SOUTHCOAST WIND

SouthCoast Wind Energy LLC
101 Federal Street
Boston, MA 02110

WQC # 23-044
DP # DP23-198

March 16, 2023

Mr. Ron Gagnon
Rhode Island Department of Environmental Management
Office of Technical & Customer Assistance
235 Promenade Street
Providence, RI 02908

Mr. Jeff Willis
Executive Director
Rhode Island Coastal Resources Management Council
Oliver Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

RE: SouthCoast Wind – State Water Quality Certification and Marine Dredging Permit

Dear Mr. Gagnon and Mr. Willis,

SouthCoast Wind Energy LLC (formerly known as Mayflower Wind Energy LLC) (SouthCoast Wind) is submitting the attached application materials for the following permits:

- State Water Quality Certification (WQC) pursuant to the Rhode Island state Water Quality Regulations (250-Rhode Island Code of Regulations [RICR]-150-05-1.15(A)(3)) and Section 401 of the federal Clean Water Act (CWA).
- Marine Dredging Permit pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the Rhode Island General Laws (R.I.G.L.); and § 2.4.13 in the Rules and Regulations for Dredging and the Management of Dredged Materials ("Dredging Regulations") (250 RICR-150-05-2).

SouthCoast Wind is also submitting this package to the United States Army Corps of Engineers-New England District in compliance with the 2020 USEPA CWA Section 401 Rule.

SouthCoast Wind is developing an offshore wind energy generation facility in federal waters in the designated Bureau of Ocean Energy Management Renewable Energy Lease Area OCS-A 0521 (Lease Area) located approximately 51 nautical miles (94 kilometers) southeast of the Rhode Island coast. The Lease Area is not within Rhode Island jurisdictional areas, and specifically, it is not within the Geographic Location Descriptions defined in the Rhode Island Ocean Special Area Management Plan.

SouthCoast Wind is developing an underwater cable project in Rhode Island waters to connect the Lease Area to a grid interconnection point at Brayton Point in Somerset, Massachusetts. The cable will cross through Rhode Island state jurisdictional areas as follows: Rhode Island Sound to the Sakonnet River, onshore underground crossing at Aquidneck Island in Portsmouth, Rhode Island, then into Mount Hope Bay to the Massachusetts state line.

SouthCoast Wind held a pre-filing meeting with the RI Department of Environmental Management (DEM) and RI Coastal Resources Management Council (CRMC) on August 16, 2022, and has continued to hold monthly meetings with these agencies, plus additional meetings as needed.

We very much appreciate the input and guidance we have received from the RI DEM and RI CRMC staff and we look forward to supporting staff review of these application materials. SouthCoast Wind appreciates your consideration of this submittal.

Sincerely,

Erin Healy
Permitting Manager
SouthCoast Wind Energy LLC

Cc: Neal Personeus, RIDEM
Ruthann Brien, USACE-NE District

SOUTHCOAST WIND

SouthCoast Wind 1 Project

Joint Application for a State Water Quality Certificate and Marine Dredging Permit

March 2023

APPLICATIONS AND NARRATIVE – Book 1 of 2

Submitted to: Rhode Island Department of Environmental Management

Location: Rhode Island State Waters and Portsmouth, Rhode Island

Project Proponent: SouthCoast Wind Energy LLC

Preparer: POWER Engineers, Inc.

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ABBREVIATION	DEFINITION
A	amps
ac	acre
AIS	Automated Identification System
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
BOEM	Bureau of Ocean Energy Management
°C	*degrees Celsius.*
CBRA	Cable Burial Risk Assessment 3
C.F.R.	Code of Federal Regulations
CGP	Construction General Permit
CMECS	Coastal and Marine Ecological Classification System
COP	Construction and Operations Plan
CPG	Construction General Permit
CRMP	Coastal Resources Management Plan
CVA	Certified Verification Agent
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DC	Direct current
DP	Dynamically Positioned
ECC	Export Cable Corridor
EEA	Executive Office of Energy and Environmental Affairs
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EJ	Environmental Justice
ENF	Environmental Notification Form
EMF	Electric and magnetic field(s)
ERP	Emergency Response Plan
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FLO	Fisheries Liaison Officer
FMP	Fishery Management Plan
ft	feet
G&G	Geophysical & Geotechnical
GHG	Greenhouse Gas
GLD	Geographic Location Description
GPS	Global Positioning System
HAPC	Habitat Areas of Particular Concern
HDD	Horizontal Directional Drilling
HVDC	High-volage direct current
IHA	Incidental Harassment Authorization
ISO-NE	Independent System Operator - New England
km	kilometer

ABBREVIATION	DEFINITION
kV	kilovolt
Lease Area	BOEM Renewable Energy Lease Area OCS-A 0521
LNM	Legal Notice to Mariners
LOA	Letter of Authorization
m	meter
MA	Massachusetts
MA BUAR	Massachusetts Board of Underwater Archaeological Resources
MA CZM	Massachusetts Office of Coastal Zone Management
MA DMF	Massachusetts Division of Marine Fisheries
MA DPU	Massachusetts Department of Public Utilities
MA ESFB	Energy Facilities Siting Board
MARA	Marine Archaeological Resources Assessment
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MassWildlife	Massachusetts Division of Fisheries and Wildlife
MEPA	Massachusetts Environmental Policy Act
MF	Magnetic field
Mg/L	milligrams per liter
MHC	Massachusetts Historical Commission
mi	Mile
MMPA	Marine Mammal Protection Act
MSIR	Marine Site Investigation Report
MW	Megawatt
NEPA	National Environmental Policy Act
NHESP	Natural Heritage and Endangered Species Program
nm	nautical mile
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NTU	Nephelometric Turbidity Units
O&M	Operations & Maintenance
Ocean Winds	Ocean Winds North America LLC
OSP	Offshore Substation Platform
OSRP	Oil Spill Response Plan
PNF	Project Notification Form
POI	Point of Interconnection
POWER	POWER Engineers Consulting, PC
PPA	Power Purchase Agreement
psu	Practical Salinity Units
RFU	relative fluorescence units
RI	Rhode Island
RICR	Rhode Island Code of Regulations
RI CRMC	Rhode Island Coastal Resources Management Council

ABBREVIATION	DEFINITION
RIDEM	Rhode Island Department of Environmental Management
RI DFW	RIDEM Division of Fish and Wildlife
RI DMF	RIDEM Division of Marine Fisheries
RIDOT	Rhode Island Department of Transportation
RIEC4	Rhode Island Executive Climate Change Coordinating Council
RI EFSB	Rhode Island Energy Facilities Siting Board
R.I.G.L.	Rhode Island General Laws
RIHPHC	Rhode Island Historical Preservation and Heritage Commission
RIPDES	Rhode Island Pollution Discharge Elimination System
RI PUC	Rhode Island Public Utilities Commission
ROSA	Responsible Offshore Science Alliance
ROV	Remote Operated Vehicle
ROW	Right-of-Way
SAMP	Special Area Management Plan
SAP	Site Assessment Plan
SAV	Submerged aquatic vegetation
SGCN	Species of Greatest Conservation Need
Shell New Energies	Shell New Energies US LLC
SouthCoast Wind	SouthCoast Wind Energy LLC
SUP	Special Use Permit
TJB	transition joint bay
TMDL	Total Maximum Daily Load
TOY	Time of Year
TSS	Total Suspended Solids
µg/L	micrograms per liter
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UXO	Unexploded Ordnance
VMS	Vessel Monitoring System
VTR	Vessel Trip Report
WTG	Wind Turbine Generator
WQC	Water Quality Certification
WQR	RIDEM Water Quality Regulations (250-RICR-150-05-1)
YOY	young-of-the-year

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RHODE ISLAND DEPARTMENT OF ENVIROMENTAL MANAGEMENT
Office of Water Resources – Groundwater and Freshwater Wetlands Protection
235 Promenade Street, Providence, RI 02908
Telephone: 401-222-6820; Rhode Island Relay: 711

Received by RIDEM
[DATE STAMP HERE]

Application for Stormwater Construction Permit and Water Quality Certification

Use this form to request a Stormwater Construction Permit (RIPDES CGP or GWD/UIC) or Water Quality Certification (WQC). If a Freshwater Wetlands (FWW) Application is required, this form must be submitted in addition to the FWW Application form.

If a WQC is requested as part of a Federal Permit which is not covered under a General Permit and therefore requires 401 certification as described in Section 401 of the Clean Water Act, this form and accompanying materials must be submitted directly to the WQC Program to receive such certification (even if a FWW permit is required).

Please fill out this form electronically. Print the completed form and submit with all required documentation and fee to:
(Check or money order must be made payable to the Rhode Island General Treasurer.)
Stormwater Construction Permit Fee will be waived for applications submitted concurrently with a Freshwater Wetlands Application.

Permit Application Center (PAC)
RIDEM
235 Promenade Street, Room 260
Providence, RI 02908-5767

Provide all applicable information by completing the **shaded** areas.

Double-click to select:	☑ **New Permit** Fee = $400.	☐ **Permit Modification**	

Site & Project

City/Town:	Street Address:		Water Body Class:
Portsmouth	N/A		SA
Plat(s):	**Lot(s):**	**Project Name:**	
N/A	N/A	SouthCoast Wind 1 Project	
Location:		**Water Body Name(s):**	
RI State Waters and Portsmouth, RI		Rhode Island Sound, Sakonnet River, Mount Hope Bay	
Latitude:	**Longitude:**	**Utility Pole #:**	**Total Site Area:**	**Site Area to be Disturbed:**
41 23 37 41 41 25	71 12 44 71 13 30		6,128 acres	134 acres
RIDOT PSID #:	**RI Contract #:**	**Was there a Pre-Application Meeting?**		**Provide Meeting Date:**
		☑ Yes ☐ No		02/09/23

Owner / Applicant

Organization/Company Name:		Name and Email of Owner's Representative for Questions:		
SouthCoast Wind Energy LLC		James Durand (see below for contact info)		
First Name:	**Last Name:**	**Owner's Email:**		**Phone:**
Jennifer	Flood	jennifer.flood@southcoastwind.com		713.265.0350
Address:		**City/Town:**	**State:**	**Zip:**
101 Federal Street, Suite 1900		Boston	MA	02110

I certify under penalty of law that I've requested and authorized the investigation, compilation, and submission of all the information, in whatever form, contained in this Application; I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate and complete. I'm aware that it's the owner's responsibility to implement or hire a qualified contractor responsible to implement any required Soil Erosion and Sediment Control Plan, so as to effectively control stormwater discharges leaving the site during the construction period. I authorize RIDEM personnel access to the property for purposes of observing conditions pertinent to this application and assessing compliance with any permit or determination resulting from this application.

Applicant's Signature:	Title:	Date:
Jennifer Flood	Permitting Director	03/16/23

Professional

Organization/Company Name:	Professional's License Type(s) and Number(s):	
POWER Engineers, Inc	Project Manager	
Professional's Name:	**Professional's Email:**	**Phone:**
James Durand	jamie.durand@powereng.com	77-643-1829

I certify under penalty of law that the project described in this application and associated materials is in compliance with the RI Stormwater Design and Installation Standards Manual (as amended) and the Rhode Island Soil Erosion and Sediment Control Handbook (as amended) [if required] and I believe all information presented in this application and the accompanying materials are true, accurate and complete. All engineering designs, plans and specifications [if required] included in this application were done by me or by someone working directly for me. The Natural Heritage Area Information [if required] and the site specific Soil Erosion and Sediment Control Plan [if required] were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering or developing the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete at the time this application is made. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Professional's Signature:	Title:	Date:
James Durand	Environmental Project Manager	03/16/23

PERMIT HISTORY AND APPLICABILITY - **Double-click** to check all boxes that apply to the proposed project.

Permit History

Provide all other application or file numbers associated with this site.

RI CRMC Assent:	US Army Corps of Engineers:	RIDEM Program Name & File Number:
Pending	**NAE-2020-00958**	

RIDEM USE ONLY

Stormwater Construction Activity

Select all that apply. [Stormwater submissions must comply with all requirements of the Stormwater Management, Design and Installation Rules.] Click links below to refer to other applicable Rules.]

There are Freshwater Wetlands on the subject or adjacent property, AND the project proposes:

- ☐ New or increased impervious cover for property other than a single family home; or
- ☐ Disturbance of more than 10,000 sq. ft. of existing impervious cover; or
- ☐ To fill in any amount of floodplain or alter storm flowage to a river, stream or wetland on any lot.

Refer to Freshwater Wetland Rules

The project proposes an infiltration system listed in 8.21 of the *Stormwater Rules* (i.e. infiltration trench, infiltration basin, UIC chamber or drywell) that receives stormwater from:

- ☐ A residential impervious area that is more than 10,000 sq. ft.; or
- ☐ A non-residential roof area greater than 10,000 sq. ft.; or
- ☐ A non-residential (commercial, industrial, institutional...) road or parking area of any size.

Indicate if the treatment system discharges:

- ☐ **Below** the ground (UIC); or
- ☐ Above the ground and infiltrates (not UIC), but must be reviewed for compliance with the RISDISM to be protective of groundwater.

Refer to Groundwater Discharge Rules

The project proposes **discharge of stormwater** to waters of the State [including a Separate Storm Sewer System (MS4)], AND :

- ☐ Disturbs less than 1 acre, but the activity is part of a larger common plan resulting in more than 1 acre of disturbance.
- ☐ Disturbs more than 1 acre of property.

Refer to RI Pollutant Discharge Elimination System General Permit

STW/WQC Application # Required:

Water Quality Certification (WQC)

Select all project type(s):

- ☑ Discharge that requires a Federal Permit — Check all that apply:
  - ☐ Federal Energy Regulatory Commission (FERC)
  - ☐ Marinas-New Construction or Expansion
  - ☑ Fill Waters of the U.S.
  - ☑ ACOE Individual Permit
  - ☑ ACOE Fill in Coastal Waters
  - ☑ Other — State Water Quality Certification
- ☐ Harbor Management Plan
- ☐ Flow Alterations/Water Withdrawals
- ☐ Stormwater Master Plan

Refer to Water Quality Rules and Application Guidance

Submission Requirements

Please submit separately bound documents, as required. Additional copies are required when submitting concurrently with a Freshwater Wetlands Application.

- 1 Site Plan(s)
- 1 Appendix A Checklist/LID Planning Assessment
- 1 Stormwater Management Plan (Includes SESC Plan, O&M Plan, and SW Drainage/Analysis Report)

Appropriate Fee: New Permit = $400; Permit Modification = $200.

Amt Paid:

Check No:

Date Received:

Rhode Island Coastal Resources Management Council
Oliver H. Stedman Government Center
Wakefield, RI 02879
(401) 783-3370

Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767
(401) 222-6820

APPLICATION FOR MARINE DREDGING AND ASSOCIATED ACTIVITIES pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the Rhode Island General Laws.

PURPOSE OF APPLICATION

Agency Use Only
File Number

Date Received

- [X] Application for Dredging and Disposal of Dredged Material
- [ ] Request Renewal of RIDEM Dredge Permit File # _____
- [ ] Request Renewal of CRMC Dredge Permit File # _____
- [ ] Request Modification of RIDEM Dredge Permit File # _____
- [ ] Request Modification of CRMC Dredge Permit File # _____

(Please Type or Print)

APPLICANT INFORMATION

Applicant Name: SouthCoast Wind Energy LLC

(NOTE: Applicant must be the owner of the property on which the activity is proposed)

Applicant Address: 101 Federal Street, Suite 1900 Telephone No. 978-501-6469

City/Town: Boston State: MA Zip: 02110

PROJECT INFORMATION

Project Address: Rhode Island State Waters within the Brayton Point Export Cable Corridor

City/Town: Portsmouth State: RI Zip: 02871

Tax Assessor's Plat(s) and Lot Number(s): N/A Rhode Island Sound, Sakonnet River, Mount Hope Bay

Project Consultant/Engineer Name: James Durand

Consultant/Engineer Address 2 Hampshire St Foxborough, MA 02048

Consultant/Engineer Telephone No. 774-643-1829

ACTIVITIES ASSOCIATED WITH THE PROPOSED DREDGE PROJECT (check all that apply)*

- [x] Filling of Waters of the State
- [ ] Marinas – New construction or expansion
- [ ] Site Disturbances
  - __ Residential Development: six (6) or more dwellings
  - __ Commercial, Industrial, State or Municipal Development
  - __ Any project ≥ five (5) acres of disturbance
- [ ] Flow Alterations
- [ ] Point Source Discharge of Pollutants

GENERAL INFORMATION

Identify program and associated application number for any other RIDEM applications filed for this project

Pending	Freshwater Wetlands	Application Number Pending w/ RI CRMC
Pending	RIPDES	Application Number To be filed
_____	Individual Sewage Disposal System	Application Number _____
Pending	Other (Category B Assent)	Application Number Pending w/ RI CRMC

If you have any questions, please contact the RIDEM at 222-7500 or CRMC at 783-3379.

CERTIFICATION OF APPLICANT

I hereby certify that I have requested and authorized the investigation, compilation, and submission of all the information, in whatever form, contained in this Application; that I have personally examined and am familiar with the information submitted herein; and that such information is true, accurate and complete to the best of my knowledge.

Signature of Applicant: __ _____ Date: March 16, 2023

Please return this comple[illegible] all supporting information, as indicated on the accompanying Submittal Checklist to:

Rhode Island Coastal Resources Management Council
Oliver H. Stedman Government Center
Wakefield, RI, 02879

and

Rhode Island Department of Environmental Management
Office of Technical & Customer Assistance
235 Promenade Street
Providence, RI 02908

* Water Quality Certification required for these activities pursuant to Section 401 of the CWA and the Rhode Island Water Quality Rules may be incorporated into an approval issued as part of this application.

Office Use Only:

Suitable for Public Notice _____ Date: _____

- [ ] Approved
- [ ] Denied
- [ ] Withdrawn

APPLICATION FOR MARINE DREDGING AND ASSOCIATED ACTIVITIES
SUBMITTAL CHECKLIST

To be accepted as complete, an application to dredge in the marine waters of the state and/or to dewater, dispose or make beneficial use of dredged material must include the information listed below.

A completed and signed Application to Dredge in Marine Waters and Associated Activities

8 copies of the proposed project site plan(s), including all applicable information as identified in this checklist

FOR ALL PROJECTS, SITE PLANS MUST INCLUDE THE FOLLOWING INFORMATION:

- ☑ All site plans must be at least 8-1/2" x 11" in size but no larger than 24" x 36" with a minimum scale of 1" = 50' (*if plans larger than 8-1/2" x 11" are utilized, one set of plans reduced to 8-1/2" x 11" are also required*)
- ☑ The (one) datum for the project
- ☑ All site plans containing more than one (1) sheet must be numbered consecutively
- ☑ All site plan markings must be permanently fixed
- ☑ A title block, the original date and latest revision date of the plan. The title block must include the name of the applicant, the proposed project title, the principal street/road abutting the site, the Tax Assessor's plat and lot number(s), the city/town where the proposed project is located, the name of the plan preparer and the plan scale
- ☑ The stamp of the professional affixed to each sheet prepared, along with the date and signature of the professional
- ☑ A Plan Scale with graphic scale, if plans are reduced
- ☑ A magnetic North arrow
- ☑ A legend explaining all markings and/or symbols
- ☑ The entire property boundary outline and dimension
- ☑ A locus using a USGS quadrangle map
- ☐ All streets and rights of way within 50 feet of the property lines of the proposed activity with fixed reference points including utility poles, house numbers, stone walls, bulkheads, buildings, edge of woods/fields, trails, parking areas, above and underground utilities, existing and proposed drainage structures and any other infrastructure on-site or within 50 feet of the property lines(s)
- ☑ Delineation of all surface water bodies including all freshwater and coastal wetland jurisdictional areas of the DEM, CRMC and ACOE within 100 feet of the property lines of the project
- ☑ Any jurisdictional area that extends beyond the property line must be shown for 100 feet beyond the property line
- ☐ The location of all sediment sampling points, conducted pursuant to the approved Sediment Sampling Plan
- ☑ Mean high and mean low water elevations
- ☑ The location of in-water structures, such as docks, piers, floats, moorings, etc. within 100 feet of the property
- ☑ The location of federal navigation projects, such as channels, anchorage areas, etc.
- ☑ Cross sectional views in two directions of the area to be dredged, including existing and proposed contours with a maximum spacing of 200'

- ☐ The location and detail of the proposed disposal area, including the geographic extent of filling
- ☐ Cross sectional plans of the proposed disposal area showing existing bottom contours and those that will result from disposal activities and the datum used to establish all grades and depths
- ☐ The location and dimensional area of the proposed dewatering and settling basins and storage and staging areas
- ☐ A detail of the existing and proposed conditions and topography at two-foot intervals and extending 50 feet beyond the property lines
- ☐ The proposed limits of disturbance at the dewatering location, including all sides slopes of the dewatering area, any stock pile area, and construction vehicle access and storage
- ☐ The location of any pier or dock proposed for transfer or off-loading of dredged material from scows to land and their position relative to the dredge site and the proposed dewatering location, including certification by a registered professional that such facilities are adequate for the proposed purpose
- ☐ All access roads to be utilized by trucks for offloading, transferring or removing dredged material to the dewatering location(s)
- ☐ Verification that the proposed dewatering location is not within any area prohibited in Section 5.4 of the Dredge Rules
- ☐ The groundwater and surface water classification(s) for the proposed dewatering location(s)
- ☐ The zoning designations and FEMA limits and elevations for the dewatering location
- ☐ Cross-sectional views of the dewatering, settling and storage basins including details of the berms, overflow and outlet weirs
- ☐ All runoff collection systems associated with the proposed basins and any point source discharge locations
- ☑ All temporary and permanent stormwater and water quality management controls and Best Management Practices
- ☐ The location of the disposal/beneficial use area, including an area 100 feet beyond the proposed limits of disposal/beneficial use
- ☐ A detail of the existing and proposed site conditions, including contours at two-foot intervals
- ☐ Cross sections of the upland disposal/beneficial use area in two directions, at 200' maximum spacing
- ☐ The groundwater classification of the dewatering and disposal/beneficial use areas and verification that the dredged material disposal/beneficial use location is not within areas prohibited in Section 5.4 of the Dredge Rules
- ☐ The location of points of groundwater use within 1750 feet of the dewatering and disposal or beneficial use location, or, if disposal or beneficial use is proposed within 200 feet of mean high water, points of groundwater use within 400 feet of the disposal/beneficial use location
- ☑ The edge and name of any river, perennial or intermittent stream, swamp, marsh, bog; pond, and emergent, submergent, shrub or forested wetland, or any special aquatic site
- ☑ The edge of any fifty-foot (50') perimeter wetland and any one hundred foot (100') or two hundred foot (200') riverbank wetland
- ☑ The edge and elevation of any flood plain and the limit of any floodway (*an exception may be allowed when pre-determined 100-year flood elevations are not available from published sources including previous engineering studies, and a registered Professional Engineer provides clear and convincing evidence that the project site is above any probable 100-year flood elevation*)

FOR DREDGING ACTIVITY, THE FOLLOWING INFORMATION IS REQUIRED:

☐ The analytical results of the sampling conducted pursuant to the Sediment Sampling Plan

☑ A narrative description of the proposed dredging method, type of dredging equipment to be used, and an estimate of the length of time (proposed starting and completion dates) necessary to complete the dredging project. Depending on the size, location and complexity of the project, an evaluation of the impacts to fishery resources including migratory and spawning behavior and habitat, and the presence of early life stages of particular sensitivity may be required. Dredging projects proposed outside the standard dredge window may require the submission of additional resource information

☑ A narrative description and location of aquatic resources in the area to be dredged such as shellfish beds, eel grass beds, spawning areas and migratory pathways for finfish, and other aquatic resources

☑ The proposed depth of dredging and the datum used to reference all grades and depths

☑ Stamped calculations performed by a Professional Engineer, verifying the estimated volume of material to be dredged

FOR IN-WATER DISPOSAL OF DREDGED MATERIALS, THE FOLLOWING INFORMATION IS REQUIRED

☐ A narrative description of aquatic resources in the proposed disposal area, including shellfish beds, eel grass beds, migratory pathways for finfish, breeding or nursery areas and any other aquatic resources

☐ Information on the past history of the proposed disposal area, including but not limited to, prior disposal activity, historical spills and analytical test data

☐ An Alternatives Analysis describing alternatives to the proposed disposal location that were investigated in accordance with and as required by the federal 404 (b)(1) guidelines

☐ A narrative description of how the dredged material will be deposited at the proposed disposal location, including the frequency and quantity of each disposal event, anticipated sequencing or staging activities, and measures to control dispersion

☐ An evaluation of the impact of the dredged material on the physical, chemical and biological components of the aquatic environment, following the tiered approach for evaluating in-water disposal options as presented in the guidance documents referenced in Section 7.5 of the Dredge Rules. This analysis may include, but is not limited to, a numerical mixing model using elutriate data in order to evaluate the dispersion of contaminants throughout the water column, as required to predict the contaminant concentrations present in the water column after consideration of mixing in order to determine compliance with water quality standards

☐ A plan for monitoring water quality impacts from the disposal activities, as coordinated with RIDEM, ACOE, and CRMC, as applicable

☐ Applications that propose in-water disposal of dredged material at a federally-approved designated disposal location, must include information as required in Sections 10.1.4-5 and 10.1.7 of the Dredge Rules

FOR DEWATERING OF DREDGED MATERIAL, THE FOLLOWING INFORMATION IS REQUIRED:

☐ A description of handling techniques of the dredged material (i.e. stockpiling, transporting, etc.)

