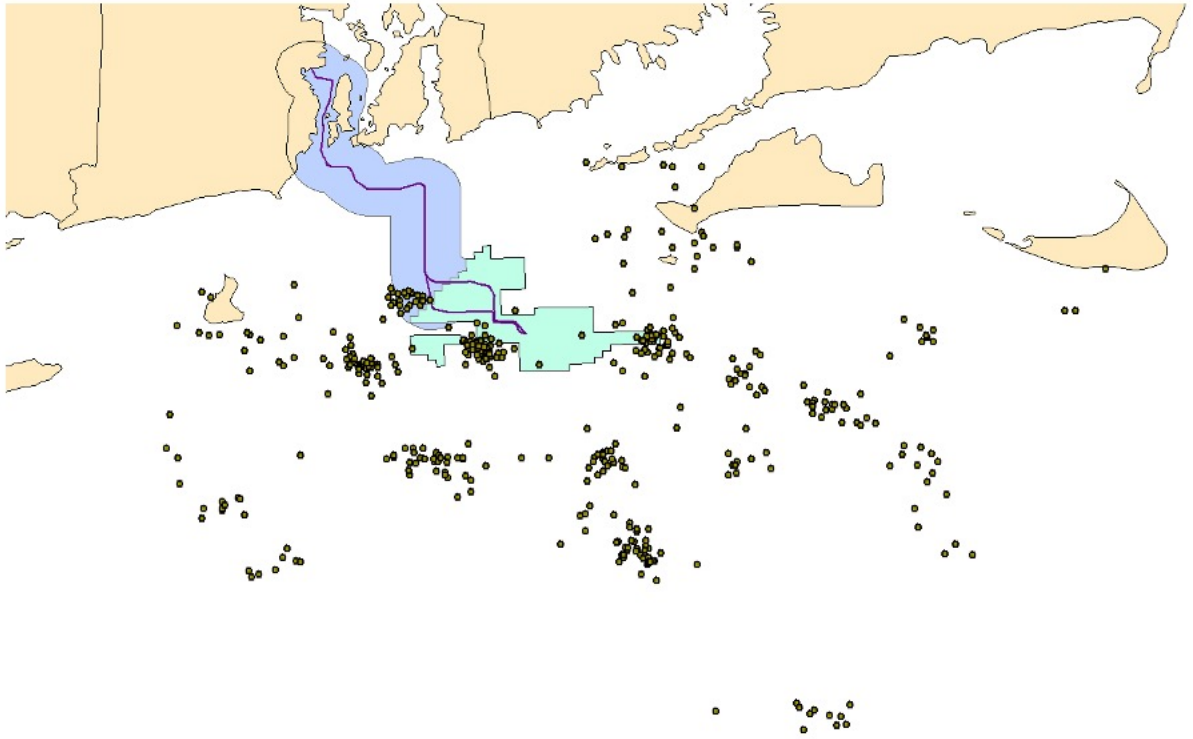


Figure 4. Charter fishing locations, 2017-2021, identified in survey responses.

Table 17. For-hire charter fishing survey summary statistics.

Description	Number
Fished in the area and responded to the survey	66
Provided vessel names	62
of which based in Massachusetts	37.5
Provided annual vessel trip numbers	31
Observations with vessel trips reported (2017-2021)	142
Total trips per year	1 – 235
Average total trips per year	47.30
Passengers per vessel trip	2 – 25
Average passengers per vessel trip	5.41
Identified fishing locations on maps	29
of which based in Massachusetts	18.5

Summary of baseline economics in Massachusetts

Commercial fishing:

Massachusetts landings from WTGA and ECC:	$592,000/year
Massachusetts landings with multipliers:	$1,305,000/year

For-hire charter fishing:

Massachusetts revenue from WTGA and ECC:	$166,000/year
Massachusetts revenue with multipliers:	$270,000/year

Rev Wind development exposure assumptions

Table 14. Assumptions for exposure of commercial fisheries to wind farm development.