☐ The method of transport to the dewatering location *(for upland disposal)* and the disposal/beneficial use area

☐ Consistency of the proposed project with the beneficial use and disposal priorities for dredged material management established in the R.I General Laws, Chapter 46-6.1-2 and with the dredging plan adopted by the Council pursuant to Section 46-6.1-5

☐ A detailed estimate of the time frame required for each aspect of the dewatering process, which includes receiving, handling, dewatering and transferring dredged material to the final disposal location(s)

☐ The estimated volume capacity calculations for the proposed dewatering, settling and storage basins and staging areas

☐ Identification of the proposed material handling methods (i.e. hydraulic or mechanical) and an estimate of the proposed volume of runoff water expected from the material

☐ A Sediment and Erosion Control Plan, describing all aspects of the material transfer and all temporary and permanent erosion and sediment controls

☐ A description of the proposed methods to be used to reduce material losses when offloading the dredge scows

☐ The proposed method of collecting stormwater runoff from any storage areas and directing it to the settling basins for treatment

☐ Certification by a Professional Engineer that all adjacent structures (within 25 feet of the limit of disturbance) have the capacity to withstand the proposed dredging/dewatering operations and that the stability has been investigated and will not be effected

☐ If the applicant for the dredging project is not the owner of the proposed dewatering location(s), documentation of the owner's permission and knowledge of the estimated volume of dredged material to be dewatered on his/her property

FOR UPLAND DISPOSAL/BENEFICIAL USE OF DREDGED MATERIAL, THE FOLLOWING INFORMATION IS REQUIRED:

☐ Analytical results of dredged material sampling conducted pursuant to Section 7.4 of the Dredge Rules, where applicable

☐ The method of placement of dredged material, including access points and any disturbance placement may cause

☐ Stamped calculations performed by a Professional Engineer with experience in dredged material handling, verifying the volume capacity of the disposal or beneficial use location

☐ A Sediment and Erosion Control Plan, describing all aspects of the material transfer at the site and all temporary and permanent erosion and sediment controls

☐ If the applicant for the dredging project is not the owner of the proposed disposal/beneficial use location(s), documentation of the owner's permission and knowledge of the estimated volume of dredged material to be disposed/beneficially used on his/her property

FOR UPLAND DISPOSAL PROJECTS THAT MAY IMPACT FRESHWATER WETLANDS UNDER THE JURISDICTION OF THE DEPARTMENT, THE FOLLOWING INFORMATION IS REQUIRED ***(unless a valid RIDEM Freshwater Wetlands Permit for the disturbance and other activities affecting wetlands at the site has been issued and no changes are proposed)***

☐ A demonstration that impacts to freshwater wetlands have been avoided to the maximum extent possible. If impacts cannot be avoided, a demonstration that all alternatives to the proposed disposal/beneficial use which would not alter the natural character of the wetlands were considered and cannot be accomplished, and that impacts have been minimized to the maximum extent possible, pursuant to Appendix B of the Dredge Rules

- [ ] Where changes to existing grades are proposed, the plan must show both existing and proposed contour line elevations at maximum intervals of two (2') feet. Where no changes to grades are proposed, a notation which so indicates must be provided
- [ ] Profiles and/or cross sections drawn to scale
- [ ] The proposed limits of all vegetative clearing and surface or subsurface disturbance
- [ ] All temporary and permanent erosion and sediment controls
- [ ] All temporary and permanent stormwater, flood protection and/or water quality management controls and Best Management Practices
- [ ] Proposed measures to conduct, contain or otherwise control the movements of surface water, groundwater, or stormwater flows, and the ultimate destination of such flows
- [ ] Construction activities either above or below the land surface which may affect any wetland including the height of planned buildings

FOR DREDGED MATERIAL REHANDLING, THE FOLLOWING INFORMATION IS REQUIRED:

- [ ] Identification of any existing or pending land use restrictions at the proposed rehandling facility location(s)
- [ ] Any information available on historic land use that may have impacted the site, including past spills or known contamination events, and a demonstration that the rehandling facility will not exacerbate those conditions
- [ ] A demonstration that the siting of the rehandling facility complies with the General Provisions and Criteria for Sites Proposed for Upland Disposal or Beneficial Use of Dredged Material in Section 5.4, and Section 9.2 and 9.3, respectively
- [ ] All existing and proposed private drinking water wells within 2000 feet
- [ ] All existing and proposed infrastructure, including roadways, surface and subsurface utilities, and sewer and sanitary lines
- [ ] All existing and proposed surface and/or subsurface drainage systems and water quality structures
- [ ] The proposed locations of loading and unloading areas and processing, tipping, sorting, and treatment areas
- [ ] Cross section plans of all proposed storage basins, berms, and any proposed structures
- [ ] Proposed sedimentation and erosion controls
- [ ] Proposed weighing facilities (if any)
- [ ] On-site traffic patterns
- [ ] Proposed landscaping
- [ ] A Facility Operating Plan, pursuant to Section 12.4.5 of the Dredge Rules

MARINE DREDGING CHECKLIST (RIDEM)

APPLICATION FOR MARINE DREDGING AND ASSOCIATED ACTIVITIES SUBMITTAL CHECKLIST

Application Requirement	Where Provided in Application
1. Completed application form	A completed application form is enclosed herein. See also Section 1.
For Dredging Activity:	
1. The analytical results of the sampling conducted pursuant to the Sediment Sampling Plan	On 03/03/2022 SouthCoast Wind received confirmation from RIDEM that SouthCoast Wind does not need to do additional sediment sampling due to the limited amount of temporary offshore excavation proposed at the offshore HDD construction areas and because no transport or disposal of dredge material is proposed.
2. A narrative description of the proposed dredging method, type of dredging equipment to be used, and an estimate of the length of time (proposed starting and completion dates) necessary to complete the dredging project. Depending on the size, location and complexity of the project, an evaluation of the impacts to fishery resources including migratory and spawning behavior and habitat, and the presence of early life stages of particular sensitivity may be required. Dredging projects proposed outside the standard dredge window may require the submission of additional resource information	A narrative description of the proposed dredging activity, including the types of equipment and vessels to be used, is provided in Section 2 and an evaluation of existing resources and potential impacts is provided in Section 3.
3. A narrative description and location of aquatic resources in the area to be dredged such as shellfish beds, eel grass beds, spawning areas and migratory pathways for finfish, and other aquatic resources	Refer to Sections 3.1, 3.2, 3.3, and 3.4 of this narrative, and Attachment H, RI Benthic Habitat Mapping Assessment.
4. The proposed depth of dredging and the datum used to reference all grades and depths	Refer to Attachment C-2, HDD Engineering Drawings.
5. Stamped calculations performed by a Professional Engineer, verifying the estimated volume of material to be dredged	Refer to Attachment C-2, HDD Engineering Drawings .

Application Requirement	Where Provided in Application
In-Water Disposal of Dredged Materials	Not Applicable, no in-water disposal of dredged material is proposed.
Dewatering of Dredged Material	Sediment that is temporarily excavated / dredged will be side-cast adjacent to the offshore excavations and will be used to backfill the HDD construction areas; therefore, no dewatering of dredged material is proposed. Refer to Section 4.2.
Upland Disposal/Beneficial Use of Dredged Material	Not Applicable
Upland Disposal Projects that May Impact Freshwater Wetlands	Not Applicable
Dredged Material Rehandling	Not Applicable

WATER QUALITY CERTIFICATION CHECKLIST (RIDEM)

WATER QUALITY CERTIFICATION APPLICATION REQUIRED ENCLOSURES

Application Requirement	Where Provided in Application
Application Fee	A check in the amount of $400.00 has been submitted by SouthCoast Wind Energy LLC
1. Completed application form	A completed application form is enclosed herein. See also Section 1.
2. Site Plans	Site Plans including existing and proposed Project conditions and meeting the Site Plan Requirements are provided in Attachment C-1 Offshore Export Cable Engineering Drawings and Attachment C-2 HDD Engineering Drawings.
3. List of direct abutting property owners and current mailing addresses	Provided herein in Attachment M.
For Dredging Projects	
1. Proposed sampling plan must be submitted for review and approval prior to samples being taken.	On 03/03/2022 SouthCoast Wind received confirmation from RIDEM that SouthCoast Wind does not need to do additional sediment sampling in the RI portion of the Brayton Point ECC due to the limited amount of temporary offshore excavation/dredging at the HDD pits and because no transport or disposal of dredge material is proposed.
2. A species inventory addressing community structure may be required.	Refer to Section 3. In addition, a species inventory is provided in the Benthic Habitat Mapping Report provided in Attachment H; Essential Fish Habitat and Protected Fish Species Assessment (Appendix N of the COP).
3. Project Plans	Refer to Attachment C-1 Offshore Export Cable Engineering Drawings and Attachment C-2 HDD Engineering Drawings.
4. A letter requesting the time frame for dredging if work is proposed anytime other than November 1 – December 31	SouthCoast Wind is in discussions with the RI Division of Marine Fisheries and NMFS in regard to any time-of-year schedule constraints.
5. A narrative report including the following:	Refer to the enclosed narrative, Sections 1, 2, 3 & 4 herein.
a. The proposed dredging method and an estimate of the length of time to conduct the dredging project.	Refer to Section 2 and Section 4.0 (Table 4-1) herein.

Application Requirement	Where Provided in Application
b. Calculations verifying the estimated volume of dredge material in cubic yards (cy).	Refer to Attachment C-2, HDD Engineering Drawings
c. Aquatic resources in the area such as shellfish beds, eelgrass beds, migratory pathways, habitat for finfish, etc.	Refer to Sections 3.1, 3.2, 3.3, and 3.4 herein.
d. Information on past dredging events, historical spills, past sediment test data taken in or near proposed dredge area, and the presence of outfalls for both the dredging and surrounding areas.	SouthCoast Wind reviewed dredge permit information for two adjacent projects: New England Boatworks (CRMC File 2016-10-057); Bonnet Shores Fire District (CRMC File 2018-12-021). SouthCoast Wind did not identify any conflicts with these separate and distinct dredging projects.
e. The method of transport to the disposal area.	No in-water or upland disposal of dredged material is proposed. Sediment that is temporarily excavated / dredged will be side-cast adjacent to the offshore excavations and will be used to backfill the HDD construction areas; therefore, no dewatering of dredged material is proposed. Refer to Section 4.2.
f. Calculations verifying the capacity of any dewatering area(s) and the disposal area (Does not apply to CAD cells nor RISDS disposals).	No dewatering of dredged material is proposed. Refer to Section 4.2.
g. A letter from the property owner of the dewatering and the disposal areas indicating approval for the estimated volume of dredge material to be dewatered and/or disposed of on their property (Does not apply to CAD cells nor RISDS disposals).	Not Applicable
6. Approval letters from the solid waste landfill and/or the RIDEM – OLRSMM may be required for upland disposal at a solid waste landfill.	Not Applicable
7. Disposal in open water requires a narrative discussing the alternatives to open water disposal that were considered and why these alternatives were not chosen. The Office of Water Resources (OWR) will coordinate with the ACOE and the EPA in developing a sampling plan for open water disposal.	Not Applicable
Marinas:	Not Applicable

Application Requirement	Where Provided in Application
Harbor Management Plans:	Not Applicable
Flow Alterations and Water Withdrawals:	Not Applicable
Filling of Waters of the State:	Refer to Section 2 and Section 3 herein. Secondary cable protection is discussed in Section 2.3.9 herein.
1. Site Plans must include the following: (a) The existing and proposed physical site conditions. (b) MHW and MLW elevations (c) The datum used to reference all grades and depths (NAVD88 where possible)	Refer to Attachment C-1 Offshore Export Cable Engineering Drawings and Attachment C-2 HDD Engineering Drawings. See also Attachment A Project Figures.
2. A species inventory addressing aquatic resources and community structure. The scope of work must be approved by the OWR prior to performing the inventory.	Refer to Section 3. In addition, a species inventory is provided in the Benthic Habitat Mapping Report (Attachment H) and Essential Fish Habitat and Protected Fish Species Assessment (Appendix N of the COP)
3. A narrative report including: (a) Analysis of the existing uses of the area and discussion of any changes that will result due to the project. (b) A description of the need for the filling and a discussion of the alternatives to filling that were investigated.	A narrative report evaluating purpose and need, alternatives, existing uses and potential impacts is provided herein. Refer to Section 1.
4. Proposed mitigation to filling and resulting impacts.	Refer to Sectiond 2 and 3 herein.
5. Calculations showing the proposed volume of new net Fill in State waters (in cubic yards).	Refer to Attachment C-2, HDD Engineering Drawings.
Hydropower/FERC Projects:	Not Applicable

EXECUTIVE SUMMARY

SouthCoast Wind Energy LLC (formerly known as Mayflower Wind Energy LLC) (SouthCoast Wind) is a 50:50 joint venture between Shell New Energies US LLC and Ocean Winds North America LLC. The combined experience brings a depth of real-world experience in designing, permitting, financing, constructing, and operating offshore wind projects. SouthCoast Wind is registered to do business in Rhode Island.

SouthCoast Wind is developing an offshore wind energy generation facility in federal waters in the designated Bureau of Ocean Energy Management Renewable Energy Lease Area OCS-A 0521 (Lease Area) located approximately 51 nautical miles (94 kilometers) southeast of the Rhode Island coast. The Lease Area is not within Rhode Island jurisdictional areas, and specifically, it is not within the Geographic Location Descriptions defined in the Rhode Island Ocean Special Area Management Plan.

Up to 147 wind turbine generators are planned within the Lease Area with the potential to generate an estimated 2,400 megawatts (MW) of clean renewable energy. SouthCoast Wind is developing two interconnection projects to connect export cables from the Lease Area to the regional power grid. The SouthCoast Wind 1 Project will connect at Brayton Point in Somerset, Massachusetts and the Falmouth Connector Project will connect at Falmouth, Massachusetts (see Figure 1-1 in Attachment A). The Brayton Point point of interconnection was selected for the Project due to its robust capacity for energy injection into the existing electrical grid and the opportunity to redevelop a previously disturbed brownfield site formerly occupied by a coal burning power generation plant. This connector system is necessary to deliver the renewable clean energy generated by SouthCoast Wind's offshore energy generation facility to the New England region via the Independent System Operator - New England Inc. administered regional transmission system.

The SouthCoast Wind 1 Project in Rhode Island jurisdictional areas includes underwater cables with up to 1,200 MW of capacity running through Rhode Island Sound, the Sakonnet River, onshore underground crossings at Aquidneck Island in Portsmouth, Rhode Island then into Mount Hope Bay. At the onshore underground crossing of Aquidneck Island, the Project includes additional conduits (not additional cables) to accommodate up to 1,200 MW of additional transmission capacity if needed in the future. In the filing with the Rhode Island Energy Facility Siting Board, this option is referred to as the "Noticed Variation."

SouthCoast Wind is submitting this application to the Rhode Island Department of Environmental Management (RI DEM) for the following permits:

- State Water Quality Certification (WQC) pursuant to the Rhode Island state Water Quality Regulations (250-Rhode Island Code of Regulations [RICR]-150-05-1.15(A)(3)) and Section 401 of the federal Clean Water Act (CWA).
- Marine Dredging Permit pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the Rhode Island General Laws (R.I.G.L.); and § 2.4.13 in the Rules and Regulations for Dredging and the Management of Dredged Materials ("Dredging Regulations") (250 RICR-150-05-2).

SouthCoast Wind held a pre-filing meeting with the Rhode Island Coastal Resources Management Council (RI CRMC) and RI DEM on August 16, 2022, and has continued to hold monthly meetings with these agencies, plus additional meetings as needed. SouthCoast Wind is also submitting this package to the United States Army Corps of Engineers (USACE) - New England District in compliance with the 2020 EPA CWA Section 401 Rule.

SouthCoast Wind filed a Joint Category B Assent application (650-RICR-20-00-1) and Freshwater Wetlands Permit application under the Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast (650-RICR-20-00-9) with the RI CRMC on February 24, 2023. SouthCoast Wind anticipates that the RI DEM and RI CRMC will continue their joint consultations and reviews of SouthCoast Wind's filings for the SouthCoast Wind 1 Project.

The Project will also require a Coastal Zone Management Act (CZMA) concurrence from RI CRMC for portions of the Project within the Ocean Special Area Management Plan area. SouthCoast Wind filed the Rhode Island CZMA Consistency Certification with the RI CRMC on March 17, 2022.

Potential for water quality effects from the Project is primarily associated with sediment disturbance during cable construction and excavation/dredging of nearshore pits as part of horizontal directional drilling (HDD). The HDD technology will be used to avoid disturbance of sensitive nearshore and shoreline resources. A Project-specific quantitative model was completed to evaluate the potential water quality effects during construction. Based on the model results and the short duration of sediment disturbance, increased turbidity during cable installation and HDD excavation will dissipate quickly and will be short term, with no long-term effects on water quality.

Water quality effects from vessel operations are not anticipated. All operations will be compliant with relevant and applicable state and federal regulations for management, storage and disposal of equipment, fuels, maintenance materials and waste products. Water quality impairment issues in the Project Area include coliform bacteria, total nitrogen and dissolved oxygen in Mount Hope Bay and nearshore areas of the Sakonnet River. The Project will not result in any discharges related to these parameters and will not contribute to these water quality impairments.

The information presented in this WQC/Marine Dredging Permit application demonstrates compliance with applicable regulations referenced above. Details on Project design and activities are provided, along with the avoidance, minimization and mitigation measures that have been integrated into the Project design and engineering and will be implemented during the construction, operational and decommissioning phases. SouthCoast Wind has met with RI CRMC and RI DEM staff on a regular basis to gain input on Project design and the content of this application.

The SouthCoast Wind 1 Project will help meet Rhode Island's important public policy requirements regarding clean energy, climate change, energy security and economic advancement for the benefit of the region. Offshore wind will become a crucial resource not only because of its non-carbon emitting attributes, but because of its ability to provide power during extreme cold winter periods when other renewable resources are not available and traditional fossil-fuel generation resources become constrained. The Project will support the state's efforts to stimulate regional growth and economic activity while meeting the renewable energy goals in New England. SouthCoast Wind will pay the state of Rhode Island for the submerged lands lease for the offshore subsea cables in Rhode Island state waters. In addition, SouthCoast Wind has and will continue to work directly with the Town of Portsmouth to identify economic initiatives that directly benefit the Town and support the Town's Economic Development Plan.

SouthCoast Wind is developing the Project to meet the regional need for renewable clean energy from offshore wind generation. That need is driven by the strong public policies and legislative directives of the various New England states, especially Rhode Island and its neighboring coastal states, Massachusetts, and Connecticut. Those policies and legislative requirements require substantial reductions of greenhouse gas emissions and substantial increase of renewable clean energy into the regional electricity supply mix, delivered safely and reliably to the region from offshore wind.

1. INTRODUCTION

SouthCoast Wind Energy LLC (SouthCoast Wind) is a 50:50 joint venture between Shell New Energies US LLC (Shell New Energies) and Ocean Winds North America LLC (Ocean Winds). The combined experience brings a depth of real-world experience in designing, permitting, financing, constructing, and operating wind projects. SouthCoast Wind is registered to do business in Rhode Island.

SouthCoast Wind is developing an offshore wind renewable energy generation facility in federal waters in the designated Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0521 (Lease Area) located approximately 51 nautical miles (nm) (94 kilometers [km]) southeast of the Rhode Island coast. The Lease Area is not within Rhode Island jurisdictional areas, and specifically, it is not within the Geographic Location Descriptions (GLDs) defined in the Rhode Island Ocean Special Area Management Plan (Ocean SAMP).

Up to 147 wind turbine generators (WTGs) are planned within the Lease Area with the potential to generate an estimated 2,400 megawatts (MW) of clean renewable energy. SouthCoast Wind is developing two interconnection projects to connect export cables from the Lease Area to the regional power grid. The SouthCoast Wind 1 Project will connect at Brayton Point in Somerset, Massachusetts and the Falmouth Connector Project will connect in Falmouth, Massachusetts (see Figure 1-1 in Attachment A). The Brayton Point interconnection location was selected for the Project due to its robust capacity for energy injection into the existing electrical grid and the opportunity to redevelop a previously disturbed brownfield site formerly occupied by a coal burning power generation plant, which makes it situated in a prime location for an interconnection to the grid. This connector system is necessary to deliver the renewable clean energy generated by SouthCoast Wind's offshore energy generation facility to the New England region via the Independent System Operator - New England (ISO-NE) administered regional transmission system.

For purposes of this application, the Project includes export cables with 1,200 MW of capacity running through Rhode Island - specifically through Rhode Island Sound, the Sakonnet River, onshore underground crossing at Aquidneck Island in Portsmouth, Rhode Island (see Figure 1-2, Attachment A), then into Mount Hope Bay. At the onshore underground crossing of Aquidneck Island, the Project includes additional conduits (not additional cables) to accommodate 1,200 MW of additional transmission capacity if needed in the future. In the filing with the Rhode Island Energy Facility Siting Board (RI EFSB), this option is referred to as the "Noticed Variation." The *Project Concept Schematic* illustrating the regulatory jurisdictional areas of the SouthCoast Wind 1 Project is presented below.

SouthCoast Wind is submitting this application to the Rhode Island Department of Environmental Management (RIDEM) for the following permits:

- State Water Quality Certification (WQC) pursuant to the Rhode Island state Water Quality Regulations (250-Rhode Island Code of Regulations [RICR]-150-05-1.15(A)(3)) and Section 401 of the federal Clean Water Act (CWA).
- Marine Dredging Permit pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the Rhode Island General Laws (R.I.G.L.); and § 2.4.13 in the Rules and Regulations for Dredging and the Management of Dredged Materials ("Dredging Regulations") (250 RICR-150-05-2).

SouthCoast Wind is also submitting this package to the United States Army Corps of Engineers (USACE) - New England District in compliance with the 2020 CWA Section 401 Rule.

SouthCoast Wind will be filing a separate permit application with the RIDEM for coverage under the Rhode Island Pollutant Discharge Elimination System (RIPDES) Program General Permit for Stormwater Discharge Associated with Construction Activity (Construction General Permit or CPG), in compliance with the provisions of Chapter 46-12 of the Rhode Island General Laws, as amended and regulations for the RIPDES Program (250-RICR-150-10-1).

SouthCoast Wind filed a Joint Category B Assent application (650-RICR-20-00-1) and Freshwater Wetlands Permit application under the Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast (650-RICR-20-00-9) with the Rhode Island Coastal Resources Management Council (RI CRMC) on February 24, 2023. Please see Figure 1-3 for an illustration of RIDEM and RI CRMC regulatory jurisdiction. SouthCoast Wind anticipates that the RIDEM and RI CRMC will continue their joint consultations and reviews of SouthCoast Wind's filings for the SouthCoast Wind 1 Project.

1.1 Regulatory Requirements

SouthCoast Wind is seeking the following permits from the RIDEM for the SouthCoast Wind 1 Project in Rhode Island state waters.

1.1.1 State Water Quality Certification

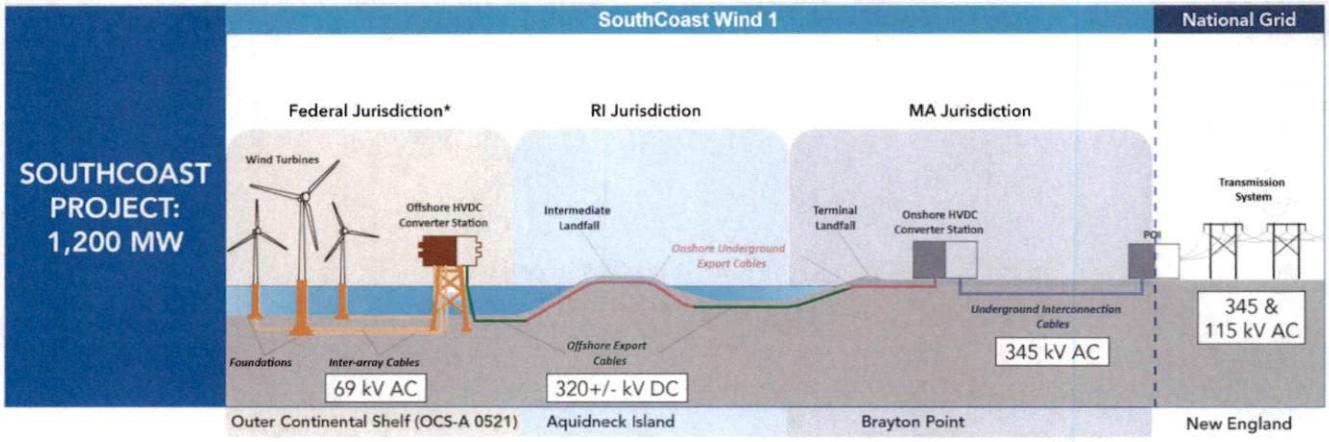
The Project includes the following proposed activities in Rhode Island state waters extending seaward to the three-nautical mile limit and subject to the jurisdiction of RIDEM pursuant to the RIDEM Water Quality Regulations (WQR) (250-RICR-150-05-1) and will require a WQC pursuant to WQR Section 1.15(A)(3):

- Installation, operation, and maintenance of two underwater power export cables and associated communications cabling, each approximately 20.4 miles (mi) (32.8 km) long.
- Possible placement of fill (i.e., secondary cable protection) in state waters over the proposed underwater export cables to protect segments of the submarine export cables and existing utilities.
- Installation of the underwater export cables at the Project's proposed landfall construction areas utilizing horizontal directional drilling (HDD) with work including temporary excavation / dredging at eight offshore HDD pits.

The RIDEM and the RI CRMC regulate waterbodies within Rhode Island jurisdiction through the RIDEM Surface Water Quality Standards and the Rhode Island Coastal Resources Management Plan (CRMP), respectively. The RIDEM Surface Water Quality Standards and Section 401 WQC Regulations categorize water quality standards for each waterbody. The waters of the state of Rhode Island are assigned a Use Classification which is defined by the most sensitive uses that it is intended to protect (see Section 3.2 of this Application for additional information).[1]

[1] 250-RICR-150-05-1

Overview of SouthCoast Project Components
Offshore to Onshore



Key

* BOEM review covers entire project

AC: Alternating current
DC: Direct current
kV: Kilovolt (measures voltage)
MW: Megawatt (measures bulk power)
POI: Point of interconnection to the regional grid

SOUTHCOAST WIND 1 PROJECT CONCEPT SCHEMATIC

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The RI CRMC assigns water use categories for marine and coastal waters in accordance with the CRMP as amended (aka, "The Redbook") Section 1.2.1 Tidal and Coastal Pond Waters A.[2] The ECC crosses the following water use categories (see Figure 1-5 Attachment A):

- Open waters in Rhode Island Sound that support a variety of commercial and recreational activities while maintaining good value as a fish and wildlife habitat and open waters in Mount Hope Bay that could support water dependent commercial, industrial, and/or high intensity recreational activities are classified as Type 4 Multipurpose Waters.
- The Sakonnet River is classified as Type 2 Low Intensity Use Waters characterized by high scenic value that support low intensity recreational and residential uses. These waters include seasonal mooring areas where good water quality and fish and wildlife habitat are maintained.
- A short segment of the Brayton Point ECC in lower Mount Hope Bay overlaps with Type 6 waters (see Figure 1-5, Attachment A). However, SouthCoast Wind has committed to routing the cable to avoid the Type 6 water area. To establish the boundaries of Type 6 waters, the CRMC established a buffer to federal navigation channels that measures three times the channel depth. Type 6 waters are categorized for (i) industrial waterfronts, and (ii) commercial navigation channels. SouthCoast Wind has committed to the USACE and the United States Coast Guard (USCG) to routing the offshore export cables outside of Type 6 waters including the Mount Hope Bay main shipping channel, the Tiverton channel, and outside of the buffers to these federal navigation channels.

Compliance of the Project with the RIDEM regulatory standards is addressed in Section 4 of this Application.

1.1.2 Marine Dredging and Associated Activities Permit

A Marine Dredging Permit from RIDEM is required for the offshore HDD pits in the Sakonnet River and in Mount Hope Bay pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the R.I.G.L.; and §2.4.13 in the Dredging Regulations (250 RICR-150-05-2). The estimated volume of sediment to be temporarily excavated / dredged at each of the eight offshore HDD pits is 1,867 cubic yards (1,427 cubic meters). SouthCoast Wind plans to side-cast sediments adjacent to the offshore construction areas within the ECC to allow a readily available means of backfilling the trench and underwater cables. No offsite disposal of excavated sediment is planned.

1.1.3 Wetlands

The onshore Project components lie on or cross the jurisdictional boundary between RI CRMC and RIDEM review of wetlands. RI CRMC will be the sole freshwater wetland review agency in accordance with 650-RICR-20-00-9.5.4. Any Project impacts to freshwater wetlands within RIDEM jurisdiction or their contiguous areas is addressed in the Joint Application for a Category B Assent and Freshwater Wetlands Permit in the Vicinity of the Coast filed with the RI CRMC. No components of the Project are located within biological freshwater wetlands or biological coastal features as defined by Rhode Island regulations; nor is there any proposed discharge of fill or dredged material into freshwater wetlands. However, portions of the Aquidneck Island intermediate underground cable crossing route fall within contiguous areas of freshwater wetlands and river/stream pursuant to the CRMC Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast.[3]

[2] 650-RICR-20-00-1
[3] 650-RICR-20-00-9

1.2 PURPOSE AND NEED

The SouthCoast Wind 1 Project will help meet Rhode Island's important public policy requirements regarding clean energy, climate change, energy security and economic advancement for the benefit of the region. The overall purpose of the Project is to deliver approximately 1,200 MW of renewable clean energy to the New England regional electric grid. The SouthCoast Wind 1 Project is necessary to meet the needs of the state and region for substantial reductions in GHG emissions and substantial increase to the renewable clean energy supply, delivered safely and reliably to the region from offshore wind. By enabling delivery of the offshore wind energy, the Project will provide the region with substantial benefits, including environmental and economic benefits and strengthening of energy system reliability and energy security. The policies and legislative directives of the New England states, including Rhode Island, express a clear need for additional renewable clean energy generation from offshore wind.