Categories of Potential Exposure			Assumptions/Effects	Duration
Availability effects due to construction	WTGA+5km		100% of finfish leave area (a)	1 year
	WLA		Lobster/crab landings reduced 10% (b) Other shellfish landings reduced 10% (c)	1 year 4 years
	ECRA	1.6km WA	All landings reduced 10% (d)	1 year
		180m ECCs	Lobster/crab landings reduced 25% (e) Other shellfish landings reduced 25% (f)	1 years 4 years
Construction constrained access	WLA		No fishing in 50% of area (g)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (h)	6 months
		180m ECCs	No fishing in 100% of area (i)	2 months
Effects during operations	WLA		Landings reduced by 5% (j)	30 years
	ECRA	1.6km WA	None	
		180m ECCs	None	
Availability effects due to decommissioning	WLA		None beyond constrained access	
	ECRA	1.6km WA	All landings reduced 5% (k)	1 year
		180m ECCs	Lobster/crab landings reduced 12.5% (l) Other shellfish landings reduced 12.5% (m)	1 year 4 years
Decommissioning constrained access	WLA		No fishing in 50% of area (n)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (o)	2 months
		180m ECCs	No fishing in 100% of area (p)	2 months

(a), (b), (c) etc. refer to detailed explanations in the text that follows

Exposure due to construction effects

Pile driving scheduled for < 9 months

Assume finfish leave when noise exceeds 160 dB: 5km buffer around WTGA

Assume shellfish mortality at 219 dB / 24 hours: 160m radius around turbine towers < 2.5% of WLA

Availability effects due to construction	WTGA+5km		100% of finfish leave area (a)	1 year
	WLA		Lobster/crab landings reduced 10% (b)	1 year
			Other shellfish landings reduced 10% (c)	4 years
	ECRA	1.6km WA	All landings reduced 10% (d)	1 year
		180m ECCs	Lobster/crab landings reduced 25% (e)	1 years
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Construction constrained access	WLA		No fishing in 50% of area (g)	1 year
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		180m ECCs	No fishing in 100% of area (i)	2 months

Exposure during operations

Mobile gear (bottom trawl, scallop dredge) accounts for about half of landed value from WLA

100m radius around turbine towers < 1% of WLA footprint

Effects during operations	WLA		Landings reduced by 5% (j)	30 years
	ECRA	1.6km WA	None	
		180m ECCs	None	

Exposure due to decommissioning

Similar to construction but less severe (no pile driving)

Availability effects due to decommissioning	WLA		None beyond constrained access	
	ECRA	1.6km WA	All landings reduced 5% (k)	1 year
		180m ECCs	Lobster/crab landings reduced 12.5% (l)	1 year
			Other shellfish landings reduced 12.5% (m)	4 years
Decommissioning constrained access	WLA		No fishing in 50% of area (n)	1 year
	ECRA	1.6km WA	No fishing in 5% of area (o)	2 months
		180m ECCs	No fishing in 100% of area (p)	2 months

Potential exposure of Mass. fishing to Rev Wind

Categories of Potential Exposure		MA Direct Landed Value/Revenue (2020$)
Construction-related effects	WLA+	$832,000
	ECRA	$13,000
Effects during operations	WLA	$347,000
	ECRA	---
Decommissioning-related effects	WLA	$52,000
	ECRA	$1,000
Subtotal MA commercial direct effects		**$1,245,000**
MA for-hire charter fishing direct effects		$166,000
Total Massachusetts direct effects		**$1,411,000**

Categories of Potential Exposure	MA Total Impact with Multipliers (2020$)
Subtotal MA commercial fishing	$2,744,000
MA for-hire charter fishing	$271,000
Total Massachusetts impacts	**$3,015,000**

From:	Engler, Lisa Berry (EEA)
To:	Beth Casoni
Cc:	Callaghan, Todd (EEA); Pat Field; Nils Bolgen; Higley, Caroline (EEA); zzBurgoyne, Molly (GOV); zzZarrella, Lily (GOV); Jess Hiltz; Arthur Sawyer ; Moran, Gary (EEA); McKiernan, Dan (FWE); Bill Lister; Bill Souza ; Bob Nihtila Sr. ; Bob Ward ; Dave Casoni; Dave Magee; Eric Lorentzen; Jarrett Drake (MLA VP); Mark Ring ; Mike Bartlett ; Steve Holler; Tom Tomkiewicz ; Willy Ogg Jr; Reed, Story (FWE); Boeri, Robert (EEA)
Subject:	RE: 2nd mtg follow-up: Draft Rev Wind Fishery Impacts Report: FWG meeting10-14-2022
Date:	Monday, January 9, 2023 9:12:13 AM
Attachments:	Responses to MA Comments 12-02-2022.pdf

Good morning, Beth –

I hope you are well. With this email, I am forwarding responses from the Revolution Wind team to your comments/questions on the Fishery Impact Report for the Revolution Wind project. Please let me know if you or others have additional questions.