The key public policy requirements in Rhode Island that drive the need for the Project are highlighted below.

1.2.1 Rhode Island Climate Change Legislation and Policies

Energy 2035: Energy 2035 identified offshore wind as Rhode Island's "most significant renewable energy resource."[4] Significantly, Energy 2035 established the goals to "increase sector fuel diversity, produce net economic benefits, and reduce greenhouse gas emissions by 45 percent by the year 2035."[5] To achieve these goals, Energy 2035 recommended numerous policy actions, including the promotion of local and regional renewable energy.[6] To achieve this goal, Energy 2035 specifically prescribed procuring additional renewable energy "through support for state and federal offshore wind projects."[7]

Rhode Island 2030 Vision Plan: While only 19% of the State's electricity consumption currently comes from renewable resources, Rhode Island has a roadmap to source 100% of its electricity from renewable resources by 2030. In October 2021, Governor Dan McKee released a working draft of a vision plan for the next decade in Rhode Island, *Rhode Island 2030: Charting a Course for the Future of the Ocean State* (Rhode Island 2030).[8] Rhode Island 2030 focuses on harnessing the State's "Blue Economy" as well as the "Green Economy." An industry that perfectly fits in both of these categories is the offshore wind industry. As an Infrastructure and Transportation Objective, Rhode Island 2030 states, "Infrastructure that supports the Blue Economy and life sciences, including ports that support offshore wind activity and site readiness work that enables future industrial and commercial development."[9] The plan notes that the State will continue to invest in needed infrastructure for offshore wind in pursuit of the State's renewable energy goals.

Executive Order No. 20-01, Advancing a 100% Renewable Energy Future for Rhode Island by 2030: In January 2020, then Governor Gina Raimondo issued an Executive Order committing Rhode Island to be powered by 100% renewable electricity by 2030.[10] This Executive Order committed Rhode Island "to mitigating economy-wide greenhouse gas emissions and their effect on climate change, while spurring new and innovative opportunities for investment and job growth throughout the state's clean energy economy."[11] The Executive Order further found that "a clean and affordable future electric grid will require a diverse combination of

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[4] Energy 2035 at 15.
[5] *Id.* at 34.
[6] *Id.* at 62-63.
[7] *Id.* at 63.
[8] Rhode Island 2030: Charting a Course for the Future of the Ocean State, Working Document (2021) https://www.ri2030.com/_files/public/RI%202030_final.pdf.
[9] *Id.* at 50.
[10] Rhode Island Executive Order No. 20-01, Advancing a 100% Renewable Energy Future for Rhode Island by 2030 (Jan. 17, 2020) https://governor.ri.gov/executive-orders/executive-order-20-01 .
[11] *Id.*

responsibly- developed resources to power our economy while maintaining reliability, including, but not limited to, offshore wind, solar, on-shore wind, and storage."[12]

Resilient Rhode Island Act and Rhode Island Greenhouse Gas Emissions Reduction Plan: In 2014, the General Assembly passed the *Resilient Rhode Island Act*. That act created the Rhode Island Executive Climate Change Coordinating Council (RIEC4), which is charged with working to achieve Greenhouse Gas (GHG) reduction targets: 10% by 2020, 45% by 2035, and 80% by 2050.[13] In 2016, RIEC4 released the *Rhode Island Greenhouse Gas Emissions Reduction Plan*, which identified strategies and actions to meet the GHG reduction targets.[14] The 2016 Plan specifically emphasized the importance of renewable and clean energy, specifically offshore wind, to aid Rhode Island in meeting its GHG reduction goals.[15]

2021 Act on Climate: In 2021, the General Assembly amended the *Resilient Rhode Island Act* through the passage of the *2021 Act on Climate* with the intent of increasing Rhode Island's efficiency and effectiveness in responding to climate change. The *2021 Act on Climate* sets mandatory and enforceable targets for reducing greenhouse-gas emissions and transitioning to a low carbon economy.[16] The *2021 Act on Climate* requires that the RIEC4 update the Greenhouse Gas Emissions Reduction Plan to develop a plan to reduce climate emissions to net zero by 2050. This plan is required to be delivered to the General Assembly by December 31, 2025.

Affordable Clean Energy Security Act of 2022: On July 6, 2022, Governor Dan McKee signed into law the *Relating to Public Utilities and Carriers – Affordable Clean Energy Security Act* that seeks to expand Rhode Island's offshore energy resources. In issuing the legislation, Governor McKee stated: "Adding offshore wind clean energy capacity is essential to meeting our new 100 percent renewable energy by 2033 goal and our Act on Climate emissions reduction target."[17]

1.2.2 Regional Energy Supply and Transmission System Reliability

States in the New England region have conducted procurements of offshore wind energy through competitive solicitations.[18] SouthCoast Wind has participated in some of these and has been awarded two power purchase agreements (PPAs). SouthCoast Wind plans to develop the full capacity of the Lease Area (an estimated 2,400 MW) and obtain power purchase commitments for the full output of its offshore wind renewable energy generation facility. SouthCoast Wind currently intends to participate in future competitive solicitations for offshore wind procurement. In Massachusetts, SouthCoast Wind has participated in two offshore wind procurements conducted pursuant to legislation, the 2019 and 2021 Offshore Wind Solicitations, in accordance with Section 83C II and Section 83C III of the *Massachusetts Energy Diversity Act of 2018*. SouthCoast Wind's current PPAs for the Project total 1,204 MW from the offshore wind energy facility.

The Project is necessary to connect the SouthCoast Wind offshore wind renewable energy generation facility to the ISO-NE grid. The offshore wind generation will help meet the need for GHG emissions reductions and increase in clean energy supply, including from offshore wind, in the region, as expressed in the state policies and legislative directives listed above.

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[12] *Id.*
[13] R.I.G.L. § 42-6.2 et seq.
[14] RIEC4, Rhode Island Greenhouse Gas Emissions Reduction Plan (December 2016). http://climatechange.ri.gov/documents/ec4-ghg-emissions-reduction-plan-final-draft-2016-12-29-clean.pdf.
[15] *Id.* at 18, 27, 30, 36.
[16] R.I.G.L. § 42-6.2 et seq.
[17] State of Rhode Island Office of Energy Resources. 2022. Governor McKee Signs Legislation Requiring Offshore Wind Procurement for 600 to 1,000 Megawatts. July 6, 2022. https://energy.ri.gov/press-releases/governor-mckee-signs-legislation-requiring-offshore-wind-procurement-600-1000.
[18] *See* CT Public Act 19-71 (directing DEEP to procure 2,000 MW of offshore wind energy).

SouthCoast Wind's offshore energy generation facility is approximately 51 nm (94 km) southeast of the coast of Rhode Island and requires new transmission infrastructure to connect to the onshore electric grid. Both the offshore and the onshore Project components are integral to the Project being able to deliver its energy to the New England grid and to facilitate a safe and reliable interconnection.[19]

Therefore, the existing transmission system is inadequate to interconnect SouthCoast Wind's offshore wind renewable energy generation facility and the proposed new transmission is needed to interconnect it to the regional electrical grid safely and reliably.

In developing this new transmission in the Project, SouthCoast Wind has engaged in an extensive analysis of offshore and onshore routing alternatives to avoid, minimize and/or mitigate impacts in the Town of Portsmouth, Rhode Island and surrounding communities including those on the Sakonnet River and Mount Hope Bay. See Attachment B Route Alternatives Assessment. The SouthCoast Wind 1 proposed point of Interconnection (POI) at Brayton Point will provide the offshore wind renewable energy generation facility with a strong interconnection to the regional transmission system for the reliable delivery of renewable clean energy.

1.3 Other Project Approvals and Permits

In addition to a state water quality certification and a marine dredging permit, the Project requires permits and approvals from other state and federal regulatory agencies. Notably, SouthCoast Wind will also apply for several environmental permits and approvals at the state level through the RI CRMC.

1.3.1 Rhode Island Coastal Resources Management Council

Category B Assent. SouthCoast Wind filed a joint Category B Assent and Freshwater Wetlands Permit Application with the RI CRMC on February 24, 2023. The Project falls under the jurisdiction of the CRMC as it is located in areas regulated by the RI CRMC's CRMP (650-RICR-20-00-01) under Sections 1.2.1 - Tidal and Coastal Pond Waters and Section 1.2.2 - Shoreline Features.

Freshwater Wetlands Permit. The Project will require a Freshwater Wetlands Permit from the RI CRMC for work activities located within the 200-foot contiguous area to a coastal wetland pursuant to the Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast. Updated RI CRMC regulations relating to Freshwater Wetlands in the Vicinity of the Coast (650-RICR-20-00-9 et seq.) went into effect on July 1, 2022. Under these new regulations, RI CRMC no longer regulates "Riverbank Area" and "Perimeter Wetland" portions of freshwater wetlands in the vicinity of the coast. Under the new regulations, RI CRMC regulates a Jurisdictional Area which includes the resource (i.e., wetland or stream) and a contiguous area extending 200 feet outward from a river / stream and 100 ft outward from a freshwater wetland. The contiguous area includes the resource's Buffer Zone and Buffer.

Submerged Lands Lease. The Project, namely the offshore underwater export cables extending between the mean high-water mark seaward to the limit of the Rhode Island territorial waters, is under the purview of the Rhode Island Coastal Zone Management Act G.L. 46-23-1 et seq. authorizing the RI CRMC to review and issue Submerged Lands Lease. The regulations set forth in the Rhode Island Ocean Special Area Management Plan allow the RI CRMC to issue a Submerged Lands License for Renewable Energy Development, such as the offshore underwater export cables proposed by SouthCoast Wind.

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[19] *See In re: the Issuance of an Advisory Opinion to the Energy Facility Siting Board Regarding Revolution Wind, LLC's Application to Construct and Alter Major Energy Facilities*, RI EFSB Docket No. 5151 (August 26, 2021) http://www.ripuc.ri.gov/efsb/2021_SB-01/PUC%20Advisory%20Opinion%20-%20Revolution%20Wind%20(8-26-2021).pdf.

Construction General Permit. The RIDEM Office of Water Resources implements the RIPDES program. The purpose of this program is to restore, preserve, and enhance the quality of the surface waters and to protect the waters from discharges of pollutants so that the waters will remain available for all beneficial uses and thus protect the public health, welfare, and the environment. A CPG will be required to authorize discharges pursuant to R.I.G.L. § 46-12 as amended and regulations for the RIPDES Program (250-RICR-150-10-1).

Federal Consistency Concurrence. The Project will require concurrence from RI CRMC with SouthCoast Wind's Federal Consistency Certification pursuant to Section 307 of the Coastal Zone Management Act, Coastal Zone Management Act regulations and § 11.10 of Rhode Island Ocean SAMP. SouthCoast Wind filed the Rhode Island Coastal Zone Management Act Consistency Certification with the RI CRMC in March 2022.

1.3.2 Rhode Island Natural Heritage Program

RIDEM Natural Heritage Area Review. Pursuant to the Rhode Island Endangered Species Act, SouthCoast Wind has consulted with the Rhode Island Natural Heritage Program. SouthCoast Wind reviewed the RIDEM Natural Heritage Area overlays available on the RIDEM Environmental Resource Mapping website and determined that there are three natural heritage areas that overlap the Project Study Area, indicating potential state-listed species. SouthCoast Wind contacted RIDEM on April 8, 2022, to inquire about the species listing for these areas. RIDEM responded on April 11, 2022, with a list of species of concern identified near the Project Area. SouthCoast Wind followed up with RIDEM on February 10, 2023, for an updated list of species of concern near the Project Area.

1.3.3 Summary of Other Permits, Reviews, and Approvals

Table 1-1 provides a summary of the other required approvals and permits along with dates of approval or estimated dates of approvals for those permits that have not been issued.

TABLE 1-1. SUMMARY OF THE PROJECT'S FEDERAL AND STATE PERMITS, REVIEWS, AND APPROVALS

Agency/Regulatory Authority	Permit/Approval	Status
Federal		
BOEM[20]	Site Assessment Plan (SAP)	Approved by BOEM May 26, 2020.
	Certified Verification Agent (CVA) Nomination	Approved by BOEM November 4, 2020.
	Departure request for the early fabrication of SouthCoast Wind's Offshore Substation Platform(s) (OSP) and inter-array cables.	Approved by BOEM December 1, 2020.

[20] In its review of the COP, BOEM must comply with its obligations under the NEPA, the National Historic Preservation Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Migratory Bird Treaty Act, the Clean Air Act, and the ESA. Thus, BOEM coordinates and consults with numerous other federal agencies including the National Marine Fisheries Service, United States Fish and Wildlife Service, the Environmental Protection Agency, and the United States Coast Guard during the review process. BOEM also coordinates with the states under the Coastal Zone Management Act to ensure that the project is consistent with the state's coastal zone management program.

Agency/Regulatory Authority	Permit/Approval	Status
	Construction and Operations Plan (COP)	COP filed February 15, 2021. BOEM published a Notice of Intent to Prepare an Environmental Impact Statement for the review of the COP on November 1, 2021. Draft Environmental Impact Statement issued on February 13, 2023.
	National Environmental Policy Act (NEPA) Review	Initiated by BOEM on November 1, 2021.
	Facilities Design Report and Fabrication & Installation Report	Filing planned for Q1 2024.
U.S. Department of Defense Clearing House	Informal Project Notification Form	Submitted May 11, 2020.
U.S. Army Corps of Engineers (USACE)	Individual Clean Water Act (CWA) Section 404 Permit. Rivers and Harbors Act of 1899 Section 10 Permit.	Submitted December 2, 2022. Application deemed complete by USACE on February 2, 2022.
U.S. Coast Guard (USCG)	Private Aids to Navigation Authorization	To be filed 3-6 months prior to offshore construction.
	Local Notice to Mariners	To be filed prior to offshore construction.
U.S. Environmental Protection Agency (USEPA)	National Pollutant Discharge Elimination System General Permit for Construction Activities	Submitted October 31, 2022.
	Outer Continental Shelf Permit Clean Air Act	Submitted November 23, 2022.
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act Section 7 consultation Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA) compliance.	No take authorization is expected to be requested and coordination with USFWS has been initiated and will continue. Basic site evaluation and characterization studies completed and detailed studies ongoing.

Agency/Regulatory Authority	Permit/Approval	Status
National Oceanic and Atmospheric Administration (NOAA) **U.S. National Marine Fisheries Service (NMFS)**	Marine Mammal Protection Act (MMPA) Incidental Harassment Authorization (IHA) or Letter of Authorization (LOA)	Pre-construction: Concurrence for 2019 Geophysical and Geotechnical (G&G) surveys was issued by NMFS on July 26, 2019. IHA for 2020 G&G surveys issued on July 23, 2020. IHA for 2021 G&G surveys issued on July 1, 2021. LOA Application for offshore construction and operations filed March 18, 2022 and deemed complete by NMFS September 19, 2022. IHA for 2023 G&G surveys submitted on November 16, 2022. Submitted request for IHA Abbreviated Notice per NMFS guidance on January 13, 2023. Application deemed Adequate and Complete on January 24, 2023.
Federal Aviation Administration (FAA)	Determination of No Hazard to Air Navigation	It is not currently anticipated that a Determination of No Hazard will be required for offshore structures in the Lease Area due to their location outside of 12 nm (22 km); nor will this be required for the onshore substation or converter station due to the maximum height of these structures. SouthCoast Wind continues to engage with the Federal Aviation Administration with regards to whether any review and/or authorization is required for offshore equipment deployed to support horizontal directional drilling installation of the export cables.
State/Rhode Island		
Rhode Island Coastal Resources Management Council (RI CRMC)	Coastal Zone Management Consistency Determination under the Federal Coastal Zone Management Act (16 United States Code [U.S.C.] §§ 1451-1464) and in accordance with the Rhode Island Coastal Resources Management Program and Special Area Management Plans.	Filed March 15, 2022.

Agency/Regulatory Authority	Permit/Approval	Status
	Category B Assent and Submerged Lands License pursuant to R.I.G.L. § 46-23 and 650-RICR-20-00-1 and 650-RICR-20-00-2.	Filed February 24, 2023.
	Submerged Lands License pursuant to R.I.G.L. § 46-23 and 650-RICR-20-00-1 and 650-RICR-20-00-2.	Filing TBD based on consultation with CRMC.
	Freshwater Wetlands Permit pursuant to the Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast (650-RICR-20-00-2.1 et seq.) (R.I.G.L. § 46-23-6).	Filed February 24, 2023.
	LOA/Survey Permit, if needed, in accordance with the R.I.G.L. § 46-23 and 650-RICR-20-00-1.	Approved July 7, 2021 for Summer 2021 benthic surveys; Approved February 4, 2022 for Spring 2022 benthic surveys.
Rhode Island Energy Facility Siting Board (RI EFSB) and Rhode Island Public Utilities Commission (RI PUC)	Certificate of necessity/public utility.	Application for a License to Construct Major Energy Facilities filed May 31, 2022, and docketed as of June 24, 2022 (Docket Number SB-2022-02).
Rhode Island Historical Preservation and Heritage Commission (RIHPHC)	Permission to conduct archaeological field investigations (pursuant to the Antiquities Act of R.I.G.L. 42-45 and the Rhode Island Procedures for Registration and Protection of Historic Properties).	Marine Survey approved on July 2, 2021. Phase 1 Permit (No. 21-32) issued on December 17, 2021; Terrestrial Archaeological Resources Assessment (Phase 1A/1B Report) filed March 14, 2022. Marine Archaeological Resources Assessment (MARA) submitted March 16, 2022.
	Section 106 Consultation	Initiated November 1, 2021.
Rhode Island Department of Environmental Management (RIDEM)	Consultation with the Rhode Island Natural Heritage Program and Division of Fish and Wildlife	Information provided by RIDEM on June 24, 2021. Updated information provided by RIDEM on April 11, 2022.
	Water Quality Certification pursuant to Section 401 of the Clean Water Act, 33 U.S.C. § 1251 et seq. and R.I.G.L. § 46-12-3 and Dredging Permit pursuant to the Marine Infrastructure Maintenance Act of 1996 and RI Rules and Regulations for Dredging and the Management of Dredged Materials (R.I.G.L. §§ 46-6.1 et seq.) and Rhode Island Water Quality Regulations (R.I.G.L. §§ 46.12	Filing planned for Q1 2023.

Agency/Regulatory Authority	Permit/Approval	Status
	et seq.); (Dredging permit is issued jointly by RIDEM and RI CRMC under RIDEM dredging regulations).	
	Rhode Island Pollution Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity pursuant to R.I.G.L. § 42-12 as amended. Authorization under the RIPDES CGP.	Filing anticipated on or about Q3 2023 - prior to construction by SouthCoast Wind.
RIDEM Division of Fish and Wildlife (RI DFW)	Letter of Authorization and/or Scientific Collector's Permit (for surveys and pre-lay grapnel run), if needed.	TBD based on consultations with RIDEM Division of Fish & Wildlife.
	Consultation with the Rhode Island Natural Heritage Program and Division of Fish and Wildlife	Information provided by RIDEM on June 24, 2021. Updated information provided by RIDEM on April 11, 2022. RI Natural Heritage Program confirmed state listed species data again on February 10, 2023.
Rhode Island Department of Transportation (RIDOT)	Utility Permit/Physical Alteration Permit pursuant to R.I.G.L. Chapter 24-8.	Filing planned for Q4 2023 (if applicable).
Local (for portions of the SouthCoast Wind Project within local Rhode Island jurisdiction)		
Portsmouth Department of Public Works	Street Excavation and Curb Cuts Permit	Filing planned 2023. TBD based on consultation with Town and Portsmouth and Director of Public Works.
Portsmouth Zoning and Planning Boards	Special Use Permit/Variances and Consistency with Comprehensive Community Plan	Filing planned 2023. TBD based on consultation with Town and Portsmouth Planning Director.
Portsmouth Town Council	Noise Variance	Filing planned 2023. TBD based on consultation with Town and Town Council.
State/Massachusetts		
Massachusetts Executive Office of Energy and Environmental Affairs (EEA)	MEPA Environmental Notification Form (ENF) and Environmental Impact Report (EIR) Certificate of Secretary of EEA.	Advanced notice of MEPA ENF Filing was sent to all relevant Community-Based Organizations and tribes on June 22, 2022. ENF filed on August 12, 2022. ENF Certificate of EEA Secretary issued on October 11, 2022.

Agency/Regulatory Authority	Permit/Approval	Status
		Filed SouthCoast Wind 1 Draft Environmental Impact Report (DEIR) on February 1, 2023. Final EIR (FEIR) anticipated in Q2/Q3 2023.
Massachusetts Energy Facilities Siting Board (MA EFSB)	Approval to construct the proposed Project, pursuant to G.L. c. 164, § 69J (Siting Petition). Certificate of Environmental and Public Need (Section 72 Approval Consolidated with MA EFSB).	Filed May 27, 2022. Public Comment Hearing held on October 11, 2022.
Massachusetts Department of Public Utilities (MA DPU)	Approval to construct and use proposed Project pursuant to G.L. c. 164, § 72 (Section 72 Petition) consolidated with MA EFSB proceeding. Individual and comprehensive exemptions from the zoning bylaws of Somerset for the proposed Project pursuant to G.L. c. 40A § 3 (Zoning Petition) consolidated with MA EFSB proceeding.	Filed concurrently with the MA EFSB Petition and Analysis on May 27, 2022.
Massachusetts Department of Environmental Protection (MassDEP)	Chapter 91 Waterways License/Permit for dredge, fill, or structures in waterways or tidelands. Section 401 Water Quality Certification.	Joint application filing planned for Q2 2023.
Massachusetts Office of Coastal Zone Management (MA CZM)	MA CZM Consistency Determination	Filed with COP on February 15, 2021 (Appendix D1). Revised version filed January 13, 2022. Executed one-year stay with MA CZM beginning on December 30, 2021, with MA CZM's review re-starting on December 30, 2022, and anticipated completion by May 31, 2023.
Massachusetts Department of Transportation (MassDOT)	State Highway Access Permit(s) (if needed)	Filing planned for Q3 2023, if needed.
Massachusetts Board of Underwater Archaeological Resources (MA BUAR)	Special Use Permit (SUP)	SouthCoast Wind 1 Provisional SUP issued on June 25, 2021. Filed MA BUAR SUP application for SouthCoast Wind 1 on August 26, 2021. SUP approved on September 30, 2021. SUP renewal approved on September 29, 2022.
Massachusetts Historical Commission (MHC)	Project Notification Form/Field Investigation Permits (980 CMR § 70.00)	Project Notification Form (PNF) submitted July 26, 2021.Terrestrial Archaeological Resources Assessment (Brayton Point Phase 1A Report) filed on March 14, 2022.

Agency/Regulatory Authority	Permit/Approval	Status
	Section 106 Consultation	Initiated November 1, 2021
Massachusetts Fisheries and Wildlife (MassWildlife) - Natural Heritage and Endangered Species Program (NHESP)	MA Endangered Species Act Checklist Conservation and Management Permit (if needed) or No-Take Determination.	Submitted Information Request for state-listed rare species on June 17, 2021. Massachusetts' NHESP issued a letter identifying state-listed protected species in proposed Brayton Point Project Area on July 23, 2021. Request for updated list filed with NHESP on March 31, 2022. NHESP issued letter regarding the SouthCoast Wind 1 Project Area on April 28, 2022; determined that the site is not mapped as Priority or Estimated Habitat. Endangered Species Act Checklist filing planned for Q3 2023, if applicable (upon Final Environmental Impact Report certificate).
Massachusetts Division of Marine Fisheries (MA DMF)	Letter of Authorization and/or Scientific Permit (for surveys and pre-lay grapnel run).	To be determined based on consultations with MA DMF.
Local (for portions of the SouthCoast Wind 1 Project within local Massachusetts jurisdiction)		
Somerset Planning & Zoning Board	Local Planning/Zoning Approval(s) (if needed)	Filing of application(s) tentatively anticipated for Q2 2024. Request for individual and comprehensive zoning exemptions filed [pursuant to G.L. c. 40A § 3 filed concurrently with the MA EFSB Petition and Analysis].
Somerset Conservation Commission	Notice(s) of Intent and Order(s) of Conditions (Massachusetts Wetlands Protection Act and municipal wetland non-zoning bylaws), as applicable.	Filing of Notice(s) of Intent planned for Q2 2023 (around conclusion of MEPA).
Somerset Department of Public Works, Board of Selectmen, and/or Town Council	Street Operating Permits/Grants of Location.	Filing of application(s) planned for Q4 2023 (if applicable).
Swansea Conservation Commission	Notice(s) of Intent and Order(s) of Conditions (Massachusetts Wetlands Protection Act and municipal wetland non-zoning bylaws).	Filing of Notice(s) of Intent planned for Q2 2023 (around conclusion of MEPA), if applicable.

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2. SITING AND PROJECT DESCRIPTION

This section includes a description of the Project and an overview of the siting process used by SouthCoast Wind. Referenced Project figures are included in Attachment A, Offshore Export Cable Engineering Drawings (Attachment C -1) and HDD Engineering Drawings (Attachment C-2).

SouthCoast Wind is developing an offshore wind energy generation facility capable of generating an estimated 2,400 MW of renewable clean energy. Export cables connecting the energy generation facility with the regional transmission system at Brayton Point in Somerset, Massachusetts, will run through Rhode Island state waters (specifically Rhode Island Sound, the Sakonnet River and Mount Hope Bay) and overland at Portsmouth, Rhode Island. For purposes of this application, the Project is defined as the transmission components located within Rhode Island-jurisdictional areas listed below and shown on the Project overview maps (Figures 1-2 and 1-3 in Attachment A). The Project includes the following components proposed in Rhode Island state waters:

- Two HVDC submarine power cables and associated communications cabling located within the ECC. The cables will be installed in a bundled configuration where practicable (see cable bundle cross-sectional view in Attachment A). Approximate cable route lengths within Rhode Island state waters are as follows:
    - 5.3 mi (8.6 km) in Rhode Island Sound
    - 11.0 mi (17.7 km) in the Sakonnet River
    - 4.0 mi (6.4 km) in Mount Hope Bay (portion in Rhode Island state waters)
- Eight HDD offshore pits in total; four HDD pits at each of two landfalls on either side of Aquidneck Island at Portsmouth, Rhode Island, in the Sakonnet River and in Mount Hope Bay. These eight pits will require dredging/excavation to facilitate HDD of the cable landfalls. Each offshore HDD pit will be located approximately 1,000 ft (300 meters [m]) from the Portsmouth shoreline.

The Project also includes the following onshore components, which are not subject to this Application, in Portsmouth, Rhode Island:

- Two landfall construction areas on Aquidneck Island in Portsmouth, Rhode Island for HDD construction activities (subject to obtaining the necessary easements):
    - One landfall construction area on the northeast (Sakonnet River) side of Portsmouth will occupy the corner of Boyds Lane and Park Avenue.
    - One landfall construction area on the northwest (Mount Hope Bay) side of Portsmouth, either:
        - Within the Montaup Country Club parking lot (preferred)
        - Within land owned by Roger Williams University on the northern side of Anthony Road (RWU North parcel alternate)
- Two new underground onshore HVDC export power cables and associated communications cabling co-located within a single underground duct bank and manhole system through the proposed onshore export cable route in the Town of Portsmouth.

2.1 PROJECT SITING

The Project was sited based on a thorough assessment of alternative points of interconnection (POIs) to the electric grid and cable routing to connect to the selected POI. A detailed analysis of alternative routes considered for interconnection to the selected POI at Brayton Point is included in Attachment B and an overview is provided below.

Transmission and interconnection facilities are necessary to deliver electricity from the SouthCoast Wind Offshore Generation Facility to the regional electric grid. SouthCoast Wind considered and evaluated alternative potential POIs to the grid, offshore ECCs, landfall site alternatives, onshore export cable routes, and transmission technologies. Some of these alternatives were eliminated based on technical or commercial feasibility assessments, or the inability of the alternative to address the identified interconnection need. Other alternatives that were found to be feasible and capable of addressing the identified need were further examined on the basis of constructability, operability, environmental impacts, estimated costs and reliability assessments.

Delivery of an estimated 2,400 MW of clean power will likely necessitate multiple POIs for several reasons, most notably that individual connections to the regional transmission system are limited by ISO-NE to 1,200 MW maximum for reliability reasons. SouthCoast Wind considered multiple coastal interconnection points with suitable electrical characteristics, accessibility, and potential nearby land for the required substation/converter station facilities. Two POIs were selected: one at Brayton Point in Somerset, Massachusetts and one in Falmouth, Massachusetts.

Brayton Point was selected as the POI for 1,200 MW of clean renewable energy because SouthCoast Wind has a PPA to deliver energy to a POI to Brayton Point in Massachusetts. Brayton Point is a previously disturbed brownfield site and the site of a former coal burning power generation plant which makes it situated in a prime location for an interconnection to the grid.

Fourteen onshore and offshore export cable route combinations to connect to the Brayton Point POI were considered by SouthCoast Wind. The list captures a representative array of overland and in-water routes to the Brayton Point POI. Please refer to Attachment B for the SouthCoast Wind 1 Project Route Alternatives Assessment.

SouthCoast Wind evaluated the following cable landing and onshore route alternatives that would avoid cable installation in Narragansett Bay and the Sakonnet River:

- Three routes landing in Middletown, Rhode Island.
- Two routes landing in Little Compton, Rhode Island.
- One route landing in Westport, Massachusetts.

Key evaluation factors for the onshore routes included:

- Environmental resources and conservation areas.
- Archaeological resources and cultural resource areas.
- Conflicts with residential uses.
- Potential socioeconomic effects due to use and space conflicts in heavily developed commercial and tourism areas, including Environmental Justice (EJ) populations.
- Avoidance of existing infrastructure and potential for effects on local communities.

- Space limitation for construction adjacent to small, 2-lane roads.
- Duration of construction activities and increased impacts with longer duration construction periods.

Most of the routes were down-selected by the alternatives analysis screening process. The selected alternative is the route in the Sakonnet River with an approximately 2.0-mi (3.2-km) intermediate onshore underground crossing in Portsmouth. The HVDC export cables will make intermediate landfall on Aquidneck Island in Portsmouth, Rhode Island to avoid a narrow and highly constrained area of the Sakonnet River at the old Stone Bridge and Sakonnet River Bridge (an area referred to as "The Hummocks"). This reach of the Sakonnet River poses a significant risk and challenge to (i) maneuvering survey vessels and cable-lay vessels, (ii) achieving target burial depth of the cables, and (iii) minimizing impacts to the marine environment.

2.2 CONSTRUCTION SCHEDULE IN RHODE ISLAND

The construction schedule is being developed based on seasonal constraints including minimization of activities during months of peak recreational onshore and offshore uses, commercial and recreational fishing, and life cycles of sensitive species. To discuss seasonal constraints on in-water work schedules, SouthCoast Wind has met with staff from the Rhode Island Division of Marine Fisheries (RI DMF), Massachusetts Division of Marine Fisheries (MA DMF), the Rhode Island Coastal Resources Management Council (RI CRMC), the United States Army Corps of Engineers (USACE), the United States Environmental Protection Agency (USEPA), and National Marine Fisheries Service (NMFS); discussions are continuing to finalize a schedule. Tables 2-1 and 2-2 provide an overview of expected durations for both onshore and offshore construction activities.

TABLE 2-1. PLANNED HDD CONSTRUCTION SCHEDULE IN PORTSMOUTH, RHODE ISLAND

Activity	Expected Duration
HDD – Exit Pit Excavation / Prep at Each Landfall	Less than 1 week (per landfall)
HDD – Drilling Operation at Aquidneck – Boyds Lane Landfall	2-4 months
HDD – Drilling Operation at Aquidneck – Montaup Country Club Landfall/RWU North parcel Alternate	2-4 months

*HDD drilling may be conducted simultaneously.

TABLE 2-2. PLANNED CONSTRUCTION SCHEDULE IN RHODE ISLAND STATE WATERS

Activity	Expected Duration (In-Water)
Boulder Re-Location	Less than 1 week (1-4 days)
Crossing Preparation (Mattress/Rock Installation)	Less than 1 week (2-3 days)
Pre-Lay Grapnel Run (PLGR)	Less than 1 week (3-4 days)
Cable Lay & Burial: Rhode Island Sound & Sakonnet	3-6 weeks
Cable Lay & Burial: Mount Hope Bay	1-2 weeks
Cable Pull-In Each Landfall	Less than 1 week (per landfall)
Post-Lay Protection (Mattress/Rock Installation)	Less than 1-week (4-6 days)

2.3 OFFSHORE EXPORT CABLE DESIGN AND CONSTRUCTION

2.3.1 Engineering Design and Micro-Routing

SouthCoast Wind collected geophysical, geotechnical, and benthic/habitat field survey data within the entire ECC, which is 1,640 ft (500 m) to 2,300 ft (700 m) wide. Based on this survey data, sensitive environmental and cultural resources and geohazards were mapped to guide cable routing within the ECC with the objectives (to the extent practicable) of meeting the cable burial target depth, minimizing the impacts to sensitive habitat and avoiding surficial geologic and anthropogenic features as informed by data collected in the Geophysical & Geotechnical (G&G) surveys.

A Cable Burial Risk Assessment (CBRA; "Confidential" – provided under separate cover, Attachment D) was completed to evaluate risk that cables could be damaged or compromised by vessel anchoring or scour, based on specific uses and physical characteristics at any one location along the cable route. The output of the CBRA is used to identify specific target burial depths, which will vary along the cable route based on assessment of the local soil conditions and risk to the buried cables from external risk factors. In general, the anticipated cable burial depth range is 3.2 to 13.1 ft (1.0 to 4.0 m) with a target cable burial depth of approximately 6.0 ft (1.8 m).

Two power cables and associated communication cabling will be installed in a bundled configuration where practicable, resulting in an estimated 20-ft (6-m) wide area of disturbance. The width of the surveyed ECC is designed to allow for micro-routing to avoid sensitive resources and obstacles, and to provide for maneuverability during construction and maintenance. The ECC provides sufficient area at landfall locations, at pipeline/cable crossings, or for anchoring. Cable design parameters are provided in Table 2-3. Charts depicting ECC mapping and preliminary cable micro-routing are included in Attachment C-1, Offshore Export Cable Engineering Drawings.

TABLE 2-3. OFFSHORE EXPORT CABLE DESIGN PARAMETERS

Cable Characteristics	Design Parameters
Number of Cables	Two offshore export power cables plus associated communications cabling [a]
Cable Diameter (per cable)	6.9 in (175.0 mm)
Nominal Cable Voltage	±320 kilovolt (kV)
Length of Cable Corridor (RI State Waters)	20.4 mi (32.8 km)
Cable Corridor Width	1,640 ft to 2,300 ft (500 m to 700 m)
Typical Width of Seabed Disturbance During Construction	6.0 m (19.7 ft)
Number of Cable / Pipeline Crossings Anticipated	3 pipeline crossings
Anticipated Cable Burial Depth (below level seabed)	3.2 to 13.1 ft (1.0 to 4.0 m)
Approximate Cable Load Current	2,000 A

Notes:
[a] The cables will be installed in a bundled configuration, consisting of two power cables plus associated communications cabling installed together, where practicable, to minimize seabed impacts from installation. Maximum cable bundle width is twice the maximum cable diameter.

Each HVDC offshore export power cable will be a single-core (one power core) armored submarine cable. A typical cross-sectional view of an offshore trench is provided in the Submarine Details in Attachment C-1 Offshore Export Cable Engineering Drawings. The power core will be either aluminum or copper stranded conductor, with cross-linked polyethylene insulation, a lead sheath, and a polyethylene over sheath. The cable will be covered with galvanized, stainless-steel wire armor, and an outer serving of polypropylene yarns soaked

in bitumen. The layers of protective armoring and sheathing are to protect the cable from external damage and keep it watertight. Fiber optic wires may be embedded within the armor layer of the cable. The HVDC cables will be installed in a bundled configuration where practicable, with each cable bundle consisting of two offshore export power cables and associated communications cabling.

2.3.2 Offshore Export Cable Construction Sequence

The general sequence of construction activities for the offshore export cables are listed and explained in Table 2-4. Additional details for construction activities are provided in subsections following the table below.

TABLE 2-4. TYPICAL OFFSHORE EXPORT CABLE CONSTRUCTION SEQUENCE

Construction Activity	Construction Summary
Pre-lay Cable Surveys and Route Engineering	Extensive geophysical, geotechnical, and benthic surveys have been completed to characterize seabed conditions within the export cable corridor. Based on the survey data, route engineering was completed including Cable Burial Risk Assessments, burial tool suitability assessments, and preliminary micro-routing of cables within the ECC. Micro-routing is the primary strategy for avoiding geohazards, obstructions, and sensitive habitat. Micro-routing may also help to support achievement of target cable burial depth and to minimize the need for secondary cable protection. Prior to installation, additional surveys will be performed to check for debris and obstructions that may affect cable installation and confirm the details of seabed preparation that may be required. These pre-installation surveys will be performed closer to the date of the cable installation and will inform the final cable micro-routing within the ECC.
Seabed Preparation	Pre-installation seabed preparation will be completed as needed, and may include debris and boulder clearance, relocation of moorings and removal of any other obstructions. Boulder clearance trials may be performed prior to wide-scale seabed preparation activities to evaluate efficacy of boulder clearing techniques. The preferred method for boulder clearance is a boulder grab to locally remove and re-locate individual boulders, though the use of a boulder plow for denser boulder fields is also under consideration (if needed). A pre-lay grapnel run will be conducted to clear the cable route of buried hazards along the installation route to remove obstacles that could impact cable installation, such as abandoned mooring lines, wires, or derelict fishing gear. SouthCoast Wind will coordinate with the RI DMF in addition to SouthCoast Wind's other outreach efforts (i.e., direct outreach, outreach via Fisheries Representatives) to notify commercial and recreational fishermen prior to initiation of the pre-lay grapnel run.
Pipeline Crossing Preparation	Prior to installation of the cables, protective material (rock and/or mattresses) will be installed over the three existing pipelines to be crossed in the Sakonnet River, in accordance with industry-standard practice and requirements and as agreed with the owners of the existing pipelines. The purpose will be to achieve suitable vertical separation between the existing pipelines and the planned cables, and to ensure protection of the existing pipelines both during construction and long-term.

Construction Activity	Construction Summary
Cable Installation and Burial	Based on the seabed conditions in the Sakonnet River and Mount Hope Bay, it is expected that a simultaneous lay and burial method (using a jet-plow or jet-sled type burial tool) will be utilized, though multiple options will be maintained for flexibility to achieve suitable cable burial in the encountered seabed conditions. Alternatively, cable may be laid on the seabed and trenched post-lay or a trench may be pre-cut prior to cable installation. Cable lay and burial trials may be performed within the ECC prior to main cable installation activities to test equipment for suitability for the site-specific seabed conditions and ensure successful cable burial.
Offshore Joint Construction	It is anticipated that one or more offshore cable joints ("field joints") will be required, likely in the Sakonnet River, and possibly in Mount Hope Bay, due to the overall export cable route length. The specific joint quantities and locations are still to be determined and will depend on the final cable sizing and cable lay vessel/barge details.
Post-Installation Surveys	Post-installation surveys will be performed to determine the cable burial depth and other as-left conditions. The survey may be completed from a vessel and/or remotely operated vehicle.
Secondary Cable Protection	After the cable has been installed, secondary cable protection in the form of rock berms, rock bags, and/or mattresses will be installed as determined necessary in areas where sufficient cable burial in the seabed cannot be achieved. Additionally, secondary cable protection will be installed over the cables at crossing locations, where burial is not possible due to the presence of the third-party asset to be crossed.

2.3.3 Pipeline Crossings

The ECC crosses three pipelines at two locations in the Sakonnet River, as explained in Table 2-5 and shown in Figure 2-1 Cable Areas in Attachment A- Project Figures and in Attachment C-1 Offshore Export Cable Engineering Drawings. SouthCoast Wind will coordinate with the owners of the pipelines listed below, and any other unanticipated cable or pipeline crossings not identified, to agree on detailed cable crossing design, installation, protection measures and maintenance requirements. Crossing designs will be determined by the crossing's water depth, seabed conditions and the third-party crossing agreement requirements. Minimum separation distances will be determined so that both assets (subsea cable and submarine pipelines) can be safely operated with risk of damage to either asset mitigated to the extent practicable.

TABLE 2-5. PROPOSED CABLE/PIPELINE CROSSINGS

Cable Description	Number of Cables / Pipelines to be Crossed	Location
Potential Crossing Area 1	1 existing pipeline [a]	Sakonnet River (charted Pipeline Area)
Potential Crossing Area 2	2 existing pipelines [b]	Sakonnet River (charted Pipeline Area)

[a] Gas pipeline owned by Enbridge as part of the Algonquin Gas Transmission system.
[b] Water pipelines (20-inch and 24-inch) owned by the City of Newport Department of Utilities.

2.3.4 Pre-Installation Seabed Preparation

The seabed will be prepared prior to cable installation by the following steps:

1. Boulder removal to remove boulders that cannot be avoided by micro-routing.
2. Grapnel run to clear seabed debris.
3. Pre-lay survey including multi-beam and/or visual inspection using either vessel-mounted or remote operated vehicle (ROV)-mounted cameras.

Details on seabed preparation are provided in Table 2-4.

2.3.5 Offshore Cable Installation Methods

Export cables will be transported and installed from a carousel-equipped cable-lay vessel, cable-lay barge, dedicated cable transportation vessel, or a combination of these options. The number of campaigns will depend on vessel size, type, and capacity, and the cable type, length, and number of cable joints required. It is anticipated that one or more cable joints will be required, likely in the Sakonnet River, and possibly in Mount Hope Bay, due to the overall export cable route length.

Depending on the survey findings and seabed conditions encountered, one or more of several preparation and installation methods may be utilized. These methods are listed in Table 2-6 and described below. These cable laying techniques can involve cable pre-installation followed by burial and/or simultaneous cable installation and burial. The list is exhaustive, to ensure that the appropriate flexibility is maintained to consider alternative burial techniques to achieve burial in the seabed. One or more burial techniques among those listed and Table 2-6 will be considered to attempt cable burial, until cable burial in the seabed is deemed to be not possible or practicable. Only then, secondary cable protection material (as described below) will be considered and employed to ensure that sections of the cable that have not been sufficiently buried are suitably protected.

Based on current understanding of the seabed conditions in the ECC, the burial of the bundled offshore export cable in Rhode Island State Waters will primarily use a type of jet-plow or jet-sled technology. This involves the use of a skid-mounted burial tool that is towed by the cable-lay barge or Dynamically Positioned (DP) vessel. As the cable is laid on the seabed from the vessel, a narrow trench of the seabed surrounding the cable will be fluidized, lowering the cable to the target burial depth. By using this method of cable burial, the export cables are simultaneously laid and buried beneath the seafloor, which minimizes post-lay exposure of cables the seabed. Additionally, this method reduces sediment displacement (compared to mechanical trenching / plowing) and employs natural backfill as cover for the buried cable.

TABLE 2-6. TYPICAL OFFSHORE EXPORT CABLE INSTALLATION AND BURIAL EQUIPMENT

Equipment	Typical Use
Jetting sled / plow	Typically used in shallower water, in areas of prepared/benign seabed surfaces (i.e., areas without large sand waves or slopes).
Jetting ROV	Typically used in deeper water and can be used for unconsolidated soft beds.
Pre-cut plow	Any depth and can be used for hard bottoms (plows can be used for a wide range of soils from unconsolidated sands to stiff clays).
Mechanical plowing	Any depth and can be used for hard bottoms (plows can be used for a wide range of soils from unconsolidated sands to stiff clays).
Mechanical cutting ROV system	Any depth, used for hard, consolidated substrate.
Vertical injector	Vessel mounted burial solution for shallow water use that allows deep burial and does not require seabed/sand wave sea leveling.

Jetting Sled / Plow A jetting sled / plow is towed from a vessel and can be launched either during post-lay trench mode or fitted with the cable to simultaneously create a trench through soft seabed material and lay the cable. The trench is created by water jetting through unconsolidated, softer seabed material. As such, jetting is optimal in unconsolidated soils and sands with low shear strengths. The trenching systems offers sufficient maneuverability for any curves that the proposed offshore export cables may be laid in.

Jetting ROV This jet trencher is an ROV based system that can be launched from cable installation vessels or from a dedicated support vessel. This self-propelled jetting method is typically used in non-consolidated soils, in deeper water depths.

Pre-Cut Plow This method is deployed when surface and sub-surface boulders are present. A basic mechanical plow will pre-cut a V-shaped trench ahead of cable installation. This allows for the boulders and soils to be lifted to the edges of the trench for backfill purposes later. Once the cable is laid into the trench, the plow is re-configured into backfill mode where the boulders and soils that were previously relocated are then re-deposited.

Mechanical Plowing A mechanical plow is towed from the back of a vessel and simultaneously cuts a narrow trench in the seafloor, while also simultaneously laying and burying cable. Plowing capability can increase from firm unconsolidated soils/sands to more consolidated soils and clays with medium shear strengths.

Mechanical Cutting ROV System A mechanical cutting ROV cable burial system is a self-propelled system most suitable for soil with increased strength. This system can be utilized at any water depth. The mechanical cutting ROV system utilizes a cutting wheel or chain to break up and excavate any material. Used only in hard, consolidated soils, a rotating chain or cutting wheel with dedicated teeth will excavate the soil from beneath the cable and various systems will be required to displace this soil away for the trench allowing the cable to be lowered to depth.

Vertical Injector A vertical injector is a deep burial jetting tool used for cable installation and burial. The vertical injector uses water propelled from jet nozzles to fluidize the seabed material to allow for lowering of the cable. In some instances, this technology may be referred to as controlled flow excavation. This tool is towed along the back of a vessel and acts as a trowel creating a space for the cable to be installed and subsequently buried. This burial solution does not generally require seabed leveling in areas of sand waves or similar mobile sediment features. Hanging from the cable installation vessel or barge, this trenching system is one of the few options that does not require a level seabed and is therefore capable of trenching in areas of large sand waves.

2.3.6 Confirmation of Installed Cable Depth

Post-installation surveys will be performed to remotely confirm the cable burial depth and other as-left conditions. The survey may be completed from a vessel and/or remotely operated vehicle.

Depending on the details of the cable burial tool, it may also be possible to directly determine the cable burial depth as it is being laid, via the mechanical interface between the cable and the tool allowing determination of how deep the cable has been lowered beneath the seabed as it is simultaneously laid and buried. In addition to remote verification of cable burial depth post-installation, this can provide an accurate record of as-laid cable burial depth.

2.3.7 Cable Joints

It is anticipated that one or more offshore cable joints ("field joints") will be required, likely in the Sakonnet River, and possibly in Mount Hope Bay, due to the overall export cable route length. The specific joint quantities and locations are still to be determined and will depend on the final cable sizing and cable lay vessel/barge details.

To construct an offshore cable joint, two cable ends (one or both of which will be pre-installed on the seabed) will be recovered to the deck of the cable lay vessel/barge. The ends of the cable will be prepared for jointing on the deck of the vessel/barge, then will be jointed to each other following a pre-established qualified procedure in a controlled environment. Once the joint is complete, the completed cable joint and adjoining cable will be laid on the seabed, either in an "in-line" configuration or an "omega" configuration. The completed cable joint will then be post-buried and/or protected using secondary cable protection, to ensure that the cable joint is adequately protected to the same standard as the remainder of the cable.

2.3.8 Anchoring

Vessels will use DP during cable installation where water depths allow. Since water depths greater than 49.2 ft (15.0 m) are required for DP, this is not viable in Mount Hope Bay or the Sakonnet River, and use will be limited to Rhode Island Sound. Nearshore areas and areas with shallow water less than 49.2 ft (15.0 m) may necessitate a moored vessel solution using anchors; see Figure 2-2 (Attachment A) for potential anchoring areas along the ECC. The maximum anchor radius from the cable installation barge will be approximately 2,625 to 3,281 ft (800 to 1,000 m) based on the anchor line length. This maximum radius will be forward and aft of the barge and will not extend outside of the width of the ECC.

2.3.9 Secondary Cable Protection

A primary objective is to avoid the use of secondary cable protection by achieving a suitable target cable burial depth in the seabed along the entire cable route, by micro-routing (to the extent practicable) the cables within the ECC and by assessing and selecting suitable installation/burial tooling for the seabed conditions. Secondary cable protection material will be required at the three cable crossings in the Sakonnet River and for areas where cable burial cannot be achieved. For cable protection, methods will be determined based on the location, length, and extent of the non-burial, and when all remedial burial solutions have been ruled out (remedial burial techniques may include jet trenching or controlled flow excavation that fluidizes the surrounding sand to allow the cable to further settle into the trench). Methods employing secondary cable protection material may include the creation of a rock berm, concrete mattress placement, rock placement, and fronded mattresses. Half shells may be used as well, and they are typically used to protect cable ends at pull-in areas and where trenching is not possible.

As a conservative estimate for planning purposes, SouthCoast Wind estimates up to 15% of the ECC within Rhode Island state waters will require secondary cable protection. Secondary cable protection is expected to be required primarily at the identified cable/pipeline crossing locations in the Sakonnet River, and in Rhode Island Sound where areas of harder seabed have been identified. Generally, the seabed conditions in the remainder of the ECC in the Sakonnet River and Mount Hope Bay are comprised of softer sediments which are expected to be suitable for cable burial and not require substantial secondary cable protection.

Any required crossings of other third-party pipelines by the offshore export cables will utilize mutually agreeable crossing designs consistent with typical industry practices, in accordance with International Cable Protection Committee recommendations, which typically employ use of concrete mattresses (though other crossing methods may be assessed for use). Minimum separation distances will be determined so that both the Project

cables and the third-party pipelines can be safely operated with risk of damage to either asset mitigated to the extent practicable. An example of a concrete cable protection mattress and an example of cable protection rock bags are provided in "Submarine Details" found in Attachment C-1 – Offshore Export Cable Engineering Drawings.

2.3.10 Bundling and Cable Separation

The offshore export cables will be installed in a bundled configuration where practicable. The cables will be transported separately (on the same installation vessel) and assembled into a bundle during the process of cable laying. Because the HVDC offshore export cables will be installed in a single bundle where possible, there will typically be no horizontal separation between cables within a bundle as installed along the route. Although not anticipated except at cable landings, the cables may be unbundled and installed separately for part of the cable route, which does not affect the cable functionality but may result in different installation considerations. If the cables are installed separately, the target horizontal separation between each proposed Project cable will be approximately 164 ft (50 m). Final cable spacing will depend on bathymetry and other detailed seabed characteristics and may be wider or narrower. Risk factors that will be considered and mitigated when considering cable spacing will include:

- Installation impacts (risk to adjacent cables)
- Operation and Maintenance (O&M) (including cable repair if needed)
- Thermal impacts to adjacent cables

2.4 SEA-TO-SHORE TRANSITION

The Project includes installation of four conduits via HDD at each end of the intermediate onshore crossing of Portsmouth (four from the Sakonnet River and four from Mount Hope Bay). Two of the conduits are to accommodate two power cables and communications cabling for delivery of approximately 1,200 MW. The remaining two conduits will be installed to accommodate potential future installation of an additional 1,200 MW.

HDD is a "trenchless" process for installing underground cables or pipes which enables the cables to remain buried below the coastal features, including coastal beaches and intertidal zone to limit environmental impacts during installation. Each HDD boring extends from an onshore construction area to an offshore construction area.

The routing and HDD locations are depicted on Figure 1-2 (Attachment A), Offshore Export Cable Engineering Drawings (Attachment C-1) and HDD Engineering Drawings (Attachment C-2). A "Typical HDD Detail" for offshore construction is provided in Attachment C-2, HDD Engineering Drawings.

The onshore HDD locations (not the subject of this application) being considered are the following:

- One landfall construction area on the northeast (Sakonnet River) side of Portsmouth will occupy the corner of Boyds Lane and Park Avenue.
- One landfall construction area on the northwest (Mount Hope Bay) side of Portsmouth, either:
    - Within the Montaup Country Club parking lot (preferred).
    - Within land owned by Roger Williams University on the northern side of Anthony Road (RWU North parcel, alternate).

Construction of the sea-to-shore transition will involve the following:

1. Excavation of four onshore HDD pits at each landing (northeast and northwest sides of Portsmouth).
2. Excavation of four offshore HDD pits at each landing (northeast and northwest sides of Portsmouth).
    - A gravity cell or other temporary structure may be used if required to support HDD construction.
3. HDD of the borehole between each of the onshore and offshore HDD pits and reaming of the bore hole to the necessary diameter.
4. Insertion of conduit, made of high-density polyethylene or similar material, into each bore hole.
5. Construction and installation of onshore, underground concrete transition joint bays (TJBs).
6. Splicing of offshore export cable (single core submarine cable) to onshore export cable (single core underground cable) will occur within the TJBs.
7. Installation of the offshore export cables (two power cables and associated communications cable) through the conduits, below the coastal features, coastal beaches and intertidal zone (note that extra conduits are for future use and will remain empty at this time).
8. Site restoration of disturbed onshore and offshore areas, including backfill of the dredged areas.

The vessel and equipment that will be used to support the HDD installation are depicted in Attachment C-1, Offshore Export Cable Engineering Drawings and Attachment C-2, HDD Engineering Drawings.

2.4.1 Onshore HDD Pits

To facilitate the HDD operations, pits need to be excavated at the landward and seaward ends of the proposed HDD trajectories to establish the cable landfalls in Portsmouth. The onshore HDD pits are not included in this application, but are described here for reference. SouthCoast Wind has filed a Joint Application for a Category B Assent and a Freshwater Wetlands Permit for Freshwater Wetlands in the Vicinity of the Coast for both the onshore and offshore components of the Project. Indicative dimensions of the onshore construction areas and equipment that will be used to support the HDD installation are depicted in Attachment C-2, HDD Engineering Drawings. Construction operations at each onshore landfall construction areas will require approximately 0.6 to 1.0 acre (ac), depending on the configuration of available land and the final trajectories of the borings. The drilling operation requires fresh water for the mixing of the drilling slurry, however, there will be no withdrawals of water from wetlands and waterways for this Project.