I look forward to seeing you at our next Fisheries Working Group meeting on January 20.

Sincerely,
Lisa

Lisa Berry Engler
Massachusetts Office of Coastal Zone Management | Director | 251 Causeway Street, Suite 800| Boston, MA 02114 | 857.207.2522| lisa.engler@mass.gov

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From: Beth Casoni <beth.casoni@lobstermen.com>
Sent: Wednesday, October 26, 2022 11:07 AM
To: Vella, Prassede (EEA) <prassede.vella@mass.gov>; Engler, Lisa Berry (EEA) <lisa.engler@mass.gov>; McKiernan, Dan (FWE) <dan.mckiernan@mass.gov>; Moran, Gary (EEA) <Gary.Moran2@mass.gov>; Nils Bolgen <nbolgen@masscec.com>; Jess Hiltz <jhiltz@masscec.com>; Burgoyne, Molly (GOV) <Molly.Burgoyne@mass.gov>; Zarrella, Lily (GOV) <Lily.Zarrella@mass.gov>; Higley, Caroline (EEA) <Caroline.Higley2@mass.gov>; Kimball, Andrew (EEA) <Andrew.Kimball@mass.gov>
Cc: Callaghan, Todd (EEA) <todd.callaghan@mass.gov>; Pat Field <pfield@cbi.org>; Arthur Sawyer <sooky55@aol.com>; Bill Lister <billylister1956@gmail.com>; Bill Souza <jlobsters@comcast.net>; Bob Nihtila Sr. <diseabreeze@aol.com>; Bob Ward <roalward@comcast.net>; Dave Casoni <lobsterteacher@hotmail.com>; Dave Magee <capecodlobster@comcast.net>; Eric Lorentzen <ericreedlorentzen@gmail.com>; Jarrett Drake (MLA VP) <jarrett@drakelobster.com>; Mark Ring <mark.ring3@verizon.net>; Mike Bartlett <mbart217@aol.com>; Steve Holler <necka30@gmail.com>; Tom Tomkiewicz <fvbridgetminc@aol.com>; Willy Ogg Jr <ccbuggs@aol.com>
Subject: RE: 2nd mtg follow-up: Draft Rev Wind Fishery Impacts Report: FWG meeting10-14-2022

Good morning Lisa et. al.,

After reviewing the Revolution Wind Mitigation Package, I have a couple of comments and concerns with the data and lack of data being used.

The data being used for the economic value of the fisheries is from 2008-2019 and the annual value is calculated in 2020$. Why can't' they use the 2020 landings data to truly give a depiction on effort and value?

Also on page 18 the Estimated indirect and induced economic impacts linked between the fishing industry and shoreside business multiplier is too low. The commercial fishermen spend a lot more today to keep their business going as the cost of doing business has increased dramatically.

The cost of fuel, bait, dockage, traps/gear has all increase upwards of 40-50%. When we talk about the economic impact of the fisheries to the local economy we conservatively use a 3.5-4 multiplier.

I am not an economist and have been listening to commercial lobstermen over the last 14 years and they describe that is costs upwards of $3-$4 to catch a $5 lobster and this still holds true today.

I did a quick Google search on the economic impact of commercial fisheries and the Commercial Fisheries Research Foundation did a study on the Assessing the Economic Impact of the Fisheries & Seafood Sector in Rhode Island and found that; "*The X-vessel landings economic impact multiplier is 3.06. These multipliers are "total effects" in the Rhode Island economy, inclusive of effects on commercial fishing."*

As the fisherman's margins are continually, whether it is the cost of doing business, loss of access to fishing grounds during construction or after projects are up and running, we need to make sure the economic impact multipliers are appropriate for mitigation so that these much needed funds will be avaible in the future for them to access.

Thank you for your thoughtful consideration on our comments and concerns.

Kind regards,

Beth Casoni
Executive Director
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781.545.6984 xt. 1
www.lobstermen.com

From: Vella, Prassede (ENV) [mailto:prassede.vella@state.ma.us]
Sent: Wednesday, October 19, 2022 8:44 PM
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Cc: Callaghan, Todd (ENV) <todd.callaghan@state.ma.us>; Pat Field <pfield@cbi.org>; Vella, Prassede (ENV) <prassede.vella@state.ma.us>
Subject: 2nd mtg follow-up: Draft Rev Wind Fishery Impacts Report: FWG meeting10-14-2022

Good evening

As a follow up on the presentation given at the Fisheries Working Group meeting on October 14, attached please find the *Fishery Impacts in Massachusetts from the Revolution Wind Lease Area* draft report prepared by WHOI Marine Policy Center. Comments and questions should be sent to Lisa Engler, Todd Callaghan, and Prassede Vella by Wednesday, October 26.

Please also note that materials from the October 14th meeting are available at this Drop Box link.

Regards,
Prassede

Prassede Vella
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From: Vella, Prassede (EEA)
Sent: Friday, October 14, 2022 1:01 PM
To: Engler, Lisa Berry (EEA) <lisa.engler@mass.gov>; McKiernan, Dan (FWE) <dan.mckiernan@mass.gov>; Moran, Gary (EEA) <Gary.Moran2@mass.gov>; Nils Bolgen (mbolgen@masscec.com) <nbolgen@masscec.com>; Jess Hiltz <jhiltz@masscec.com>; Burgoyne, Molly (GOV) <Molly.Burgoyne@mass.gov>; Zarrella, Lily (GOV) <Lily.Zarrella@mass.gov>; Higley, Caroline (EEA) <Caroline.Higley2@mass.gov>; Kimball, Andrew (EEA) <Andrew.Kimball@mass.gov>
Cc: Vella, Prassede (EEA) <prassede.vella@mass.gov>; Callaghan, Todd (EEA)

<todd.callaghan@mass.gov>; Pat Field <pfield@cbi.org>
Subject: Meeting follow-up: Fisheries Working Group Meeting 10-14-2022

Good afternoon Fisheries Working Group members and stakeholders

Thank you all for your participation at the meeting this morning. Thank you also to all the presenters for instigating some great questions and discussion. We will be sharing the meeting summary over the next few weeks.

In the meantime, I am attaching the presentation on *Revolution Wind Fisheries Exposure Analysis – Massachusetts* provided by the Hauke Kite-Powell. Kindly send any additional questions and comments by Friday, October 21, and we will work with the WHOI team to get responses.

Follow up actions:

1. Additional comments on Revolution Wind presentation by 10/21/2022
2. The BOEM *Fisheries Mitigation Guidance* document will be shared with you all when it becomes available
3. Vineyard Offshore to follow up with Dan McKiernan on plans on boulder removal, and then follow up with the group
4. Ørsted to provide responses to questions on monetary compensation related to the moving and placement of boulders that might impact fishing activities

Resources shared during the meeting:
Gulf of Maine Commercial Planning and Leasing Process
R/22-24-NESGR-Beard: Can Proprietary Commercial Lobstering Data be Used to Inform Offshore Wind Development? (Maine Sea Grant)
transmission-rfi-notice-of-proceeding-and-scoping.pdf (wordpress.com)

Let us know if you have any questions.

Thanks, and have a great weekend!

Prassede

Prassede Vella
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Staff Scientist, MassBays National Estuary Partnership
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NEW BEDFORD
PORT AUTHORITY

123 MacArthur Drive TEL (508) 961-3000
New Bedford, MA 02740
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February 13, 2023

I am writing on behalf of the New Bedford Port Authority to offer some preliminary comments regarding the draft Fisheries Exposure in Massachusetts reports prepared by the Woods Hole Oceanographic Institution (WHOI) for the Sunrise and Revolution offshore wind developments. As the most valuable fishing port in the nation and the hub for countless onshore businesses and families who rely on the industry, we believe that it is vital that the actual impact of the development of offshore wind on the economy and people of Massachusetts be established using the best available data, methods and information.

As indicated in the reports, WHOI estimates that Sunrise wind will have a total impact on the commercial fishing economy in Massachusetts during the 30-year lifespan of the project of $4,926,000. This includes an estimated loss of only $629,000 "from forgone fishing during the wind farm's operation." WHOI estimates that the total impact of the Revolution wind project will be $2,740,000 for the entire 30 years, with $347,000 of total loss "from forgone fishing during the wind farm's operation." It is our position that these numbers drastically underestimate the impact of these developments, especially during the operational phase.