Soil and other materials generated during installation of the HDD onshore will be removed and re-used or properly disposed of at a suitable facility. Excavated soils onshore will be removed and hauled to an appropriate on-site or off-site disposal/re-use location or to a temporary construction laydown area for on-site re-use. Soils will be handled in compliance with applicable laws and regulations.

The construction contractor(s) working at the Project site will be required to submit emergency response plans detailing their methods for containment of oil and hazardous materials including spill response, containment, control, clean-up and reporting to applicable agencies, as appropriate. Example spill prevention and control measures are outlined in Attachment E – Emergency Response Plan.

2.4.2 Offshore HDD Pits

Offshore HDD pits will be required to facilitate the offshore HDD operations. Indicative dimensions of the onshore construction areas and equipment that will be used to support the HDD installation are depicted in Attachment C-2, HDD Engineering Drawings. Additional information is also provided in Attachment C-1, Offshore Export Cable Engineering Drawings. The estimated volume of sediment to be excavated/dredged at each of the eight offshore HDD pits is 1,867 cubic yards (1,427 cubic meters). Potential volumes of offshore excavated material in Rhode Island state waters could be up to 14,932 cubic yards (11,416 cubic meters) based on all eight HDD pits offshore.

SouthCoast Wind plans to side-cast sediments immediately adjacent to the offshore pits to allow a readily available means of backfilling the trench and subsea cables. The excavated material can also serve to temporarily contain the HDD construction area, including serving as a potential containment area for the recirculated drilling muds.

Multiple excavation methods are under consideration for the HDD offshore exit pits. These include use of trailing suction hopper dredge, water injection dredge, clamshell and/or controlled flow excavation. One of or a combination of these methods may be used by the Project.

2.4.3 Horizontal Directional Drilling

The proposed Horizontal Directional Drilling (HDD) trajectories are anticipated to be approximately 0.3 – 0.6 mi (0.4 – 1.0 km) in length with a cable burial depth of up to approximately 40 ft (12.2 m) below the seabed. HDD bores will be separated by a distance of approximately 10 ft to 33 ft (3.0 m to 10 m). It is anticipated the HVDC cables will be unbundled at landfall. Each HVDC power cable is planned to require a separate HDD borehole and conduit. The dedicated communications cable may be installed within the same bore as a power cable, likely within a separate conduit.

HDD can be undertaken from either the onshore entry point, from the offshore exit point, or (likeliest) from a combination of the two. The HDD unit and associated equipment (temporary electric generators, water and slurry tanks, mud circulating system and support vehicles) will be staged onshore in Portsmouth. Appropriate construction best management practices (BMPs) will be implemented to protect adjacent coastal and freshwater wetlands. Construction operations at each onshore landfall construction area will require approximately 0.6 – 1.0 ac, depending on the configuration of available land and the final trajectories of the borings.

Additional laydown space will be needed behind the onshore HDD pit to fuse segments of conduit together into a continuous assembly. This laydown area is expected to be between one-half to the full length of the HDD trajectory. It is important to pre-fuse the conduit in preparation so that a continuous assembly of pipe can be pulled in the bore hole without the need for stopping during drill pull-back operations. Once the pull-back commences, it is a 24-hour operation until completed at that bore, to reduce the risk of the bore hole collapsing. The pull-back laydown area will likely follow the trajectory of the onshore underground export cable route, with conduit fusing occurring in the shoulder of public right-of-way (ROW). The ends of each conduit will be capped/sealed prior to the completion of the installation, in order to protect the conduits from ingress of sediment and debris between the conduit installation and the cable installation and pulling, which may take place several months after HDD construction.

The drill head will be advanced between the onshore and offshore HDD pits. The HDD borehole will be reamed to the necessary diameter. The diameter of the bore hole will be approximately 30 in (76 cm) to accept conduit with an outside diameter of approximately 16 in (41 cm). The HDD operations will be supported by offshore vessels (jack-up barge and/or anchored barge), and support crew transport vessel and tugboat.

2.4.4 Cable Pulling

Once the HDD conduits and onshore underground infrastructure have been constructed, cables can be installed. Cable installation and pulling may take place several months after HDD construction. A cable barge/vessel will be positioned offshore equipped with reels of cable. The seaward end of the HDD conduit will be located by the cable installation spread and excavated if needed. The caps/seals protecting the end of the HDD conduit will be removed. The offshore export cable will be lowered from the vessel to the seafloor, and a winch located onshore will be used to pull the cable from sea to shore through the conduit. Each of the two power cables comprising the cable bundle is planned to be pulled into a separate HDD conduit.

2.4.5 Operation and Maintenance

The offshore export cables will be buried and are not expected to require regular maintenance, except for manufacturer-recommended cable testing. Periodic visual inspections and preventative maintenance of the offshore export cables will be planned based on survey data and manufacturer recommendations based on the as-built drawings. Planned outages are not expected for the periodic inspections. Burial inspection visuals will occur periodically to be determined after final design and route are selected.

2.5 DECOMMISSIONING

Offshore export cables may be retired in place or removed, as per the Rhode Island CRMP Regulations (650-RICR-20-00-01) and the Ocean SAMP (650-RICR-20-05), and 30 Code of Federal Regulations (C.F.R.) 585.909. Cable protection measures, such as concrete mattresses or rocks, could be removed before any cable recovery activities. Dredging vessels may be used to unearth the cables before the cable may be reeled onto barges or other transport vessels. At landfall, if the cables are removed, the ducts will remain in place. SouthCoast Wind is required to submit a decommissioning plan to BOEM for review and acceptance.

2.6 ENVIRONMENTAL COMPLIANCE, PROTECTIVE MEASURES, AND MONITORING

Prior to the commencement of construction, operation and maintenance, and decommissioning activities, a facility-specific environmental compliance manual will be prepared for the Project outlining specific construction and operating obligations. This manual, in conjunction with an Emergency Spill Prevention, Response and Prevention Plan, will serve as Project-specific environmental guidance documents for the construction and operation of the Project. The following subsections describe BMPs, applicant-proposed environmental protection measures, and monitoring that SouthCoast Wind will implement when appropriate.

2.6.1 Best Management Practices

BMPs are structural or non-structural measures, practices, techniques, or devices employed to avoid or minimize impact to sensitive resources. This section describes BMPs that SouthCoast Wind will employ during construction and include:

- Construction work hours
- Time-of-year restrictions, as necessary
- Emergency Spill Response
- Environmental compliance and monitoring
- Site restoration and stabilization

2.6.2 Project Construction Work Hours

Consistent with the Town of Portsmouth, Rhode Island noise ordinance, typical construction work hours for the Project will be within the hours of 7:00 a.m. and 9:00 p.m. each day.[1] SouthCoast Wind will comply with these standard hours except as described below. Some construction activities, such as HDD activity, cable pull-through operations, concrete pours, and cable splicing, once started, generally continue uninterrupted, meaning night-time work will occur for certain aspects of the construction.

2.6.3 Time of Year Restrictions

SouthCoast Wind has conducted stakeholder outreach including conversations and meetings with the Town of Portsmouth, Rhode Island, local businesses, residents, the commercial and recreational fishing industries and communities, and other stakeholders through public meetings as well as open houses held in Portsmouth, Rhode Island. Based on input received, times of year for construction activities, primarily from fall through spring, were identified to minimize impacts to local stakeholders. SouthCoast Wind will work to the considerations of these entities, as well as those of the Rhode Island Department of Transportation (RIDOT) and landfall site stakeholders, to the extent practicable.

SouthCoast Wind has also held meetings with regulatory agencies, including RIDEM, RI DMF, RI CRMC, USACE, USEPA and NMFS to receive input on time of year in-water work constraints regarding sensitive marine species. SouthCoast Wind will continue to coordinate with these agencies and local stakeholders to further define construction schedules and potential time of year restrictions for construction activities.

2.6.4 Emergency Spill Response

SouthCoast Wind has prepared Emergency Response Plan requirements (Attachment E) to avoid and/or minimize the risk of impacting the water column and benthic habitats from any accidental releases of oil and/or hazardous materials. Project contractors will be required to prepare emergency response plans applicable to each specific scope of work. The requirements for each of these plans are outlined in Attachment E – Emergency Response Plan requirements and will be included in the emergency response plans wherever relevant to the scope of work. The emergency response plans will be implemented along with the Project Oil Spill Response Plan (OSRP) (COP, Appendix AA). The OSRP includes provisions for responding to oil and fuel spills. Marine contractors conducting Project work within Rhode Island waters will be responsible for finalizing a task-specific OSRP consistent with SouthCoast Wind's OSRP and all applicable regulations.

2.6.5 HDD Inadvertent Release Response

SouthCoast Wind is utilizing HDD technology for sea-to-shore cable transitions to avoid impacts to sensitive coastal resources and inadvertent discharges into Rhode Island Sound, the Sakonnet River and Mount Hope Bay. An HDD Inadvertent Release of Drilling Muds Contingency Plan is included as Attachment F to describe best management practices to avoid an inadvertent release during HDD operations.

2.6.6 Marine Monitoring

SouthCoast Wind will implement avoidance, minimization, and mitigation measures during in-water operations to avoid interactions with marine protected species, as listed in Table 2-7 below, Section 3.4.1.2 and Section 3.5. Marine construction staff will be trained in species identification, monitoring and mitigation. Environmental Monitors, trained crew and/or Protected Species Observers (PSOs) will be assigned and identified on all vessels to perform monitoring and mitigation, as necessary and required.

[1] Portsmouth General Legislation Chapter 257 Section 13.

2.6.7 Restoration

In addition to the reconstitution of the cable trench that is expected from the use of the jet-plow, the backfilling of the side-cast dredge material into the offshore HDD trench, the offshore cable trenches are anticipated to be fully reconstituted by the natural tidal and current cycles to reestablish pre-disturbance seafloor grades. If additional fill is necessary to backfill the temporary HDD pits, clean fill of similar geologic composition, grain size, and biological characteristics will be acquired.

2.6.8 Proposed Avoidance, Minimization, and Mitigation Measures

The Project was sited, planned, and designed so that the proposed Project avoids and minimizes potential impacts on physical, biological, and cultural resources to the extent practicable. Avoidance, minimization, and mitigation measures designed for each phase of construction will effectively minimize Project impacts on the natural environment. Potential impacts to resources from the Project are expected to be limited temporally and/or spatially. Resource characterizations and impact assessments are presented in Section 3 and are guided by input from appropriate federal and state agencies, municipal input, and numerous stakeholders (public and private) in the region.

To the extent there are potential impacts from the Project that cannot be avoided, SouthCoast Wind will seek to avoid or minimize such impacts. Potential impacts to resources from the offshore export cables and landfalls are expected to be limited in scope temporally and/or spatially. Post-construction monitoring plans will be developed, as needed, in coordination with the relevant agencies prior to construction.

Table 2-7 below summarizes the various avoidance, minimization, and mitigation measures that SouthCoast Wind intends to implement, as appropriate, to avoid, minimize, or mitigate environmental impacts.

TABLE 2-7. AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES – NATURAL AND SOCIAL ENVIRONMENTS

Resource	Project Phase	Avoidance, Minimization, and Mitigation Measures
Natural Environment		
Geology and Surficial Geology	Construction	• SouthCoast Wind will use BMPs to minimize sediment mobilization during offshore export cable installation. • SouthCoast Wind, when feasible, will use technologies that minimize sediment mobilization and seabed sediment alteration for cable burial operations. • SouthCoast Wind, where practical and safe, will utilize dynamic positioning vessels. • SouthCoast Wind will utilize HDD for sea-to-shore transition. • The offshore export cables will be installed in a bundled configuration where practicable, to reduce installation impact area and post-installation occupied area. • The primary cable burial objective will be to achieve a suitable target burial depth of the offshore export cables in the seabed along the entire ECC (where possible), by micro-routing the cables within the ECC and by assessing and selecting suitable installation/burial tooling for the seabed conditions. • Use of secondary cable protection (rock and/or mattresses) will be limited to the extent practicable.

Resource	Project Phase	Avoidance, Minimization, and Mitigation Measures
Geologic Hazards	Design and Construction	• SouthCoast Wind performed geophysical and geotechnical surveys as part of the planning phase of the project to identify geologic hazards and anomalies. • SouthCoast Wind is proactively routing the cables to avoid hazards, to the extent practicable. • SouthCoast Wind will establish buffers, as necessary, to avoid anomalies during construction.
Marine Sediments and Soils	Construction	• SouthCoast Wind will select and use BMPs including the use of a Soil Erosion and Sediment Control Plan to minimize sediment mobilization during offshore construction and HDD operations. • SouthCoast Wind, when feasible, will use technologies that minimize sediment mobilization and seabed sediment alteration for cable burial operations. • Project vessels will follow USCG requirements at 33 C.F.R. 151 and 46 C.F.R. 162 regarding bilge and ballast water. • All Project vessels are to comply with regulatory requirements related to the prevention and control of discharges and accidental spills including USEPA requirements under the USEPA 2013 Vessel General Permit and state and local government requirements. • SouthCoast Wind will comply with the regulatory requirements related to the prevention and control of discharges and accidental spills as documented in the proposed Project's Emergency Spill Prevention, Response and Prevention Plan. • SouthCoast Wind will have an HDD Contingency Plan (Attachment F) in place to mitigate, control, and avoid unplanned discharges related to HDD activities. • SouthCoast Wind will implement an SESC plan during trenching and excavation activities, in accordance with the Rhode Island Soil Erosion and Sediment Control Handbook, and in accordance with approved plans and permit requirements. • The erosion control devices will function to mitigate construction-related soil erosion and sedimentation and will also serve as a physical boundary to separate construction activities from resource areas.
Surface Waters	Construction	• SouthCoast Wind will select and use BMPs including the use of an SESC plan to minimize sediment mobilization during offshore construction and HDD operations. • SouthCoast Wind, when feasible, will use technologies that minimize sediment mobilization and seabed sediment alteration for cable burial operations. • Project vessels will follow USCG requirements at 33 C.F.R. 151 and 46 C.F.R. 162 regarding bilge and ballast water. • Sanitation will be provided on service vessels utilized by personnel for construction and transport. The transport vessels will hold sewage within holding tanks and dispose of all raw or treated sewage in accordance with all applicable discharge rules and regulations.

Resource	Project Phase	Avoidance, Minimization, and Mitigation Measures
		• All Project vessels are to comply with regulatory requirements related to the prevention and control of discharges and accidental spills including USEPA requirements under the USEPA 2013 Vessel General Permit and state and local government requirements. • SouthCoast Wind will comply with the regulatory requirements related to the prevention and control of discharges and accidental spills as documented in the proposed Project's OSRP. • SouthCoast Wind will have an HDD Contingency Plan (Attachment F) in place to mitigate, control, and avoid unplanned discharges related to HDD activities.
Finfish	Construction	• SouthCoast Wind will design the sea-to-shore transition to reduce the dredging footprint and effects to benthic organisms (e.g., offshore cofferdam and/or gravity cell). • SouthCoast Wind will incorporate use of HDD at landing(s) to minimize spatial and temporal effects to benthic organisms and avoid disturbance to finfish and invertebrate Essential Fish Habitat (EFH) to the extent practicable.
Shellfish	Construction	• SouthCoast Wind will use HDD at landfall locations, to avoid disturbance to nearshore productive shellfish beds to the extent practicable. • SouthCoast Wind will select lower impact construction methods, where possible. • SouthCoast Wind has designed the ECC, and will micro-route cables within the ECC, to avoid complex habitats, where possible. • The ECC was designed to minimize length of cable (and associated seabed impacts) needed. SouthCoast Wind will bury cables, where possible, to allow for benthic recolonization after construction is complete. Use of secondary cable protection (rock and/or mattresses) will be limited to the extent practicable. • The offshore export cables will be installed in a bundled configuration where practicable, to reduce installation impact area and post-installation occupied area.
Marine Mammals and Sea Turtles	Construction	• Protected species observers will be employed, if required by National Marine Fisheries Service (NMFS), to monitor for whales, other marine mammals, and sea turtles. • SouthCoast Wind will employ shut-down procedure when protected species are detected in their respective clearance zones in the Project area. • SouthCoast Wind will implement measures as identified in the Project Marine Mammal and Sea Turtle Monitoring and Mitigation Plan, as needed. • All vessel operators will be required to reduce vessel speed to 10 knots or less when large assemblages of marine mammals are observed near an underway vessel or if vessel are in an area with an active vessel speed restriction.

Resource	Project Phase	Avoidance, Minimization, and Mitigation Measures
Rare, Threatened and Endangered Species	Construction	• SouthCoast Wind will continue to consult with the Rhode Island Natural Heritage Program, RIDEM, USFWS, and NMFS. • SouthCoast Wind will site Project components to avoid locating onshore facilities and landfall sites in or near sensitive fish and wildlife habitats to the greatest extent practicable. • SouthCoast Wind will train construction staff on biodiversity management and environmental compliance requirements.
Social/ Developed Environment		
Aquaculture	Construction	• SouthCoast Wind will work with municipal shellfish constables to coordinate shellfish seeding with planned activities prior to construction activities. • SouthCoast Wind is currently working with commercial and recreational fishermen as well as Fisheries representatives to determine construction timing and locations with fishing vessels to anticipate and avoid/minimize/mitigate gear interactions that may occur during construction. • SouthCoast Wind's ECC has been designed in a location and orientation such that it does not directly overlap with active aquaculture leases. • SouthCoast Wind has conducted modeling to understand potential sedimentation impacts.
Commercial and Recreational Fishing	Construction	• SouthCoast Wind is currently working with commercial and recreational fishermen as well as Fisheries Representatives to determine construction timing and locations with fishing vessels to anticipate and avoid/minimize/mitigate gear interactions that may occur during construction. • Temporary safety zones associated with construction activities implemented in consultation with USCG will limit direct access to areas with active construction activities for the safety of mariners and Project employees, but these areas will be limited spatially and temporally. • SouthCoast Wind will notify mariners via Legal Notice to Mariners (LNMs) of the presence and location of partially installed structures. • The SouthCoast Wind Fisheries Liaison Officer will proactively contact fishermen known to fish in areas that will see construction activities in advance of the start of construction by utilizing Fisheries representatives and connections with relevant state agencies to alert the fishermen of planned construction activities and schedules. • SouthCoast Wind will proactively contact and compensate fishermen if their gear is entangled during construction. • SouthCoast Wind will consider the use of fixed mooring buoys at various strategic locations in the Project area to avoid the need for anchoring. • SouthCoast Wind will continue to ensure that all Project-related vessels follow appropriate navigational routes and other USCG requirements, communicate via USCG LNMs, issue regular mariner updates and/or

Resource	Project Phase	Avoidance, Minimization, and Mitigation Measures
		direct offshore radio communications to help mitigate risks to the commercial and recreational fishing industries, as well as other mariners. • Achieving target burial depth, minimizing secondary protection, selecting secondary protection methods that minimize interference with fishing activities, and making the location of secondary protection and relocated boulders available via methods most useful to the commercial fishing industry.
Electric and Magnetic Fields (EMF) (offshore export cables)	Post-Construction	• The Electric Fields (EF) arising from the voltage on the export cables will be completely shielded by cable materials.

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3. Nearshore and Offshore Environmental Setting, Potential Impacts, and Proposed Avoidance, Minimization, and Mitigation

This section describes the offshore affected environment, potential impacts associated with construction, operations, and maintenance, and decommissioning of the Project within Rhode Island waters, and proposed avoidance, minimization, and mitigation measures to address these potential impacts. Generally, decommissioning impacts are commensurate with construction phase impacts and are therefore discussed together.

The Project was sited, planned, and designed to avoid and minimize impacts and potential Project impacts are expected to be limited temporally and spatially. SouthCoast Wind plans to bundle the two export cables and associated communications cabling, where possible, to limit the footprint of the Project on the seabed. SouthCoast Wind has established and collected field data from an export cable corridor of nominal width between 1,640 ft (500 m) to 2,300 ft (700 m) to allow micrositing of the export cable to avoid sensitive resources where practicable. Cable landfalls at Portsmouth, Rhode Island will be accomplished using HDD technology to avoid impacts to sensitive coastal resources. Where potential impacts cannot be avoided, SouthCoast Wind proposes minimization and mitigation measures presented in Section 2 and Table 2-7.

SouthCoast Wind has collected detailed geophysical, geotechnical and benthic habitat data from the entire ECC. Information and assessments based on this data to support this impacts evaluation is included in the following attachments to this application and in the SouthCoast Wind Construction and Operations Plan which can be accessed at SouthCoast Wind COP on BOEM Website https://www.boem.gov/renewable-energy/state-activities/southcoast-wind-formerly-mayflower-wind.

Summaries are provided below based on technical studies and reports prepared for the Project, including:

- Marine Archaeological Resources Assessment[1]
- Geohazard Report for the Brayton Point Export Cable Corridor [2]
- Hydrodynamics and Sediment Transport Modeling Report for the Brayton Point Export Cable Burial Assessment[3] (Attachment G)
- Benthic Habitat Mapping to Support State Permitting Applications – Brayton Point ECC for Rhode Island State Waters[4] (Attachment H)
- Commercial and Recreational Fisheries and Fishing Activity Report[5]
- Unexploded Ordnance (UXO) Risk Assessment- Confidential (Attachment L)

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[1] Mayflower Wind Energy LLC and Fugro USA Marine, Inc. 2022. *Marine Archaeological Resources Assessment (Mayflower Wind Construction and Operations Plan Appendix Q (Confidential) - Docket No. BOEM-2021-0062).* August 2022.

[2] Mayflower Wind Energy LLC and Fugro USA Marine, Inc. 2022. *Geohazard Report for the Brayton Point Export Cable Corridor (Mayflower Wind Construction and Operations Plan Appendix E.2 (Confidential) - Docket No. BOEM-2021-0062).* February 25, 2022.

[3] Hydrodynamic and Sediment Transport Modeling for the Brayton Point Export Cable Burial Assessment, Mayflower Wind Energy LLC | USA, 01 March 2022 - Final Report, Daniel L. Mendelsohn, Innovative Environmental Science and J. Craig Swanson, Swanson Environmental

[4] INSPIRE Environmental. 2022. Benthic Habitat Mapping to Support State Permitting Applications – Brayton Point ECC for RI State Waters. September 22, 2022.

[5] Mayflower Wind Energy LLC and Tetra Tech. 2021. *Commercial and Recreational Fisheries and Fishing Activity Technical Report (Mayflower Wind Construction and Operations Plan Appendix V - Docket No. BOEM-2021-0062).* August 30, 2021.

3.1. GEOLOGY AND PHYSIOGRAPHY

This section includes an overview of geologic conditions with the Project Study Area based primarily on data generated from G&G and benthic surveys completed by Fugro in 2021 and 2022,[6] and information in available literature.

Bathymetry in the Study Area is depicted in Figure 3-1. Depths in Mount Hope Bay and the Sakonnet River are generally less than 33 ft (10 m), with a deepening natural channel in Lower Mount Hope Bay. In Rhode Island Sound, water depths vary between approximately 66 ft (20 m) and 131 ft (40 m).

During the Quaternary period, glacial and post-glacial processes shaped the geology of Southern New England and the Study Area. Illinoian and Late Wisconsin glaciations are inferred from terminal moraines to have advanced as far south as Martha's Vineyard and Nantucket Islands.[7] As the Laurentide glaciers began to melt, glacial outwash formed a thick sequence of sandy deposits southward across Rhode Island Sound, the Sakonnet River, and into Mount Hope Bay. Pro-glacial lakes formed in front of the glaciers and behind the end moraines and deposited thick sequences of glacio-lacustrine deposits. Post glacial sediment deposition evolved as the sea level rose and transgressed across the continental shelf and inundated the area. As the sea transgressed across the study area, the depositional environment transitioned to a shallow marine environment similar to the shelf's current depositional setting. In general, sandy sediments were deposited in higher energy environments and fine grained deposits in low energy, deeper water areas.

3.1.1. Surficial Geology and Sediments

The description of surficial geology and sediments is primarily based on data from geophysical surveys and sediment grab samples collected by SouthCoast Wind's survey contractor, Fugro. Data analysis and mapping was conducted by Fugro (COP, Appendix E - Marine Site Investigation Report [MSIR]; COP, Appendix E.2 - Geohazard Report for Brayton Point ECC). Glacial Moraine areas indicated in the Ocean SAMP (RI CRMC 2010) were also considered.

The Benthic Habitat Mapping Report (Attachment H) integrates Fugro's analysis of survey data with benthic survey data to describe and map seabed sediments (substrate) and benthic habitat. Glacial Moraine comprised 2.7% (411 acres) of the ECC in federal waters and comprised 3.1% (185 acres) of the ECC in Rhode Island state waters, predominantly located in Rhode Island Sound (Attachment H - Benthic Habitat Mapping Assessment, Tables 3-2 and 3-4).

Glacial moraine areas identified in the Ocean SAMP intersect the ECC in two areas within federal waters: at Southwest Shoal; and where the ECC turned due west outside of Rhode Island State Waters (Attachment H, Figure 4-5). Glacial moraines defined in the Ocean SAMP were based on several sources interpreted by Boothroyd (2009).[8] Most of the data near the Southwest Shoal interpreted in the Ocean SAMP were collected by the USGS in 1980 over very widely spaced seismic lines and near the Rhode

[6] Mayflower Wind COP, Appendix M.2 *Benthic and Shellfish Resources Characterization Report Addendum #2* and Appendix M.3
[7] Foster et al., 2014
[8] Boothroyd. J.C. 2009. A Short Geological History of Block Island and Rhode Island Sounds. Ocean Special Area Management Plan.

Island State Waters boundary in 1975 (McMullen et al. 2009)[9,10]. Because of the paucity of seismic data in the region of the Brayton Point ECC, the areas identified in the Ocean SAMP are general and do not reflect high-resolution distribution of moraine deposits and subsequent erosion and deposition of surficial sediments that affect benthic habitats.

The Ocean SAMP does not identify any moraines in Rhode Island state waters that overlap with the Brayton Point ECC (Attachment H, Figure 4-5); however, Glacial Moraine habitats were mapped in the Brayton Point ECC in Rhode Island Sound using data collected by SouthCoast Wind (Attachment H, Figure 4-5). Most of the moraine area identified in the Ocean SAMP at Southwest Shoal was also mapped as Glacial Moraine using data collected by SouthCoast Wind (Figure 3-2). In contrast, only a discrete area of the Ocean SAMP-identified moraine near the Rhode Island state waters boundary was mapped as Glacial Moraine using data collected by SouthCoast Wind (see Attachment H and Figure 4-5).

Attachment H - Benthic Habitat Mapping Report, integrates the geophysical, grain size and benthic biological data collected to provide detailed mapping and discussion of surface deposits in the Project Area. In general, sediments in Mount Hope Bay and the Sakonnet River were primarily fine grained (mud to muddy sand) typical of depositional estuarine environments. *Crepidula,* a colonizing limpit, was found overlying these muds in some areas in the upper Sakonnet River and in the lower Mount Hope Bay. Very small areas of Mud to Muddy Sand – with Boulder Field(s) typical of glacial moraine and Bedrock were mapped in the lower portion of Mount Hope Bay near Aquidneck Island (Figure 3-2). There is also evidence of anthropogenic debris such as rock and backfill over pipelines.

Sediments became coarser at the mouth of the Sakonnet River and in Rhode Island Sound where deposits included gravels, sand and mud with boulders. The distribution of these deposits is related to the offshore extension of the Buzzards Bay moraine, a terminal moraine that is perhaps an extension of the Point Judith moraine near the mouth of the Sakonnet River (as mapped by Baldwin et al. 2016; COP, Appendix E, MSIR)[11].

Clusters of individual surficial boulders with poorly sorted gravels, sands and muddy sands (Glacial Moraine, Mixed-Size Gravel in Muddy Sand to Sand – with Boulder Field(s)) and proximal areas were mapped in RI Sound from the RI State Waters Line to the mouth of the Sakonnet River, and in the lower portion of Mount Hope Bay near Aquidneck Island (Figure 3-2).

3.1.2. Sediment Grain Size Analysis

Sediment grab samples were collected for grain size analysis during the 2021 and 2022 benthic surveys from eight locations in Mount Hope Bay, 14 locations in the Sakonnet River, and seven locations in Rhode Island Sound for a total of 29 sample locations. Grain size data is presented in Attachment I - Sediment Sample Grain Size Analytical Results. Additional details on sample collection and analysis are included in Appendix M.2 and Appendix M.3 of the COP, and data is integrated into the benthic habitat assessment in Attachment H. Note that grain size data was generated by two methods: Wentworth and USCS.

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[9] McMullen, K. Y., L. J. Poppe, T. A. Haupt, and J. M. Crocker, 2009. Sidescan-sonar imagery and surficial geologic interpretations of the sea floor in western Rhode Island Sound. U.S. Geological Survey Open-File Report 2008-1181. Report and data available online at: http://woodshole.er.usgs.gov/pubs/of2008-1181/index.html

[10] McMullen, K. Y., L. J. Poppe, and N. K. Soderberg, 2009. Digital seismic-reflection data from western Rhode Island Sound, 1980. U.S. Geological Survey Open-File Report 2009-1002. Report and data available online at: http://pubs.usgs.gov/of/2009/1002/index.html

[11] Baldwin et. a. 2016.

In Mount Hope Bay the sediments are primarily fine silts and clays with varying amounts of sand. Sediments in the Sakonnet River ranged from fine silts to sands with varying amounts of gravel. At the mouth of the Sakonnet River (southern end) and moving into Rhode Island Sound the predominant sediment fraction is fine sand mixed with coarse and medium sand.

3.1.3. Potential Project Impacts

3.1.3.1. Offshore Export Cables

The routing of the ECC has been designed to avoid or minimize impacts to geologic resources in the marine environment. The G&G marine surveys completed by SouthCoast Wind were used to guide refinement of the cable placement within the ECC to avoid or minimize impacts in the marine environment.

The offshore export cables will be buried to a depth range from 3.2 to 13.1 ft (1.0 to 4.0 m) below the seabed, with a target burial depth of approximately 6 feet. Specific target burial depth will vary along the cable route and may be greater or less, based on assessment of the local soil conditions and risk to the buried cables from external risk factors. The primary cable burial objective will be to achieve a suitable target burial depth along the entire ECC as informed by the Cable Burial Risk Assessment (Attachment D - "Confidential", provided under separate cover). Cable routing within the ECC focused on micro-routing the cables to the extent practicable, in order to achieve target burial depth and to avoid surficial geologic and anthropogenic features informed by data collected in the G&G surveys.

Anchoring during cable installation will be limited to shallow water and thus only the Sakonnet River and Mount Hope Bay which are primarily soft bottom. Refer to Section 2.3 and Figure 2-2 for additional information about anchoring.

The cable burial methods are not expected to cause permanent seafloor impacts, and the shallow trench left after the cable-lay and burial is expected to naturally backfill with sediment. The sea-to-shore landfalls will be completed using HDD methodology and will avoid disturbance of the nearshore/ shoreline areas of the Sakonnet River and Mount Hope Bay. Once the cable is buried, the area above the cable, except for those areas with secondary cable protection, will recover through the natural and dynamic migration and deposition of marine sediments.

Permanent impacts to seabed conditions are limited to locations where secondary cable protection is required because conditions do not allow target cable burial or where other infrastructure (pipelines) are crossed. Sediment disturbance will be limited to a swath up to approximately 20 ft (6.0 m) wide within the ECC, and where cable protection is required, it will span approximately 20 ft (6.0 m) across the cable.

As a conservative estimate for planning purposes, SouthCoast Wind estimates up to 15% of the ECC within Rhode Island state waters will require secondary cable protection. Secondary cable protection is expected to be required primarily at the identified cable/pipeline crossing locations in the Sakonnet River, and in Rhode Island Sound where areas of harder seabed have been identified. Generally, the seabed conditions in the remainder of the ECC in the Sakonnet River and Mount Hope Bay are comprised of softer sediments which are expected to be suitable for cable burial and not require substantial secondary cable protection.

The offshore export cable installation and burial methods proposed by SouthCoast Wind will cause temporary disturbances to the seafloor within the ECC as outlined in Table 3-1 below. Sediment redeposition on the seabed following suspension during cable installation is evaluated in Attachment G - Hydrodynamics and Sediment Dispersion Modeling Technical Report; overall redeposition is localized.

Based on currently available information on the ECC, the percentage of the ECC that may require each type of seabed preparation method, cable installation method, and cable protection was estimated on a preliminary basis. This percentage was then used to estimate the total potential area of temporary seafloor disturbance during offshore export cable construction. These estimates are summarized in Table 3-1 with area of disturbance measured in acres and hectares.

TABLE 3-1. ESTIMATED TEMPORARY SEABED DISTURBANCE AREAS IN RHODE ISLAND

Seabed Disturbance	Area [a,c] (hectare)[d]
Export Cable Corridor (ECC)	
Offshore Export Cables	
Seabed Preparation [a]	25.3 (10.2)
Cable Installation [b]	94.9 (38.4)
Cable Protection [c]	15.2 (6.2)
Total Seabed Disturbance Area (Temporary)	**136.6 (54.8)**

Notes:

[a] Seabed preparation includes boulder field clearance over up to approximately 10% of the ECC in Rhode Island state waters, as well as local boulder removal via boulder grabs in other locations. It is also assumed that a grapnel run will be performed along the entire length of the ECC in Rhode Island state waters.

[b] Cable installation assumes cable burial along the ECC via one of the several methods under consideration, and conservatively assumes a width of surface impact of 19.7 ft (6.0 m) around each cable. Anchor impacts are considered as well—it is conservatively assumed that an anchored vessel will be used along the entire ECC in Rhode Island state waters. The area of impact due to anchoring assumes that an 8-point mooring spread is used, with an estimated impact diameter of 16.4 ft (5.0 m) per anchor. Where practical and safe, SouthCoast Wind will utilize dynamically positioned vessels, which will reduce anchoring impacts.

[c] The primary objective is to achieve a suitable target burial depth of the offshore export cables in the seabed along the entire cable route, by micro-routing the cables within the ECC and by assessing and selecting suitable installation/burial tooling for the seabed conditions. Cable protection impact areas assume mattresses and/or rock placement will be used at cable/pipeline crossings (where burial in the seabed is not possible) and for additional cable protection along the ECC if needed. Based on preliminary understanding of site conditions from desktop studies of the offshore export route, SouthCoast Wind estimates that up to 15% of the ECC in Rhode Island state waters will require additional cable protection, including material used at cable/pipeline crossings. It is assumed that a 19.7 ft (6.0 m) wide rock berm will be constructed if required. At each of the three third-party pipelines expected to be crossed, rock berms and/or a number of 9.8 ft (3.0 m) width x 19.7 ft (6.0 m) length mattresses are assumed to be used for cable separation and protection.

[d] Seabed disturbance calculations conservatively assume that the cables are un-bundled along the entire ECC in Rhode Island state waters, so the impact numbers presented assume two separately installed submarine power cables (with one dedicated communications cable installed along with one of the power cables). Where practicable, SouthCoast Wind will install the offshore export cables in a bundled configuration, which will significantly reduce seabed disturbance impacts (seabed disturbance areas will be reduced by approximately half where cables are bundled offshore).

3.1.4. Proposed Avoidance, Minimization, and Mitigation Measures

Below is a list of measures applicable to surficial geology and sediments that SouthCoast Wind will adopt:

- SouthCoast Wind will use BMPs to minimize sediment mobilization during offshore export cable installation.
- SouthCoast Wind, when feasible, will use technologies that minimize sediment mobilization and seabed sediment alteration for cable burial operations. This will include targeting to use cable burial methods (such as use of jet-sled cable burial tooling or other methods that employ sediment fluidization) that encourage natural backfill of the cable burial trench with the disturbed sediment during the trenching operation.
- SouthCoast Wind, where practical and safe, will utilize dynamically positioned vessels.
- SouthCoast Wind will utilize HDD for sea-to-shore transition to avoid disturbance to shoreline areas.
- The offshore export cables will be installed in a bundled configuration, where practicable, to reduce installation impact area and post-installation occupied area.
- The primary cable burial objective will be to achieve a suitable target burial depth of the offshore export cables in the seabed along the entire ECC (where possible), by micro-routing the cables within the ECC and by assessing and selecting suitable installation/burial tooling for the seabed conditions.
- Use of secondary cable protection (rock and/or mattresses) will be limited to the extent practicable.

3.2. WATER QUALITY

This section discusses offshore surface water uses and water quality in the Project Area. Available data on the affected environment from several sources was reviewed, including the Center for Coastal Studies, the Northeast Fisheries Science Center, National Oceanographic and Atmospheric Administration (NOAA), USEPA, USGS, RIDEM, RI CRMC, and Massachusetts Department of Environmental Protection (MassDEP). Water temperature, salinity, chlorophyll *a*, nutrients, dissolved oxygen, and turbidity were evaluated. SouthCoast Wind has prepared a hydrodynamic model and sediment transport analysis for the Project to evaluate potential for turbidity impacts during construction that is discussed in the sections below and included as Attachment G.

3.2.1. Affected Environment

The affected environment is described in this section in terms of regulatory classifications and available water quality data.

3.2.1.1. *RI CRMC Water Use Categories*

RI CRMC assigns water use categories for marine and coastal waters in accordance with the State or Rhode Island CRMP, as amended (aka, *The Redbook*) Section 2.00 Tidal and Coastal Pond Waters A.[12] Rhode Island state waters the ECC goes through are depicted on Figure 1-5 and described as follows:

- The Sakonnet River is designated as a Type 2 water. Type 2 waters are defined by the RI CRMC as having high scenic qualities, high value for fish and wildlife habitat, and with some exceptions, good water quality. Densely developed residential areas abut much of the waters in this category, and docks and the activities and small-scale alterations associated with residential waterfronts may be suitable.
- The Cove at Island Park in Portsmouth, Rhode Island will not be crossed by the Project, but is in the vicinity of the Project and is included here for completeness. This water body is designated as a Type 2 water, low-intensity use.
- The ECC in Mount Hope Bay is located in Type 4 waters. Type 4 waters are categorized by: (1) large expanses of open water in Narragansett Bay and the Sounds which support a variety of commercial and recreational activities while maintaining good value as fish and wildlife habitat; and (2) open waters adjacent to shorelines that could support water-dependent commercial, industrial, and/or high-intensity recreational activities.

  A short segment of the ECC is located within the lower bay of Mount Hope Bay overlaps with Type 6 waters (see Figure 1-5). To establish the boundaries of Type 6 waters the CRMC established a buffer to federal navigation channels that measures three times the channel depth. Type 6 waters are categorized for: (1) industrial waterfronts; and (2) commercial navigation channels. SouthCoast Wind has consulted with the USACE and has committed to routing the cables to avoid the Mount Hope Bay main shipping channel, the Tiverton channel and the buffer to these federal navigation channels, thus will not place cables within the Type 6 waters.

RIDEM Water Quality Classifications

The RIDEM Surface Water Quality Standards (250-RICR-150-05-1) and Water Quality Certification Regulations further categorize water quality standards for each waterbody. The waters of the State of Rhode Island (meaning all surface water and groundwater of the State) are assigned a Use Classification which is defined by the most sensitive uses which it is intended to protect. Waters are classified according to specific physical, chemical, and biological criteria which establish parameters of minimum water quality necessary to support the water Use Classification.

A majority of the ECC including Rhode Island Sound, Sakonnet River, and lower and mid-bay of Mount Hope Bay is mapped as Class SA (see Figure 1-4), which are waters designated for shellfish harvesting, direct human consumption, primary and secondary contact recreational activities, and fish and wildlife habitat. A small portion of the ECC in Mount Hope Bay near the Massachusetts state line is mapped as Class SB, which are waters designated for primary and secondary contact recreational activities, shellfish harvesting for controlled relay and depuration, and fish and wildlife habitat. Another small portion near the Massachusetts state line is mapped as Class SB1 which are waters designated for primary and secondary contact recreational activities and fish and wildlife habitat and suitable for aquacultural uses, navigation and industrial cooling. Class SA, SB and SB1 waters have good aesthetic value.

[12] 650-RICR-20-00-1

Clean Water Act Assessments

The federal CWA, under Section 305(b) requires states to assess and report on the overall quality of waters in their state including the 303(d) List of Impaired Waters. The State of Rhode Island Impaired Waters Report[13] provides an Integrated List consisting of five categories of water quality assessment information, with the fifth category being the list of impaired waters needing a Total Maximum Daily Load (TMDL). Table 3-2 identifies the waterbodies, water use categories and types, water quality standards and impairment status designated by the RI CRMC and RIDEM. Areas of Mount Hope Bay (Waterbody IDs RI0007032E-01A, RI0007032E-01B, RI0007032E-01C, and RI0007032E-01D) are listed Category 5 impaired waterbodies due to dissolved oxygen, total nitrogen, and fecal coliform. Nearshore areas of the Sakonnet River (Waterbody ID RI0010031E-01A) near the landfall in Portsmouth, Rhode Island are listed as Category 4A, waterbody impairments having approved TMDLs, due to fecal coliform. The TMDL was completed by RIDEM and approved by USEPA on April 7, 2005 so it was removed from the Category 5 Impaired Waters List.

[13] RIDEM Office of Water Resources. 2022. State of Rhode Island 2022 Impaired Waters Report. February 2022. Accessed from https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-09/2022%20RIDEM%20Impaired%20Waters%20Report%2012-01-2021.pdf.

TABLE 3-2. SURFACE WATER CATEGORIES AND CLASSIFICATIONS

Waterbody	Water Use Category[a]	Water Quality Classification[b]	TMDL[c]	Impairment Category[d/e]	Special Resource	Other
Sakonnet River (offshore)	2	SA	No	No	Recreation, ecological habitat, federal park, critical habitat (rare & endangered species)	Type 1 waters surround Gould Island
Sakonnet River Nearshore at Aquidneck Island cable landing	2	SA	Fecal Coliform	4A (fecal coliform)	No	TMDL completed 4/7/2005
Mount Hope Bay (mid-bay & lower bay)	4	SA	Fecal Coliform	5 (dissolved oxygen, total nitrogen, & fecal coliform)	No	TMDL for dissolved oxygen and total nitrogen scheduled for 2029.
Mount Hope Bay (upper bay)	4	SB/SB1	Fecal Coliform	5 (dissolved oxygen, total nitrogen, & fecal coliform)	No	TMDL for dissolved oxygen and total nitrogen scheduled for 2029.
Founder's Brook	N/A	A	No	5 (enterococcus)	No	Warm water fishery

Notes:

[a] Water use categories are defined in accordance with the RI CRMC "Red Book" (650-RICR-20-00-1). The definitions of the water use categories can be found below.

[b] Water quality classifications are defined in accordance with 250-RICR-150-05-1. The definitions can be found below.

[c] TMDL is defined in accordance with 73 C.F.R. 41069 - Clean Water Act Section 303(d).

[d] The impairment categories for waterbodies in Rhode Island were identified in the State of Rhode Island 2018-2020 Impaired Waters Report.

[e] RIDEM Office of Water Resources. 2021. Final 2018-2020 Delisting Document - Waterbody Impairments Removed from the Impaired Waters Lists. January 2021.

Category 2: *Attaining some of the designated uses; and insufficient or no data and information is available to determine if the remaining uses are attained.*

Subcategory 4A: *TMDL has been completed and approved by the USEPA.*

Subcategory 4B: *-Other pollution control requirements are expected to result in attainment of the water quality standard associated with the impairment. Note: These waters will continue to be listed as impaired for aquatic life use with causes of total nitrogen and dissolved oxygen and impaired for shellfishing use and primary and secondary contact use with fecal coliform as the cause.*

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Sakonnet River

Water quality data is available for the Sakonnet River collected in 2018 and 2019 by the USGS at Buoy monitoring station 413642071125701 located in the Sakonnet River near Gould Island, Rhode Island (USGS Sakonnet River Station Buoy).[14] Data collected for water temperature, salinity, dissolved oxygen, chlorophyll a, turbidity, total nitrogen, and total phosphorus are provided in Table 3-3.

The Sakonnet River remains saline throughout the year due to tidal influence. Water temperatures peak in the summer months when the river also reaches its lowest dissolved oxygen levels (Table 3-3).

A small area in the upper Sakonnet River north of a line extending from the southwestern-most corner of the stone bridge in Tiverton to the eastern-most extension of Morningside Lane in Portsmouth, and including the Project's cable landing area is listed in the *State of Rhode Island 2022 Impaired Waters Report* as impaired based on fecal coliform.[15] The area is identified as Category 4A – Waterbodies for which a TMDL has been developed. The 0.281-square mile area is impaired for shellfishing due to the presence of fecal coliform.[16]

TABLE 3-3. WATER QUALITY PARAMETERS MEASURED IN THE SAKONNET RIVER NEAR GOULD ISLAND BY USGS (2018-2019)

Season	Water Temp. (°C)[1]	Salinity (psu)[1,2]	Dissolved Oxygen (mg/L)[1]	Chlorophyll *a* (µg/L)[1]	Turbidity (NTU)[1,2]	Total Nitrogen (mg/L)[1]	Total Phosphorus (mg/L)[1]
Spring (n=8)[3]	15.9 ± 2.4	29 ± 0.8	7.3 ± 0.4	5.9 ± 3.1	1.7 ± 0.7	0.23 ± 0.04	0.04 ± 0.01
Summer (n=28)[3]	22.9 ± 1.7	30.9 ± 0.3	5.9 ± 0.8	6.5 ± 5.5	2.2 ± 0.5	0.29 ± 0.07	0.07 ±0.01
Fall (n=14)[3]	15 ± 4.4	29.3 ± 1.1	7.4 ± 0.9	2.7 ± 0.7	2.5 ± 0.7	0.34 ± 0.08	0.08 ± 0.01

Notes:

[1] Results show mean ± 1 standard deviation. psu = Practical Salinity Units; mg/L = milligrams per liter; µg/L = micrograms per liter; NTU = Nephelometric Turbidity Units; °C = degrees Celsius.

[2] Values for turbidity and salinity were only measured in 2018

[3] n= number of samples (not all samples were analyzed for all parameters).

Source: USGS. 2019. Water Quality Samples for USA: Sample Data. https://nwis.waterdata.usgs.gov/nwis/qwdata.

Mount Hope Bay

Water quality data was not found for Rhode Island state waters in Mount Hope Bay in Rhode Island, but data from two monitoring buoys in Massachusetts state waters are available. Two fixed-location buoys in Mount Hope Bay maintained by the University of Rhode Island Graduate School of Oceanography and MassDEP in the Cole River and Taunton River collect data during the summer and early fall between May and November. Data collected from these stations are available for the 2017 and 2018 seasons and is presented in Table 3-4.[17] Mount Hope Bay Buoy Data Report: 2017 and 2018 Fixed-Site Continuous

[14] USGS. 2019. *Water Quality Samples for USA: Sample Data*. https://nwis.waterdata.usgs.gov/nwis/qwdata.

[15] RIDEM Office of Water Resources. 2022. State of Rhode Island 2022 Impaired Waters Report. February 2022. Accessed from https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-09/2022%20RIDEM%20Impaired%20Waters%20Report%2012-01-2021.pdf.

[16] USEPA. n.d.. How's My Waterway? EPA. Retrieved February 10, 2023, from https://mywaterway.epa.gov/waterbody-report/RIDEM/RI0010031E-01A/2022/.

[17] Narragansett Bay Fixed-Site Monitoring Network. 2018. *Mount Hope Bay Marine Buoys [Water Quality Continuous Multiprobe Data Files].* https://www.mass.gov/info-details/mount-hope-bay-marine-buoy-continuous-probe-data#data-files-for-mount-hope-bay-marine-buoys-.

Monitoring is the most recently published summary report for the Cole River and Taunton River buoys.[18] Raw monitoring result data is available from 2019-2020, though summary statistics for these data sets have not yet been published.[19]

The four assessment units in the Rhode Island portion of Mount Hope Bay (RI0007032E-01A, RI0007032E01B, RI0007032E-01C, RI0007032E-01D) were previously listed as impaired for aquatic life use due to fish bioassessments in 1996, following a sharp decline in the number and diversity of fish associated with operations of the Brayton Point Power Station in Somerset.[20] These segments were also listed for water temperature impairment in 2000 due to the Brayton Point Power Station's thermal inputs. The TMDL for the water temperature impairment has been completed and approved by USEPA and the mid-bay and lower bay of Mount Hope Bay were reclassified from Category 5 (303d list) to Subcategory 4B (other pollution control requirements are reasonably expected to result in attainment of the water quality standard associated with the impairment) for fish bioassessments and water temperature.[21] Current monitoring data from this waterbody indicates that water quality standards for the once impaired Bay are now being met. Mount Hope Bay is still listed as an impaired water for dissolved oxygen, total nitrogen, and fecal coliform (see Table 3-3 above).

TABLE 3-4. MEAN AND STANDARD DEVIATION FOR WATER QUALITY PARAMETERS MEASURED IN MOUNT HOPE BAY (2017-2018)

Year	Site	Water Temp. (°C)[1]	Salinity (psu)[1]	Dissolved Oxygen (mg/L)[1]	Chlorophyll (RFU)[1]	Nitrate-N (mg/L)[1]
2017	Taunton River	20.3 ± 3.2	27.4 ± 1.2	7.4 ± 1.3	2.5 ± 2.2	0.12 ± 0.06
	Cole River	20.5 ± 3.3	27.9 ± 1.9	7.9 ± 1.3	4.3 ± 3.7	0.13 ± 0.06
2018	Taunton River	21.3 ± 4.3	27.2 ± 2.6	7.1 ± 1.2	2.7 ± 2.2	0.18 ± 0.08
	Cole River	21.4 ± 4.4	27.5 ± 2.1	7.5 ±1.2	2.7 ± 2.0	0.16 ± 0.06

Note:

[1] Results show mean ± 1 standard deviation. psu = Practical Salinity Units; mg/L = milligrams per liter; RFU = relative fluorescence units; °C = degrees Celsius.

Source: Narragansett Bay Fixed-Site Monitoring Network. 2018. Mount Hope Bay Marine Buoys [Water Quality Continuous Multiprobe Data Files]. https://www.mass.gov/info-details/mount-hope-bay-marine-buoy-continuous-probe-data#data-files-for-mount-hope-bay-marine-buoys-.

3.2.1.2. Summary of Water Quality Parameters

This section provides a discussion of available water quality data for each parameter including context within the hydrologic system.

[18] MassDEP. 2020. Mount Hope Bay Buoy Data Report: 2017 and 2018 Fixed-Site Continuous Monitoring. June 2020. https://www.mass.gov/doc/technical-memorandum-cn-5300-mount-hope-bay-buoy-data-report/download.

[19] Narragansett Bay Fixed-Site Monitoring Network. 2018.

[20] State of Rhode Island. 2021. Press Release: RI's List of Impaired Waters Approved by USEPA. February 26, 2021.

[21] RIDEM Office of Water Resources. 2021. Final 2018-2020 Delisting Document - Waterbody Impairments Removed from the Impaired Waters Lists. January 2021.

Temperature and Salinity

In tidal estuaries, temperature and salinity are affected by seasonal temperatures, tidal mixing and seasonal fresh water inflows from tributaries. Generally, temperature and salinity are higher in the summer and fall, and lower in the winter and spring. These general trends are illustrated in data presented in Tables 3-3 and 3-4. The Sakonnet River is a tidal straight with most influence coming from the Rhode Island Sound and Atlantic Ocean. Further upstream in Mount Hope Bay, mean salinity (Table 3-4) is slightly lower due to the freshwater influence from the Taunton and Cole rivers as well as the surrounding Narragansett watershed.[22]

Chlorophyll *a*

Chlorophyll *a* is a photosynthetic green pigment found in most phytoplankton and plant cells. Measuring chlorophyll *a* in the surface water is an indication of how much primary production is occurring in the surface of the ocean. Chlorophyll *a* is used as an indicator for eutrophication and levels will increase with increased phytoplankton production, which is often related to increased nutrient inputs.

The USGS reported Chlorophyll *a* in the Sakonnet River in 2018 and 2019 and there was some seasonal variability (Table 3-3).[23] During the summer, median concentrations of Chlorophyll *a* were 6.5 micrograms per liter (µg/L) while during the fall median concentrations were 2.7 µg/L. Upstream in Mount Hope Bay, the Chlorophyll *a* concentrations were slightly lower (Table 3-4).[24]

Nutrients

Nitrogen and phosphorus are two of the primary nutrients measured in coastal and marine waters. These nutrients are required for the growth of algae and phytoplankton, but excessive levels of these nutrients can lead to eutrophication, reduced water clarity, and lower levels of dissolved oxygen.

The USGS reported total nitrogen and total phosphorus concentrations for the Sakonnet River (Table 3-3), and the Narragansett Bay Fixed-Site Monitoring Network reported nitrate-N concentrations for Mount Hope Bay were much higher than in the Rhode Island Sound (Table 3-4). While both studies reported nutrients differently than the Center for Coastal Studies and USEPA National Coastal Condition Assessment studies, they indicated that nutrients were higher in the Sakonnet River and Mount Hope Bay. The Sakonnet River experienced its highest amount of nutrients, both nitrogen and phosphorus, in the fall season. Nutrient inputs are expected to come from the surrounding Narragansett Bay watershed, consisting of mostly developed land.

Dissolved Oxygen

Dissolved oxygen is essential for maintaining present conditions for aquatic life. Concentrations below 2.0 mg/L can lead to hypoxia, which is detrimental to most organisms. Dissolved oxygen level can be influenced by physical factors (e.g., water temperature) and biological factors (e.g., respiration, photosynthesis, and bacterial decomposition).

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[22] Narragansett Bay Fixed-Site Monitoring Network. 2018. Mount Hope Bay Marine Buoys [Water Quality Continuous Multiprobe Data Files]. https://www.mass.gov/info-details/mount-hope-bay-marine-buoy-continuous-probe-data#data-files-for-mount-hope-bay-marine-buoys-.

[23] USGS. 2019. Water Quality Samples for USA: Sample Data. https://nwis.waterdata.usgs.gov/nwis/qwdata.

[24] Narragansett Bay Fixed-Site Monitoring Network. 2018. Mount Hope Bay Marine Buoys [Water Quality Continuous Multiprobe Data Files]. https://www.mass.gov/info-details/mount-hope-bay-marine-buoy-continuous-probe-data#data-files-for-mount-hope-bay-marine-buoys-.

In the USGS data, the Sakonnet River dissolved oxygen levels were lowest in the summer months. During the summer the mean dissolved oxygen was about 5.9 mg/L (Table 3-3).[25] The Cole River and Taunton River buoys report healthy mean dissolved oxygen levels for Mount Hope Bay of around 7.5 mg/L (Table 3-4).[26]

Turbidity

Turbidity is a measure of water clarity or how much the material suspended in the water column decreases light penetration. Excessively turbid water can be detrimental to water quality if suspended sediments settle out and bury benthic communities, adversely affect filter feeders, or block sunlight needed by submerged vegetation.