We would like to offer the following specific issues with the reports:

- The analysis limits its estimated permanent loss to fishing area to a small portion of the Wind Farm area. This is based on 100-meter area around the turbines (1% 0f the wind farm area) that is then expanded to 5% of the total area of the lease. The report takes no account for tides, currents, wind other vessels in the area in the area. No dragger or scalloper captain (even single dredge vessels) under any seas or wind would fish anywhere near a distance of 100 meters of a turbine tower. They will likely try to stay ½ mile away. It is highly doubtful that even lobster captains would go that close with any wind etc. The relatively small area designated for lost fishing during operations is what drives the extremely low estimated loss of fishing revenue during operation of the wind farm ($629K and $347K respectively). The actual area within the wind energy areas that will be functionally off limits to commercial fishing for logistical or safety reasons is almost certain to be vastly larger than the 100-meter boundary that was analyzed.

- The report mentions ecological effects affecting stocks but only takes these effects into consideration during the construction and decommissioning phases but not during operations. There needs to be a clear justification why impacts and constraints on fishing in the wind energy areas during the operations were not calculated.

- The report cites some studies that show positive and negative effects from wind turbines and assumes that they cancel each other out. Positive effects are based on attraction of fish, lobsters and crabs to artificial reefs and wrecks. The vast majority of the studies are also not based in the waters in question or the fisheries at issue. The only study remotely relevant is on the Block Island Wind farm, a far smaller demonstration-scale wind operation. Further, even a cursory review of commercial fishing data shows that the Block Island area is not a key commercial fishing ground and is not in any way a key scallop area. Among those concerns previously brought up by commercial fishermen regarding offshore wind are noise from the construction and operation of wind turbines potentially driving fish away and undersea foundations risk becoming artificial reefs that alter the distribution of species in wind lease areas. Wind turbines may also alter ocean currents in a way that affects the mid-Atlantic "cold pool", a vast area of cold water near the seafloor that allows numerous species, including scallops, clams and flounder, to thrive. In fact, the artificial reef effect of the installation is a detriment to the most valuable fishery in the country, scallops. One of the only areas where the impact of offshore wind installations is well documented is that wind energy areas create an artificial reef environment. Studies have indicated that the artificial reef has multiple negative impacts upon the ecosystem. The addition of scour pads creates habitat where there was none previously. Scallops are predominately found in areas with sandy bottom with no rocks. The introduction of an artificial reef in productive scallop habitat brings in homes for scallop predators like cod, wolffish, eel pout, crabs and sea stars where there were none previously. As there simply are no studies addressing the potential impact upon the most valuable fishery in these wind areas, any estimate of exposure must err on the side of there being a significant impact.

- As noted above, the report estimates the permanent loss of fishing revenues during operations of the wind farm by calculating the present value of 5% of baseline values for a 30-year period beginning in 2025. This commonly used method estimates revenues and cost for each of the 30 years and discounts the net revenue back to the present by discounting for time. Revenues in the future are worth less in the present because of the loss of interest that could have been collected. The calculation depends on estimating future revenues and costs and the discount rate. The report uses the historical average (2000-2021) of the producer price index as the expected increase in prices (p. 17 & 18) to estimate future ex-vessel prices for fish and shellfish. Fish prices are increasing at a rate more than the 3.7% used in the estimates. The report also overestimates the discount rate by using a rate of 5%, which is far more than the rate in recent years. In short, the report underestimates future price increases in the wind farm for fish & shellfish. This significantly underestimates future losses in ex-vessel revenue from fish & shellfish.

- The report states that it only included revenue and not costs in the calculations, but this is not accurate. Costs are included in the multipliers (Table 22, p. 33)

- Present Value (PV) is a financial model generally used for financial investments. While we understand that it is a generally accepted tool, fishermen are not investors. If history has shown us anything when it comes to fishermen, it has shown that they continue to fish during the lean times as well as the boom times. A better calculation might be to use the basic number of lost revenue over the 30-year span, If the reported numbers are truly to be considered "conservative" they must assume the higher number for lost revenue.

The reports both contain the following disclaimers twice in each report:

> "There is considerable variability in the baseline data of landings and landed value from the xxxxxxxxx lease area and export cable corridor. Baseline future landings will vary due to natural and fisheries-related fluctuations in stocks and prices. There is also uncertainty about the effects of wind farm construction and operation on fish stocks and landings, and about the ways that fishers will adapt their fishing practices in response to wind farm development. We consider our combined estimate of about xxxxx million in economic exposure for Massachusetts commercial and charter fishing from xxxxxxxxxx development to be a conservative upper bound on likely actual losses."