Turbidity in the Sakonnet River reported by USGS (Table 3-3) was highest in the summer and fall seasons but overall, relatively low (less than 3 Nephelometric Turbidity Units).[27]

Ambient total suspended solids (TSS) load and concentrations have been monitored in Mount Hope Bay for many years, related to concerns for impacts of the three waste water treatment plants that discharge into the bay and rivers feeding the bay (USEPA 2016; Abdelrhman 2016; Desbonnet et al. 1992[28]).[29] Ambient TSS concentrations were observed ranging regularly from 2 mg/L to 15 mg/L, with a mean of in the range of 11 mg/L from a combination of the analysis of the river water used in the elutriate analyses (C2D 2003) and past dry and wet weather TSS measurements (Swanson and Isaji 2006).[30]

3.2.2. Potential Project Impacts

3.2.2.1. Construction and Decommissioning

Sediment suspension and effects on water turbidity during cable installation and HDD construction area excavation are the primary concerns for water quality impacts. To evaluate this impact, SouthCoast Wind contracted with Swanson Environmental to complete a hydrodynamic and sediment transport modeling study for cable installation and HDD construction area excavation, which is included as Attachment G.

The model was used to estimate the highest concentration of sediment suspended in the water column (measured as TSS) and the areal extent at any one point during cable installation and HDD construction area excavation. The duration that sediment was suspended in the water as the sediment resettled to the seabed was also estimated.

The water column concentrations presented are the maximum TSS concentration above background anywhere in the water column at each 20 m x 20 m (65 ft x 65 ft) concentration grid cell over the total

[25] USGS. 2019. Water Quality Samples for USA: Sample Data. https://nwis.waterdata.usgs.gov/nwis/qwdata.
[26] Narragansett Bay Fixed-Site Monitoring Network. 2018. Mount Hope Bay Marine Buoys [Water Quality Continuous Multiprobe Data Files]. https://www.mass.gov/info-details/mount-hope-bay-marine-buoy-continuous-probe-data#data-files-for-mount-hope-bay-marine-buoys-.
[27] USGS. 2019. Water Quality Samples for USA: Sample Data. https://nwis.waterdata.usgs.gov/nwis/qwdata.
[28] Desbonnet, A., D. Lazinsky, S. Codi, C.Baisden, and L. Cleary, 1992. An Action Plan for the Taunton River Watershed: Assessment and Recommendations. Report of the U. Mass. Boston to the National Oceanic and Atmospheric Administration. Funded by grant NOAA Award No. NA90AA-H-CZB42.
[29] USEPA. 2016. Modeling Total Suspended Solids (TSS) Concentrations in Narragansett Bay, by Mohamed A. Abdelrhman. U.S. Environmental Protection Agency Atlantic Ecology Division NHEERL ORD, 27 Tarzwell Drive Narragansett, RI 02882 USA National Health and Environmental Effects Research Laboratory Office of Research and Development Narragansett, RI 02882 USA. EPA/600/R-16/195, August 2016.
[30] Swanson. C. and Isaji. T. 2006. Simulation of Sediment Transport and Deposition from Cable Burial Operations for the Alternative Site of the Cape Wind Energy Project. ASA Final Report 05-128.

duration of the cable installation. Ambient TSS load and concentrations have been monitored in Mount Hope Bay for many years, related to concerns for impacts of the three waste-water treatment plants that discharge into the bay and rivers feeding the bay (USEPA 2016; Abdelrhman 2016; Desbonnet et al. 1992).[31] Ambient TSS concentrations were observed ranging regularly from 2 mg/L to 15 mg/L, with a mean of in the range of 11 mg/L from a combination of the analysis of the river water used in the elutriate analyses (C2D 2003) and past dry and wet weather TSS measurements (Swanson and Isaji 2006).[32]

An overview of the distance from the cable installation point where TSS may be elevated by 100 mg/L and the duration of that concentration as sediment resettles to the seabed is provided in Table 3-5. The 100 mg/L increase is typically used as a biological threshold in water quality evaluations. In the Sakonnet River, suspended sediment concentrations fell below 100 mg/L 20 minutes or less after the cable was installed at a given location. The duration of the elevated water column concentrations in Mount Hope Bay was longer (up to 4.6 hours) apparently due to higher currents in the bay. In Rhode Island Sound, the duration was generally less than 20 minutes, except for an area near the RI state line where the duration was longer (up to 3.0 hours).

TABLE 3-5. TURBIDITY INCREASE DURING CABLE INSTALLATION– EXTENT AND DISSIPATION OF 100 MG/L TSS

	Maximum Distance from Indicative ECC Centerline (km)	Time for TSS to Drop Below 100 mg/L (min)
Sakonnet River	0.61	20
Mount Hope Bay	1.16	280
RI Sound	0.37	175

The HDD construction area excavation impacts were smaller compared with the impact resulting from cable installation (Table 3-6). The 100 mg/L threshold TSS concentration was contained within 0.32 km (0.2 mi) and was within the ECC boundaries in all cases. The modeling approach was highly conservative, as the source was assumed to be at a single point and continuous over a 1-hour period, releasing 100% of the dredged material into the water column. The area coverage of the 100 mg/L or greater level was contained within an average of 5.0 ha (12 ac).

TABLE 3-6. TURBIDITY INCREASE DURING OFFSHORE HDD CONSTRUCTION EXCAVATION – EXTENT AND DISSIPATION OF 100 MG/L TSS

HDD Construction Area	Maximum Distance from Release (km)	Time for TSS to Drop Below 100 mg/L (min)
Mount Hope Bay HDD	0.14	100
Sakonnet River HDD	0.25	100

Water quality effects from vessel operations are not anticipated. All operations will be compliant with relevant and applicable state and federal regulations for management, storage and disposal of

[31] USEPA. 2016. Modeling Total Suspended Solids (TSS) Concentrations in Narragansett Bay, by Mohamed A. Abdelrhman. U.S. Environmental Protection Agency Atlantic Ecology Division NHEERL ORD, 27 Tarzwell Drive Narragansett, RI 02882 USA National Health and Environmental Effects Research Laboratory Office of Research and Development Narragansett, RI 02882 USA. EPA/600/R-16/195, August 2016.

[32] Swanson. C. and Isaji. T. 2006. Simulation of Sediment Transport and Deposition from Cable Burial Operations for the Alternative Site of the Cape Wind Energy Project. ASA Final Report 05-128.

equipment, fuels, maintenance materials and waste products. Procedures outlined in the Emergency Response Plan (ERP) Requirements (Attachment E) and the OSRP (COP, Appendix AA) will be followed, and contractors will develop task specific procedures where necessary prior to in-water construction activities to include spill response, solid waste management, hazardous material management and sanitary waste management.

Water quality impairment issues in the Project Area include coliform bacteria, total nitrogen and dissolved oxygen in Mount Hope Bay and nearshore areas of the Sakonnet River. The Project will not result in any discharges related to these parameters and will not contribute to these water quality impairments.

Increased turbidity during cable installation and HDD excavation will dissipate quickly and will be short term, with no long term effects on water quality.

3.2.3. Proposed Avoidance, Minimization, and Mitigation Measures

Below is a list of measures applicable to water quality that SouthCoast Wind will adopt:

- SouthCoast Wind will select and use BMPs to minimize sediment mobilization during construction.
- SouthCoast Wind, when feasible, will use technologies that minimize sediment mobilization and seabed sediment alteration for cable burial operations. This will include targeting to use cable burial methods (such as use of jet-sled cable burial tooling or other methods that employ sediment fluidization) that encourage natural backfill of the cable burial trench with the disturbed sediment during the trenching operation.
- Project vessels will follow USCG requirements at 33 C.F.R. 151 and 46 C.F.R. 162 regarding bilge and ballast water.
- All Project vessels are to comply with regulatory requirements related to the prevention and control of discharges and accidental spills including USEPA requirements under the USEPA 2013 Vessel General Permit and state and local government requirements.
- SouthCoast Wind will comply with the regulatory requirements related to the prevention and control of discharges and accidental spills as documented in the proposed Project's ERP (Attachment E).
- SouthCoast Wind has developed an HDD Inadvertent Release of Drilling Muds Contingency Plan (Attachment F) to mitigate, control, and avoid unplanned discharges related to HDD activities.

3.3. Benthic and Shellfish Resources

3.3.1. Affected Environment

This section includes and evaluation of benthic and shellfish resources within the ECC. Additional information about shellfish is discussed in the context of essential fish habitat of invertebrate species in Section 3.3.1.3 below.

SouthCoast Wind has collected extensive geophysical data (COP, Appendix E, MSIR) and benthic survey ground-truth data (COP, Appendices M and M.2, M.3 Benthic Resources) to support the mapping and characterization of benthic habitats within the Project Area.

SouthCoast Wind conducted two benthic surveys of the ECC in Fall 2021 and Spring 2022; sediment grab samples (analyzed for grain size, total organic carbon and biological communities) and images of the seabed were collected and analyzed. A total of 180 benthic stations were sampled within the ECC in Rhode Island state waters. Geophysical surveys were also conducted for the entire ECC and resulting datasets on sediment type, boulders, geoforms, and bedforms were also used in to characterize benthic resources in the Study Area. These multiple data streams were integrated to prepare detailed benthic habitat assessment and mapping which is presented in Attachment H.

Approximately 6,036 acres were mapped in the ECC in Rhode Island state waters (Table 3-6), with distinct differences in habitat composition in the estuarine (Mount Hope Bay and Sakonnet River) and offshore (Rhode Island Sound) areas (Figure 3-2). Forty-one percent of the ECC in Rhode Island state waters was comprised of Mud to Muddy Sand habitat, and 21% was Sand habitat, which was primarily mapped at the mouth of the Sakonnet River and in Rhode Island Sound.

Mud to Muddy Sand habitats were the primary habitat types mapped throughout the Sakonnet River and Mount Hope Bay (Figure 3-2), which are both depositional estuarine environments. *Crepidula* Substrate was found overlying these muds in some areas of the upper Sakonnet River and in the lower Mount Hope Bay (Figure 3-2). Very small areas of Mud to Muddy Sand – with Boulder Field(s), Glacial Moraine, and Bedrock habitat types were mapped in the lower portion of Mount Hope Bay near Aquidneck Island (Figure 3-2).

The benthic habitat assessment prepared by Inspire Environmental (Attachment H), makes a distinction between Glacial Moraine A and Glacial Moraine B habitats to distinguish between areas of unconsolidated geological debris: (A) and consolidated geological debris (B); Glacial Moraine B was not mapped within the Project Area. Glacial Moraine B deposits are characteristically poorly sorted and dense with very high boulder densities resulting in greater structural complexity and permanence. By comparison, the surface of Glacial Moraine A units found in the Project Area were reworked with sand and gravel deposits resulting in less structural complexity and permanence.

Glacial Moraine A was mapped in Rhode Island Sound near the Rhode Island state waters line; intermixed with these habitats and extending further north were Mixed-Size Gravel in Muddy Sand to Sand habitats interspersed with Sand habitats (Figure 3-2). The distribution of these habitats is related to the offshore extension of the Buzzards Bay moraine, a terminal moraine that is perhaps an extension of the Point Judith moraine near the mouth of the Sakonnet River.[33] Clusters of individual surficial boulders generally with gravel components (Glacial Moraine, Mixed-Size Gravel in Muddy Sand to Sand – with Boulder Field(s)) and proximal areas were mapped in Rhode Island Sound and in the lower portion of Mount Hope Bay near Aquidneck Island. The sensitive taxa of the northern star coral *Astrangia poculata* was observed at 80% of the glacial moraine stations along the ECC.

3.3.1.1. Submerged Aquatic Vegetation

Submerged Aquatic Vegetation (SAV) beds, dominated by *Zostera marina*, represent unique habitats in shallow coastal waters. SAV extent varies over time and these aquatic plants experience peak growth

[33] As mapped by Baldwin et al., 2016; COP Appendix E, MSIR.

during late summer months. SAV are found in mud and muddy sand sediments. SAV distribution is periodically mapped across Narragansett Bay using aerial imagery and field verification by the URI Environmental Data Center on behalf of the state of Rhode Island (URI Environmental Data Center and RIGIS; Figure 4-3, Attachment H). SAV beds were not mapped by URI within the ECC. The closest SAV mapped by URI is near the mouth of the Sakonnet River, located over 1.0 km from the edges of the ECC (Figure 4-3, Attachment H). However, based on distinct side-scan sonar signatures in the geophysical data collected by SouthCoast Wind, SAV and/or macroalgae may be present in the vicinity of the ECC in the Sakonnet River south of the onshore Aquidneck Island crossing, but this area has not yet been field-verified (Figure 4-4, Attachment H). The area will be re-surveyed for SAV prior to construction, as necessary, to guide HDD placement to avoid impacts to SAV.

3.3.1.2. Consistency with Previous Studies

Several recently published studies are available in the peer-reviewed and gray literature related to benthic habitats and fauna within Narragansett Bay, which include the Sakonnet River and/or Mount Hope Bay (e.g., LaFrance et al. 2019; Hale et al. 2018[34]; Shumchenia and King 2019; Shumchenia et al. 2016[35]).[36] The benthic habitats and their characterizing sediments and benthic biological communities as mapped for this SouthCoast Wind assessment generally agree with these recent publications. Surficial sediment and benthic habitat maps compiled from a suite of geophysical data and sediment grab samples show Mount Hope Bay as composed primarily of Sandy Mud and Mud (LaFrance et al. 2019). The Sakonnet River was not mapped in this study.

Recent biotopes mapped from a SPI survey conducted throughout Narragansett Bay in 2018 (Shumchenia and King 2019)[37] provide further support for the habitat types mapped in the Sakonnet River and Mount Hope Bay by SouthCoast Wind. For example, "Mud with Crepidula Beds" was the biotope identified at the sampling station in that study coincident with the Mud and Sandy Mud with *Crepidula* Substrate habitat type mapped by SouthCoast Wind (Tables 3-7 and 3-8) at the northern end of the Sakonnet River. Similarly, "Mud with Shell Hash and burrowers" was documented at two stations sampled in that study at the southwestern end of Mount Hope Bay coinciding with and in the vicinity of Mud and Sandy Mud with Shell/*Crepidula* Substrate habitats where Soft Sediment Fauna and Mollusk Reef Biota Coastal and Marine Ecological Classification System (CMECS) Biotic Subclasses were documented by SouthCoast Wind. There was similar concordance to the northeast in Mount Hope Bay near the Rhode Island-Massachusetts state waters boundary where biotopes of "Mud with burrowers" and "Mud or Organic-rich Mus with small tube-builders" mapped by that study corresponded to Mud to Muddy Sand habitats with Soft Sediment Fauna CMECS Biotic Subclasses mapped by SouthCoast Wind.

[34] Hale, S.S., Hughes, M.M., & Buffum, H.W., (2018). Historical trends of benthic invertebrate biodiversity spanning 182 Years in a southern New England estuary. Estuaries and Coasts. http://link.springer.com/article/10.1007/s12237-018-0378-7.
[35] Shumchenia, E.J., Guarinello, M.L., & King, J.W. (2016). A re-assessment of Narragansett Bay Benthic Habitat Quality Between 1988 and 2008. Estuaries and Coasts 39: 1463-1477.
[36] LaFrance., M., Shumchenia. E., King. J., Pockalny. R., Oakley. B., Pratt. S., and Boothroyd. 2010. Benthic Habitat Distribution and Subsurface Geology Selected Sites from the Rhode Island Ocean Special Area Management Study Area. Ocean Special Area Management Plan.
[37] Shumchenia. E.J. and King. J.W. 2010.Comparison of Methods for Integrating Biological and Physical Data for Marine Habitat Mapping and Classification. Continental Shelf Research. Volume 30, Issue 16, 30 September 2010, ppg. 1717-1729.

TABLE 3-7. COMPOSITION AND CHARACTERISTICS OF MAPPED BENTHIC HABITAT TYPES WITHIN THE BRAYTON POINT ECC IN RHODE ISLAND STATE WATERS

Brayton Point ECC - Rhode Island State Waters *(~6,036 acres mapped)*		Presence in Brayton Point ECC – RI State Waters	
		Area (acres)	Percentage
Glacial Moraine A	Predominantly in Rhode Island Sound	185	3.1%
Mixed-Size Gravel in Muddy Sand to Sand	Only in Rhode Island Sound	510	8.5%
Coarse Sediment - with Boulder Field(s)	Only in Rhode Island Sound	0.004	0.0001%
Coarse Sediment	Only in Rhode Island Sound	0.1	0.001%
Sand - with Boulder Field(s)	Only in Rhode Island Sound	61	1.0%
Sand - Mobile with Boulder Field(s)	Only in Rhode Island Sound	33	0.6%
Sand – Mobile	Only in Rhode Island Sound	121	2.0%
Sand	In Rhode Island Sound & the Sakonnet River	1,263	20.9%
Mud to Muddy Sand - with SAV	Only in the Sakonnet River	3.6	0.06%
Mud to Muddy Sand - *Crepidula* Substrate with Boulder Field(s)	Only in Mount Hope Bay	4.4	0.07%
Mud to Muddy Sand - (Likely) *Crepidula* Substrate with Boulder Field(s)	Only in Mount Hope Bay	86	1.4%
Mud to Muddy Sand - Shell / *Crepidula* Substrate	Only in Mount Hope Bay	511	8.5%
Mud to Muddy Sand - *Crepidula* Substrate	In the Sakonnet River & Mount Hope Bay	704	11.7%
Mud to Muddy Sand - (Likely) *Crepidula* Substrate	Only in the Sakonnet River	37	0.62%
Mud to Muddy Sand - Mobile	Only in the Sakonnet River	29	0.48%
Mud to Muddy Sand	In the Sakonnet River & Mount Hope Bay	2,476	41.0%
Bedrock	In the Sakonnet River & Mount Hope Bay	3.3	0.06%
Anthropogenic	In the Sakonnet River & Mount Hope Bay	6.7	0.11%

SAV = Submerged Aquatic Vegetation

TABLE 3-8. CHARACTERISTICS OF MAPPED BENTHIC HABITAT TYPES AS INFORMED BY BENTHIC GROUND-TRUTH DATA WITHIN THE BRAYTON POINT ECC IN RI STATE WATERS

Brayton Point ECC - RI State Waters *(~6,036 acres mapped)*		Glacial Moraine A *Predominantly in RI Sound*	Mixed-Size Gravel in Muddy Sand to Sand *Only in RI Sound*	Sand - with Boulder Field(s) *Only in RI Sound*	Sand – Mobile *Only in RI Sound*	Sand *In RI Sound & the Sakonnet River*	Mud to Muddy Sand – with Boulder Field(s) *Only in Mount Hope Bay*	Mud to Muddy Sand - *Crepidula* Substrate *In the Sakonnet River & Mount*	Mud to Muddy Sand *In the Sakonnet River & Mount Hope Bay*
SPI/PV Ground-truth Values	Number of benthic stations[1]	10	25	4	4	20	1	40	64
	CMECS Substrate Subgroups Observed in Ground-truth Data[2]	Gravel Pavement, Sandy Gravel, Muddy Sand Gravel, Muddy Gravel, Very Coarse/Coarse Sand	Gravel Pavement, Sandy Gravel, Muddy Gravel, Gravelly Sand, Gravelly Muddy Sand, Medium Sand, Fine/Very Fine Sand	Sandy Gravel, Medium Sand, Fine/Very Fine Sand	Gravelly Sand, Medium Sand	Medium Sand, Fine/Very Fine Sand	N/A	Pebble/Granule, Sandy Gravel, Muddy Sandy Gravel, Gravelly Sand, Gravelly Muddy Sand, Gravelly Mud	Muddy Gravel, Gravelly Muddy Sand, Muddy Sand, Fine/Very Fine Sand, Gravelly Mud
	CMECS Biotic Subclasses Observed in Ground-truth Data	Attached Fauna, Soft Sediment Fauna	Attached Fauna, Inferred Fauna, Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna	Attached Fauna, Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna	None	Attached Fauna, Inferred Fauna, Mollusk Reef Biota, Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna

Brayton Point ECC - RI State Waters *(~6,036 acres mapped)*		Glacial Moraine A *Predominantly in RI Sound*	Mixed-Size Gravel in Muddy Sand to Sand *Only in RI Sound*	Sand - with Boulder Field(s) *Only in RI Sound*	Sand – Mobile *Only in RI Sound*	Sand *In RI Sound & the Sakonnet River*	Mud to Muddy Sand – with Boulder Field(s) *Only in Mount Hope Bay*	Mud to Muddy Sand - *Crepidula* Substrate *In the Sakonnet River & Mount*	Mud to Muddy Sand *In the Sakonnet River & Mount Hope Bay*
	Presence of Attached Fauna Observed in Ground-truth Data (% of stations)	Yes (90.0%)	Yes (28.0%)	No	Yes (25.0%)	No	No	Yes (40.0%)	Yes (1.6%)
	Sensitive Taxa Observed in Ground-truth Data (% of stations)[3]	Northern Star Coral (80.0%)	Northern Star Coral (12.0%)	None	None	None	None	None	None
	Non-Native Taxa Observed in Ground-truth Data (% of stations)[3]	None	None	None	None	None	None	None	None

Notes:
N/A = Not Applicable
Of the 18 total habitat types mapped (Table 3-6), 8 intersect with ground-truth stations.
[1] Benthic sampling includes SPI/PV, grab, and GrabCam stations.
[2] Substrate Subgroup determined from combined SPI/PV analysis.
[3] Sensitive and Non-Native Taxa determined from PV analysis.

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3.3.1.3. Shellfish

According to the Rhode Island Shellfish Management Plan, the Sakonnet River portion of the ECC is home to several commercially valuable shellfish, including the bay scallop (*Agropected irradians*), ocean quahog (*Arctica islandica)*, and soft-shelled clam (*Mya arenaria).*[38] Ocean quahogs have also been observed in Mount Hope Bay, alongside channeled and knobbed whelks. Historic abundances of these species have been reduced by water quality degradation and habitat loss. Currently, the Sakonnet River is protected as a Shellfish Management Area by RIDEM (R.I.G.L. § 20-3-4) for the purposes of shellfish conservation and stock rebuilding. Management strategies employed by RIDEM to achieve these goals include reduced daily harvest limits, no harvest, limited access time, and rotational harvest.[39]

Shellfishing is currently prohibited in the vicinity of the Project Area in portions of Rhode Island state waters in Mount Hope Bay (Area GA-3) and in portions of the upper Sakonnet River (GA4).[40]

The ECC does not overlap with any current aquaculture areas, although there are some in the vicinity. There are several approved aquaculture areas (see Figure 3-3) within The Cove on Aquidneck Island and adjacent to Hog Island, both areas are located within the Town of Portsmouth. The aquaculture areas within The Cove and along the east and west banks of the Sakonnet River primarily culture Eastern oysters (*Crassostrea virginica*) and soft-shelled clams (*Mya arenaria*).

3.3.2. Potential Project Impacts

SouthCoast Wind is siting the marine cable based on field data collection, analysis and mapping of the physical and biological characteristics of the seabed and engineering the cable route to minimize bottom disturbance, avoid sensitive resources and to reach target burial depths to the extent practicable. The cable route engineering drawings in Attachment C-1 are a product of a multi-year effort to carefully site the marine cables. The potential impacts to benthic habitat are discussed in the following subsections.

3.3.2.1. Impacts to Glacial Moraine

As discussed above, 185 acres of the ECC (3.1% of the ECC in RI waters) was mapped as moraine habitat, mostly in RI Sound with small area of moraine in lower Mount Hope Bay near the Portsmouth cable landing. Cable route engineering used seabed mapping to avoid moraine and boulders wherever practicable, and to minimize the need to move boulders during pre-installation seabed preparation. Where moving boulders is required, the boulders will be moved a minimum distance and within a similar habitat as practicable. During O&M, disturbance to the seafloor could result from temporarily anchored maintenance vessels and secondary cable protection along the export cables where needed. Decommissioning activities will have similar impacts to the seafloor as construction. Because the area of moraine crossed by the cable laying is relatively minimal, cable crossing of moraine within the ECC is minimized through microrouting where practicable, movement of boulders during seabed preparation is mitigated by BMPs, impacts of cable installation are short-term and localized, and no impacts are

[38] URI Coastal Resources Center. 2014. *Rhode Island Shellfish Management Plan Version II: November 2014.* Available online at: http://www.rismp.org/wp-content/uploads/2014/04/smp_version_2_11.18.pdf.
[39] URI Coastal Resources Center, 2014
[40] RIDEM Office of Water Resources. 2022. Notice of Polluted Shellfishing Grounds May 2022 Amended September 2022. Accessed January 4, 2023. https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-09/shellfish_0.pdf

anticipated during operation, the overall impacts to moraine habitat from the Project are anticipated to be minimal.

3.3.2.2. Impacts to Benthos at HDD Locations

All the potential HDD construction area locations under consideration in RI State Waters are located within Mud to Muddy Sand – *Crepidula* Substrate or Shell / *Crepidula* Substrate (Figure 4-2, Attachment H). It is expected that *Crepidula* gastropods would recolonize areas disturbed by the offshore HDD area construction relatively quickly for several reasons. First, in this region, *Crepidula* are present and extend over a much broader area than the specific areas that would be disturbed at the offshore HDD construction area. This regional population will be a source of larvae to aid in recolonization of the disturbed seafloor. Timing for recolonization will depend on larval recruitment; the gregarious settlement of their larvae on conspecifics (Zhao and Qian 2002)[41] generally leads to very dense accumulations with a flat, reef-like texture as live shells build over dead shells. *Crepidula* have relatively high fecundity, typically reproducing in the spring and/or summer, and often females will reproduce twice per year (Pechenik et al. 2017; Proestou et al. 2008[42]; Richard et al. 2006[43]).[44] These life cycle characteristics aid in the proliferation of *Crepidula* populations and allow for the recovery of populations following disturbance given a source of larvae is maintained. *Crepidula* are native to the United States Atlantic coast but have been successful at quickly spreading in the United States Pacific Northwest and in Europe where they are not native (SERC 2022)[45]. This indicates that Crepidula are capable of recolonizing an area relatively easily following a disturbance such as HDD construction area excavation.

3.3.2.3. Impacts from Sediment Suspension and Resettlement on the Seabed

During installation of the cable and excavation of the offshore HDD construction areas, disturbed sediments will become suspended in the water column and redeposited on the seabed. According to the results of the Hydrodynamics and Sediment Transport Modelling Report (Attachment G), the sediment deposition footprint resulting from cable installation will be localized along the ECC where the mass settles out quickly. Deposition thicknesses of 1.0 mm (0.04 inch) and greater are generally limited to a corridor with a maximum width of 30 - 35 m (100 – 115 ft) around the cable centerline. In the areas where there are finer grain sediments, the 1.0 mm (0.04 inch) thickness contour distance can increase locally to 165 m (540 ft) from the ECC indicative centerline. Following construction, currents and tidal action will likely redistribute sediment to pre-construction conditions.

The sedimentation footprint for HDD sites is calculated to be very small with a maximum coverage of the 1.0 mm (0.04 inch) thickness contour of only 0.5 ha (1.2 ac), extending a maximum distance of 95 m (312 ft) and 1.0 ha (2.5 ac) for the 0.5 mm (0.02 inch) thickness contour, extending a maximum distance

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[41] Zhao, B., Qian, P. (2002) Larval settlement and metamorphosis in the slipper limpet Crepidula onyx (Sowerby) in response to conspecific cues and the cues from biofilm. Journal of Experimental Marine Biology and Ecology, 269 (1): 39-51.