> "There is considerable variability in the baseline data of landings and landed value from the xxxxxxxx areas. Baseline future landings will vary due to natural and fisheries-related fluctuations in stocks that are likely to be amplified by climate change effects. There is also uncertainty about the impact of wind farm construction and operation on fish stocks and landings, and about the ways that fishers will adapt their fishing practices in response to wind farm development. We consider our combined estimate of xxxxxxx million in economic impacts to Massachusetts from xxxxxxxx development effects on commercial and charter fishing to be a conservative upper bound on likely actual impacts."

These quotes state there is uncertainty involving "future landings", "stock fluctuations", "climate change", and the "ways fishers will adapt their fishing practices" in response to the wind farms. The quotes go on to state that for these reasons, they feel that the estimated losses are the "upper bound" of the losses. In other words, the authors are assuming there may be less fishermen and less fish due to other things besides offshore wind and that the fishermen will simply adapt and catch fish in a different way or different location. They make this assumption despite the fact that, as stated by the Rhode Island Fishermen's Advisory Board in their review of a WHOI report provided in connection with another development, "not once is mentioned any interview with an actual fisherman about what might take place during operations."

If the reports are truly to be considered as "conservative" and the "upper bound" of the losses suffered by commercial fishermen, shoreside businesses, and the communities that rely on their revenue, then the authors simply cannot make every assumption in favor of the wind operations. This goes for the actual fishing area impacted by operations, the impact of climate change and the behavior of the fishermen.

There are serious concerns within the commercial fishing industry about the potential impacts to their livelihoods from the construction and operations of the offshore wind developments. While the offshore wind industry is brand new to the United States and the northeast waters and has yet to become operational, the concerns and uncertainty of the fishermen are certainly justified. All involved will readily admit that there are many unknowns related to those potential impacts. However, given the extent of the interventions in the marine environment from the construction of foundations, the undersea cables, and ongoing disruptions from vibrations, acoustics, substation operations and other activities, not to mention the challenges of either fishing within or traversing through the wind energy areas, it is more than reasonable to expect there will be significant adverse impacts to commercial fishing. Exposure analyses such as these that seem to suggest negligible impacts can only serve to sow doubt within the commercial fishing industry that their concerns are being taken seriously now and will be acknowledged and addressed when they are experienced in the coming years. This doubt is only amplified when the analysis comes from such a respected organization as WHOI. The level of uncertainty around the impacts demands a sober assessment and preparation for what those impacts could be. If such anticipated impacts end up not materializing in the future, that will be demonstrated by continued productive fishing, and measures to provide support for the fishermen will prove unnecessary. However, it will be too late to help them if these negative impacts are experienced, and no sufficient mechanism was put in place due to unrealistic exposure analyses that were based on the narrowest possible metrics and assumptions. It is also critical to remember that none of these reports consider the cumulative impact of all of the wind areas together. Any error or assumption must be in favor of the group whose livelihood is at stake.

Regards,

Blair S. Bailey
General Counsel

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Subject: **Responses to MA Comments on the Revolution Wind Report**
Date: December 2, 2022

The data being used for the economic value of the fisheries is from 2008-2019 and the annual value is calculated in 2020$. Why can't' they use the 2020 landings data to truly give a depiction on effort and value?

Response: Although more recent NOAA data (2020 and 2021) is available at aggregate state level, detailed fishery landings data for specific offshore locations for individual wind development projects is available only through 2019. Also, data from any one year are likely to be misleading because of the significant year-to-year variability in landings.

Also on page 18 the Estimated indirect and induced economic impacts linked between the fishing industry and shoreside business multiplier is too low. The commercial fishermen spend a lot more today to keep their business going as the cost of doing business has increased dramatically.

The cost of fuel, bait, dockage, traps/gear has all increase upwards of 40-50%. When we talk about the economic impact of the fisheries to the local economy we conservatively use a 3.5-4 multiplier.

I am not an economist and have been listening to commercial lobstermen over the last 14 years and they describe that is costs upwards of $3-$4 to catch a $5 lobster and this still holds true today.

Response: The economic impact multiplier captures the linkages between the fishing industry sector and other sectors in the Massachusetts economy, and is not intended to reflect the cost of fishing. Economy-wide inflation affects all sectors in the economy and does not necessarily alter the general structure of the economy. Although the baseline economic values will increase with rising prices, the multiplier does not.

I did a quick Google search on the economic impact of commercial fisheries and the Commercial Fisheries Research Foundation did a study on the Assessing the Economic Impact of the Fisheries & Seafood Sector in Rhode Island and found that; "The X-vessel landings economic impact multiplier is 3.06. These multipliers are "total effects" in the Rhode Island economy, inclusive of effects on commercial fishing."

As the fisherman's margins are continually, whether it is the cost of doing business, loss of access to fishing grounds during construction or after projects are up and running, we need to make sure the economic impact multipliers are appropriate for mitigation so that these much needed funds will be avaible in the future for them to access.

Response: The multipliers are typically different for different states due to variations in the economic structure of the fishing industry and seafood trade. They can also vary with the type of fishing and species being landed. As described in the report, we use the multiplier calculated from the IMPLAN model for Massachusetts, which is an average multiplier valid for the species composition of Massachusetts landings. IMPLAN data and modeling software have been widely used by research organizations and government agencies across the country.

From:	Jesper Christensen
To:	Engler, Lisa Berry (EEA); Boeri, Robert (EEA)
Cc:	Bowes, Kenneth B; Bellis, Marvin P; Melanie Gearon; Megan Eakin; Kellen Ingalls; Ross Pearsall; Main, Robin L.; Dieter, Christine E.
Subject:	MA CZM / Revolution Wind Offer
Date:	Thursday, March 16, 2023 4:58:08 PM
Attachments:	image001.png image002.png

Dear All,

Revolution Wind is pleased to present the below compensatory mitigation offer.

Mitigation Fund	**USD**
Direct Compensation	$3,015,000
Coastal Community	$400,000
Navigation & Safety	$500,000
Total	**$3,915,000**

As discussed during our meeting last week, the amount of direct compensation is based on the upper bound conservative numbers as presented by WHOI, which itself uses a number of conservative assumptions. For example, the WHOI numbers are a gross estimate that are not discounted to account for costs. The direct compensation number includes impact during decommissioning, i.e. no separate decommissioning fund, and is discounted to net present value.

Since we last spoke we have increased our initial offer from $200,000 to $400,000 for the Coastal Community Fund. Please note that this increase can either be added to the community fund, as indicated above, or be added to direct compensation.

For the Navigation and Safety Fund we have now confirmed that the original intent was for funds of up to $1.3M to be made available across the three projects, South Fork, Revolution and Sunrise. Therefore, we offer an amount up to $500,000 as part of the Revolution compensation package.

We look forward to discussing the offer in the coming days.

Best regards,
Jesper Christensen
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From:	Jesper Christensen
To:	Engler, Lisa Berry (EEA); Boeri, Robert (EEA)
Cc:	Bowes, Kenneth B; Bellis, Marvin P; Melanie Gearon; Megan Eakin; Kellen Ingalls; Ross Pearsall; Main, Robin L.; Dieter, Christine E.
Subject:	MA CZM / Revolution Wind Offer - April 7, 2023
Date:	Friday, April 7, 2023 9:40:02 AM
Attachments:	image001.png image002.png

Dear All,

Revolution Wind is pleased to present the below compensatory mitigation offer.

Mitigation Fund	**USD**
Direct Compensation	$6,425,000
Coastal Community	$400,000
Navigation & Safety	$500,000
Total	**$7,325,000**

After much consideration we have increased the compensation amount to reflect the 5-year loss percentages set forth in the BOEM draft guidance. The number was calculated by the team at WHOI, and is based on the WHOI baseline numbers, economic multipliers and a 5% discount factor for purposes of calculating net present value.

As before the offer does not include a separate decommissioning fund, but one could be established by directing funds from the $6.425M direct compensation amount.

Similarly, the amount to be deposited in to the coastal community fund can be increased by taking additional funds from the direct compensation amount. For example, if MA CZM deemed a $600,000 fund appropriate, then the direct compensation fund would be reduced by the amount of the increase, in this example a $200,000 reduction.

As previously discussed for the Navigation and Safety Fund we offer an amount up to $500,000 as part of the Revolution Wind compensation package.

This offer represents a ~100% increase versus the impact assessment performed by WHOI. We hope you will find the offer acceptable and look forward to addressing any questions you may have.

Thanks.

Best regards,
Jesper Christensen
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