[42] Proestou, D.A., Goldsmith, M.E., & Twombly S. (2008). Patterns of Male Reproductive Success in *Crepidula fornicata* Provide New Insight for Sex Allocation and Optimal Sex Change. *Biological Bulletin*, 214: 184-202.

[43] Richard, J., Huet, M., Thouzeau, G., & Paulet, Y. (2006). Reproduction of the invasive slipper limpet, *Crepidula fornicata*,in the Bay of Brest, France.

[44] Pechenik, J.A., Diederick, C.M., Chaparro, O.R., Montory, J.A., Paraedes, F.J., & Franklin, A.M. (2017). Differences in resource allocation to reproduction across the intertidal-subtidal gradient for two suspension-feeding marine gastropods: Crepidula fornicata and Crepipatella peruviana. Marine Ecology Progress Series, 572: 165-178.

[45] Smithsonian Environmental Research Center (SERC) National Estuarine and Marine Exotic Species Information System (NEMESIS). (2022). *Crepidula fornicata* species profile. Accessed September 11, 2022 https://invasions.si.edu/nemesis/species_summary/72623.

of 158 m (518 ft) from the HDD site. Deposition thicknesses are greater if the location of the release is fixed. Cable burial operations are mobile, and thus will produce smaller maximum deposit thicknesses. The total coverage of the 1.0 mm (0.04 inch) and 0.5 mm (0.02 inch) thickness levels along the entire ECC was 361 ha (892 ac) and 531 ha (1,312 ac), respectively.

Some benthic species exhibit mechanical and possibly physiological adaptations that allow them to survive deposition events of the magnitude commonly encountered in estuarine environments, which can be similar to sediment deposition caused by cable installation.[46] Burrowing bivalve clams, burrow-forming amphipods, and juvenile oysters were highly tolerant, while a tube-dwelling (*Stresblospio benedicti*) was relatively unsuccessful at moving through the sediment to regain the sediment-water interface.[47] Benthic substrates that shift constantly due to waves and currents could experience lower potential burial effects.

Sediment redistribution and deposition on the seabed during construction is expected to be localized. Given the naturally occurring tidal currents within the Project Area, local species are expected to have some level of tolerance to sediment redistribution. Following construction, currents and tidal action will likely redistribute sediment to pre-construction conditions.

3.3.2.4. Displacement of Benthic Communities during Construction Activities

The benthic habitat will also be impacted by short-term displacement during cable installation and anchoring. Benthic communities are expected to recolonize the impact area following construction activities. Recolonization rates of benthic habitats are driven by the benthic communities inhabiting the area surrounding the impacted region. Habitats that can be easily colonized from neighboring areas and communities well adapted to disturbance within their habitats (e.g., sand sheets) are expected to recover quickly. For communities not well adapted to frequent disturbance (e.g., deep boulder communities), recovery depends on a range of factors, such as seasonal larval abundance, and are assumed to generally take longer to become established - upwards of a year to begin recolonization. Depending on the type(s) of cable and scour protection used by SouthCoast Wind, these introduced hard bottom substrates may lead to habitat gain in localized areas for benthic communities and may cause an artificial reef effect, turning biodiversity-poor, soft-sediment habitat into hardbottom, biodiverse communities.

Impacts are not anticipated to SAV during construction and decommissioning. HDD will be used at cable landings to avoid shallow areas with potential for SAV. Potential SAV identified at the Sakonnet River landing at Portsmouth will be field inspected as needed prior to construction. Given the short-term suspension and redeposition of sediment during the offshore HDD construction area excavation as discussed above, impacts to SAV are not anticipated.

Shellfish resources within the ECC and the offshore HDD construction areas will be disturbed during cable installation. SouthCoast Wind will use HDD at landings to avoid disturbance to nearshore productive shellfish beds to the extent practicable. SouthCoast Wind will select lower impact construction methods where possible and will micro-route cables within the selected ECC to avoid complex habitats to the extent practicable. To further decrease impacts, SouthCoast Wind's ECC was selected with consideration to minimize the length of cable needed.

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[46] Hinchey, E.K., L.C. Schaffner, C.C. Hoar, B.W. Vogt, and L.P. Batte. 2006. Responses of Estuarine Benthic Invertebrates to Sediment Burial : The Importance of Mobility and Adaptation. *Hydrobiologia* 556, 85-98. February 2006.

[47] Hinchey et al. 2006

SouthCoast Wind will, to the greatest extent practicable, bury cables to a target burial depth and use proper burial methods to allow for benthic recolonization after construction is complete.

3.3.2.5. Changes in Ambient Electric and Magnetic Fields

SouthCoast Wind conducted an electric and magnetic field (EMF) analysis including several different modeled offshore export cable burial and cable spacing scenarios to represent both likely (typical) submarine cable conditions and worst-case (atypical) conditions following cable installation (Attachment J).

The highest modeled magnetic field (MF) levels for the typical case (bundled HVDC cables) and atypical (conservative) cases would occur directly above the cables (peaking at 123 mG for the typical installation case, and ranging from 1,909 to 3,785 mG across the two other possible installation cases), with a rapid reduction in MF levels with increasing lateral and vertical distance from the cables. For example, MF cancellation is increased by the bundling of two cables with current in equal but opposite polarity, the analysis shows 93 > 99% reductions in MF levels. At lateral distances of ±25 ft (±7.6 m) from the cable bundle centerlines and at lateral distances of ±25 ft, there is little difference in MF levels for the buried versus the surface-laid cables.

The conservative modeling analysis showed that direct current (DC) MF levels will be increased only for small areas along the seafloor around certain localized cable locations where conservative (and atypical/worst case) installation conditions are present, contributing to highly localized deviations from the earth's DC geomagnetic field. As discussed in Attachment J, the weight of the currently available scientific evidence does not provide support for concluding there would be population-level harm to marine species from EMFs associated with HVDC submarine transmission.

The offshore export cables will be shielded/armored and buried beneath the seafloor, which is expected to substantially decrease EMF detection by EMF-sensitive marine species. Potential exposure to EMFs will be short- or long-term, depending on the proximity of the species to the cables. Sessile benthic species are expected to be exposed to potential EMFs more than mobile benthic species, which are expected to move in and out of the cable area.

There is limited research indicating that some invertebrate species are able to detect changes in EMF, and that EMF effects from undersea cables could cause disorientation in invertebrate species and may redirect locomotion in response to the changes in the magnetic environment. [48,49] However, given that the target burial depth and the cable shielding/armoring will dampen the EMF effects, EMFs from the proposed export cables are not expected to affect benthic communities.

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[48] Hutchison, Z., Sigray, P., He, H., Gill, A.B., King, J., & Gibson, C. 2018. Electromagnetic Field (EMF) impacts on elasmobranch (shark, rays, and skates) and American lobster movement and migration from direct current cables. OCS Study BOEM 2018-003. https://espis.boem.gov/final%20reports/5659.pdf.; Love, M.S., M.M. Nishimoto, L. Snook, D.M. Schroeder & A.S Bull. 2017. A Comparison of Fishes and Invertebrates Living in the Vicinity of Energized and Unenergized Submarine Power Cables and Natural Sea Floor off Southern California, USA. Journal of Renewable Energy, 2017, Article ID 8727164. 13 pages. https://doi.org/10.1155/2017/8727164.; Normandeau (Normandeau Associates, Inc.). 2014. Understanding the Habitat Value and Function of Shoal/Ridge/Trough Complexes to Fish and Fisheries on the Atlantic and Gulf of Mexico Outer Continental Shelf: Draft Literature Synthesis pursuant to BOEM Contract No. M12PS00031. https://www.boem.gov/sites/default/files/non-energy-minerals/Final-Draft-Report.pdf.

[49] Gill, A.B., Gloyne-Phillips, I., Neal, K.J., & Kimber J.A. 2005. The potential effects of electromagnetic fields generated by sub-sea power cables associated with offshore wind farm developments on electrically and magnetically sensitive marine organisms – a review. Collaborative Offshore Wind Research into the Environment (COWRIE), Ltd, UK. 128 pp. https://tethys.pnnl.gov/sites/default/files/publications/The_Potential_Effects_of_Electromagnetic_Fields_Generated_by_Sub_Sea_Power_Cables.pdf.

3.3.3. Proposed Avoidance, Minimization, and Mitigation Measures

Below is a list of measures applicable to benthic and shellfish resources that SouthCoast Wind will adopt:

- SouthCoast Wind will use HDD at landfall locations to avoid disturbance to nearshore productive shellfish beds to the extent practicable.
- SouthCoast Wind has developed an HDD Inadvertent Release of Drilling Muds Contingency Plan (Attachment F), which outlines the measures to be implement should there be a pressure loss and release of drillings muds during the HDD operations.
- Design the sea-to-shore transition to reduce the dredging footprint and effects to benthic organisms (e.g., cofferdam and/or gravity cell).
- Use HDD at landings to avoid disturbance to nearshore finfish, invertebrates, EFH, and sensitive habitats (e.g., SAV beds) to the extent practicable and to minimize spatial and temporal effects to benthic organisms.
- Select export cable corridors and micro-route cables within selected corridors to avoid complex habitats, where possible (see Offshore Export Cable Engineering Drawings in Attachment C-1).
- Design the cable burial layout to minimize length of cable needed and bury cables, where possible, to allow for benthic recolonization after construction is complete.
- Use industry standard cable burial and cable shielding methods to reduce potential effects/change in ambient EMF during operations and maintenance. In addition, SouthCoast Wind's Project cable burial layout was designed to minimize length of cable needed to reduce potential effects from EMF.
- Install offshore export cables to target burial depths and use cable shielding materials to minimize effects of EMF.
- Incorporate lower-impact construction and decommissioning methods, where possible, to reduce introduced sound into the environment and to reduce actions that may displace biological resources.
- SouthCoast Wind will select lower impact construction methods, where possible.
- The ECC was designed to minimize length of cable (and associated seabed impacts) needed. SouthCoast Wind will bury cables, where possible, to allow for benthic recolonization after construction is complete. Use of secondary cable protection (rock and/or mattresses) will be limited to the extent practicable, but are expected, at a minimum, to be installed at crossings of existing submarine cables and pipelines in accordance with the International Cable Protection Committee protocols.
- The offshore export cables will be installed in a bundled configuration where practicable, to reduce installation impact area and post-installation occupied area.

3.4. Finfish and Essential Fish Habitat

This section describes finfish and associated Essential Fish Habitat (EFH) with a focus on species of particular concern in the Rhode Island ECC. Detailed information on EFH in the Project Area is available

in the COP, Appendix M3 and Attachment H - Benthic Habitat Mapping Report. Information from both of those sources, along with publicly available data and reports, is integrated into the following section.

3.4.1. Affected Environment

Commercially valuable species that have been observed along the ECC include red and silver hake (*Merluccius bilinearis*), summer and winter flounder, and scup.[50, 51] Demersal residents in these nearshore areas include winter flounder, American eel (*Anguilla rostrata*), Atlantic tomcod (*Microgadus tomcod*), and white perch (*Morone americana*).[52] In recent years, there has been a community shift from year-round resident species to summer migrants (such as summer flounder (*Paralichthys dentatus)*, black sea bass (*Centropristis striata*), scup (*Stenotomus chrysops)*, and butterfish (*Peprilus triacanthus*).[53, 54]

Rhode Island Sound provides important linkages between the estuarine, nearshore and offshore systems, including nutrient fluxes, larval transport, and juvenile and adult migrations.[55] A total of 101 species were recorded in a multiyear fishery-independent survey (2009 to 2012) in Rhode Island and Block Island Sounds.[56] Biodiversity decreased in Rhode Island Sound during the winter and increased during summer and fall, with an influx of anadromous species, including alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and striped bass (*Morone saxatilis*).[57, 58]

3.4.1.1. Designated Essential Fish Habitat

There are 38 species of finfish, skate, and shark species with mapped EFH in the ECC. Table 3-9 provides an overview of the fishery status and preferred habitats of the species with known EFH in the ECC based on NOAA's *Essential Fish Habitat Mapper* and the SouthCoast Wind Essential Fish Habitat Assessment and Protected Fish Species Assessment (COP Appendix N).

The Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended in 1996 by the Sustainable Fisheries Act, sets forth a mandate for NMFS, regional Fishery Management Councils, and other federal agencies to identify and protect important marine and anadromous fisheries habitat, referred to as EFH, and further requires that EFH consultation be conducted for any activity that may adversely affect important habitats of federally managed marine and anadromous fish species. EFH has been defined as, "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802[10]).

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[50] Malek et al. 2014
[51] Stokesbury. 2012 and 2014
[52] Evans et al. 2015
[53] Rhode Island Sea Grant. 2018. The Murder Mystery of Narragansett Bay's Winter Flounder. Available online at: http://seagrant.gso.uri.edu/murder-mystery-narragansett-bays-winter-flounder/.
[54] Evans et al., 2015
[55] Malek, A.J., J.S. Collie, and J. Gartland. 2014. Fine-scale spatial patterns in the demersal fish and invertebrate community in a northwest Atlantic ecosystem. *Estuarine and Coastal Shelf Science* 147:1-10.
[56] Malek et al., 2014
[57] Evans, N.T., K.H. Ford, B.C. Chase, & J.J. Sheppard. 2015. *Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts*. Report by the Massachusetts Division of Marine Fisheries.
[58] Malek et al., 2014

TABLE 3-9. FINFISH, SKATE, AND SHARK SPECIES WITH MAPPED EFH IN THE BRAYTON POINT ECC

Common Name	Species Name	Mapped EFH in the Offshore Project Area
Finfish		
Albacore tuna	*Thunnus alalunga*	• EFH for juvenile and adult life stages in the offshore portion of the ECC. • EFH for juvenile life stage only in Sakonnet River/Mount Hope Bay portion of the ECC.
Butterfish	*Peprilus triacanthus*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Atlantic cod	*Gadus morhua*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Atlantic herring	*Clupea harengus*	• EFH for all life stages in the offshore portion of the ECC. • EFH for larval, juvenile, and adult life stages only in Sakonnet River/Mount Hope Bay portion of the ECC.
Atlantic mackerel	*Scomber scombrus*	• EFH for all life stages in the Sakonnet River/Mount Hope Bay portion of the ECC. • EFH for egg, larval, and juvenile life stages only in the offshore portion of the ECC.
Atlantic wolffish	*Anarhichas lupus*	• EFH for all life stages in the offshore portion of the ECC.
Black sea bass	*Centropristis striata*	• EFH for juvenile and adult life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Bluefin tuna	*Thunnus thynnus*	• Juvenile and adult life stage EFH in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Bluefish	*Pomatomus saltatrix*	• EFH for juvenile and adult life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Haddock	*Melanogrammus aeglefinus*	• EFH for egg, larval, and juvenile life stages only in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Monkfish	*Lophius americanus*	• EFH for all life stages in the offshore portion of the ECC.
Ocean pout	*Macrozoarces americanus*	• EFH for egg, juvenile, and adult life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Offshore hake	*Merluccius albidus*	• Larval life stage EFH in the offshore portion of the ECC.
Pollock	*Pollachius and P. virens*	• EFH for egg, larval, and juvenile life stages in the offshore portion of the ECC. • EFH for juvenile life stage only in the Sakonnet River/Mount Hope Bay portion of the ECC.
Red hake	*Urophycis chuss*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Scup	*Stenotomus chrysops*	• EFH for all life stages in the Sakonnet River/Mount Hope Bay portion of the ECC. • EFH for juvenile and adult life stages only in the offshore portion of the ECC.
Silver hake	*Merluccius bilinearis*	• EFH for egg, larval, and adult life stages only in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Skipjack tuna	*Katsuwonus pelamis*	• EFH for juvenile and adult life stages in the offshore portion of the ECC. • EFH for adult life stage only at the Sakonnet River/Mount Hope Bay portion of the ECC.

Common Name	Species Name	Mapped EFH in the Offshore Project Area
Summer flounder	*Paralichthys dentatus*	• EFH for all life stages in the offshore portion of the ECC. • EFH for larval, juvenile, and adult life stages only in the Sakonnet River/Mount Hope Bay portion of the ECC.
White hake	*Urophycis tenuis*	• EFH for larval and juvenile life stages only in the offshore portion of the ECC.
Windowpane flounder	*Scophthalmus aquosus*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Winter flounder	*Pseudopleuronectes americanus*	• EFH for all life stages in the Sakonnet River/Mount Hope Bay portion of the ECC. • EFH for larval, juvenile, and adult life stages only in the offshore portion of the ECC.
Witch flounder	*Glyptocephalus cynoglossus*	• EFH for egg, larval, and adult life stages only in the offshore portion of the ECC.
Yellowfin tuna	*Thunnus albacares*	• EFH for juvenile and adult life stages in the offshore portion of the ECC. • EFH for juvenile life stage only in the Sakonnet River/Mount Hope Bay portion of the ECC.
Yellowtail flounder	*Pleuronectes ferruginea*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Skates		
Little skate	*Leucoraja erinacea*	• Juvenile and adult life stage EFH in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Winter skate	*Leucoraja ocellata*	• Juvenile and adult life stage EFH in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Sharks		
Basking shark	*Cetorhinus maximus*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Blue shark	*Prionace glauca*	• Neonate, juvenile, and adult life stage EFH in the offshore portion of the ECC.
Common thresher shark	*Alopias vulpinus*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Dusky shark	*Carcharhinus obscurus*	• EFH for all life stages in the offshore portion of the ECC.
Great white shark	*Carcharodon carcharias*	• EFH for all life stages in the offshore portion of the ECC. • EFH for neonate life stage only in Sakonnet River/Mount Hope Bay portion of the ECC.
Sand tiger shark	*Carcharias taurus*	• Neonate and juvenile life stage EFH in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Sandbar shark	*Carcharhinus plumbeus*	• EFH for juvenile and adult life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.
Shortfin mako shark	*Isurus oxyrinchus*	• Neonate, juvenile, and adult life stage EFH in the offshore portion of the ECC.
Smoothhound shark (Atlantic Stock)	*Mustelus canis*	• EFH for all life stages in the offshore portion and Sakonnet River/Mount Hope Bay portion of the ECC.

Common Name	Species Name	Mapped EFH in the Offshore Project Area
Spiny dogfish	*Squalus acanthias*	• Male and female sub-adult and adult life stage EFH in the offshore portion of the ECC. • EFH for sub-adult female and adult male life stages only in the Sakonnet River/Mount Hope Bay portion of the ECC.
Tiger shark	*Galeocerdo cuvier*	• Juvenile and adult life stage EFH in the portion of the ECC.

3.4.1.2. Endangered and Threatened Finfish Species

There are two federally and state-listed finfish species that may occur in the ECC: Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus)* and shortnose sturgeon (*Acipenser brevirostrum*).[59]

The Atlantic sturgeon is listed as endangered under the ESA.[60] It is also a Species of Greatest Conservation Need under the Rhode Island Wildlife Action Plan.[61] Due to its preference for inshore coastal water depths and gravelly and sand substrates.[62] Atlantic sturgeon may be present within the ECC and near the landfall locations throughout the year. This species is likely to be more prevalent in the warmer months of the year, when individual adult Atlantic sturgeon migrate to coastal rivers and streams for spawning.[63]

The shortnose sturgeon is listed as endangered under the ESA and as a Species of Greatest Conservation Need under the Rhode Island Wildlife Action Plan.[64, 65] It is an anadromous finfish species found mainly in large freshwater rivers and coastal estuaries located along the east coast of North America, from New Brunswick to Florida. Based on its habitat preferences, shortnose sturgeon may occur in the nearshore areas of the ECC and landfall locations.

3.4.1.3. Essential Fish Habitat and Habitat Areas of Particular Concern

EFH and Habitat Areas of Particular Concern (HAPC) are designated by the New England Fishery Management Council for certain species and life stages of fish and invertebrates in the nearshore and offshore waters of New England, including the area covered by the Study Area. These designations are comprised of two components: (1) broad geographic areas (e.g., nearshore waters and seafloor shallower than 20 m; mapped 10-min squares) and (2) text documentation that describes the habitat characteristics that constitute EFH and/or HAPC within the designated geographic areas. Therefore, spatial data on the distribution of those habitat characteristics are needed to refine the specific location of EFH and/or HAPC.

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[59] Greater Atlantic Regional Fisheries Office (GARFO). 2019. The Greater Atlantic Region ESA Section 7 Mapper (vers. 2.0). Retrieved October 2020 from: https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27.

[60] National Oceanic and Atmospheric Administration. NOAA. 2020. Species directory: Atlantic Sturgeon. Available on-line at: https://www.fisheries.noaa.gov/species/atlantic-sturgeon.

[61] RIDEM. 2015. 2015 Rhode Island Wildlife Action Plan. http://www.dem.ri.gov/programs/bnatres/fishwild/swap/sgcncomm.pdf.

[62] Stein, A.B., Friedland, K.D., & Sutherland, M. 2004. Atlantic sturgeon marine distribution and habitat use along the northeastern coast of the United States. *Transactions of the American Fisheries Society*, 133(3), 527-537.

[63] Dunton, K.J., A. Jordaan, K.A. McKown, D.O. Conover, and M.G. Frisk. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus*) within the Northwest Atlantic Ocean, determined from five fishery-independent surveys. U.S. *National Marine Fisheries Service Fishery Bulletin*, 108, 450–464.

[64] NOAA 2020.

[65] RIDEM 2015.

HAPC designated by the New England Fishery Management Council for juvenile cod include structurally complex rocky-bottom or vegetated habitat in inshore areas at depths less than 65 ft (20 m) that provide juvenile cod with protection from predation and support a wide variety of prey items (NEFMC 2017).[66] Cobble habitats are essential for the survival of juvenile cod in that they may assist with avoiding predation by older year classes (Gotceitas and Brown 1993)[67] and recent studies suggest that rocky, hard bottom habitats may be important for reproduction (DeCelles et al. 2017).[68] Additional studies suggest that structures such as boulders and SAV, which provide vertical relief for predator avoidance and feeding, may be the primary drivers of cod settlement and nursery habitat use in Narragansett Bay and coastal Rhode Island rather than complex cobble substrates given that these waters are largely characterized by fine-grained sediments (Langan et al. 2020).[69] The entire seafloor of both the Sakonnet River and Mount Hope Bay is shallower than 20 m, but only very limited areas contain complex rocky-bottom habitat consistent with characteristics that match the HAPC description for juvenile cod. The majority of the ECC shallower than 20 m was mapped as Sand and Mud to Muddy Sand which are habitats less likely to be used by juvenile cod (Figure 4-6, Attachment H). The majority of the 361 acres (6% of the ECC in Rhode Island state waters), mapped with HAPC characteristics, is located in Rhode Island Sound.

Winter flounder are a demersal species likely to occur year-round within the Study Area. Adult winter flounder prefer soft bottom muddy and sandy substrates, but also utilize hard bottoms on offshore banks (Pereira et al. 1999).[70] Adult winter flounder migrate to nearshore/estuarine waters in the late fall and early winter to spawn and then may migrate to cooler, offshore waters in the summer. Winter flounder lay benthic eggs in shallow (<16 ft [5.0 m]) nearshore waters, bays, and estuaries in mud, muddy sand, gravel, macroalgae, and submerged aquatic vegetation (NEFMC 2017).[71] EFH designated by the New England Fishery Management Council for winter flounder eggs, young-of-the-year (YOY) juveniles, and spawning adults in the Study Area are likely to be found from January through June (Massie 1998)[72] in Mixed-Size Gravel in Muddy Sand to Sand, Coarse Sediment, Sand, and Mud to Muddy Sand habitats, as well as any benthic substrate with SAV. The characteristic of these mapped habitats match the EFH description and have been mapped to encompass 731 acres of the ECC (12.1% of the portion in Rhode Island state waters; Figure 4-7, Attachment H). Non-spawning winter flounder adults and older juveniles are more frequently found in continental shelf benthic habitats and deeper coastal waters than in the shallower habitats utilized by eggs and YOY (NEFMC 2017; Phelan 1992).[73] Therefore, juveniles and non-spawning adults are likely to utilize Mixed-Size Gravel in Muddy Sand to Sand, Coarse Sediment, Sand, and Mud to Muddy Sand habitats in the Study Area.

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[66] New England Fishery Management Council (NEFMC). (2017). *Omnibus essential fish habitat amendment 2. Volume 2: EFH and HAPC designation alternatives and environmental impacts.* October 25, 2017.

[67] Gotceitas, V. & Brown, J.A. (1993). Substrate selection by juvenile Atlantic cod (Gadus morhua): effects of predation risk. Oecologia 93: 31-37

[68] DeCelles, G. R., Martins, D., Zemeckis, D. R., & Cadrin, S. X. (2017). Using Fishermen's Ecological Knowledge to map Atlantic cod spawning ground on Georges Bank. ICES Journal of Marine Science, 74: 1587–1601.

[69] Langan, J.A., M.C. McManus, D.R. Zemeckis, and J.S. Collie. (2020). Abundance and distribution of Atlantic cod (*Gadus morhua*) in a warming southern New England. *Fishery Bulletin* 120:187–189.

[70] Pereira, J. J., Goldberg, R., Ziskowski, J. J., Berrien, P. L., Morse, W. W., & Johnson, D. L. (1999). Essential fish habitat source document: winter flounder, Pseudopleuronectes americanus, life history and habitat characteristics. NOAA Tech Memo NMFS-NE-138; 48 pp.

[71] New England Fishery Management Council (NEFMC). (2017). Omnibus essential fish habitat amendment 2. Volume 2: EFH and HAPC designation alternatives and environmental impacts. October 25, 2017.

[72] Massie, F. D. (1998). The Uncommon Guide to Common Life on Narragansett Bay. Providence, Rhode Island: Save The Bay.

[73] Phelan, B. A. (1992). Winter flounder movements in the inner New York Bight. Trans. Am. Fish. Soc., 121: 777-784.

3.4.2. Potential Project Impacts

3.4.2.1. Construction Impacts Assessment - Finfish

Most of the potential Project impacts to finfish and EFH would be temporary and reversible in nature. Finfish communities and EFH are expected to return to pre-construction conditions following the Project's construction. Construction activities may temporarily illicit avoidance or attraction behaviors and/or a stress response in finfish. Introduced sound and/or a change in ambient lighting during construction activities may cause this behavioral disturbance. Changes in ambient lighting will occur on a limited, highly localized basis as necessary for safe construction and are not expected to significantly affect finfish.

The actual footprint of Project activities will be smaller than the Study Area (i.e., the entire corridor for which habitats were mapped). Where juvenile cod benthic habitats are found, these habitats would experience some impacts from Project activities that permanently or temporarily disturb the seafloor, such as the burying of export cables and long-term presence of secondary cable protection measures in hard bottom areas where target cable burial depth is not possible. Given their preference for hard bottom/complex habitat, cable mattresses, rock berms, or frond mattresses used as secondary cable protection may provide increased habitat availability for both adult and juvenile cod (Reubens et al. 2013).[74] Depending on the material used, secondary protection may be colonized by barnacles, tube-forming species, hydroids, and other fouling species found on existing hard bottom habitat in the region. Other Project activities are not expected to result in long term adverse impacts to either adult or juvenile cod EFH.

Impacts from Project activities related to installation of the export cable in shallow nearshore (<16 ft [5.0 m]) waters may temporarily directly affect winter flounder eggs, YOY, and spawning adults. Eggs could be entrained within the jet plow or experience increased mortality due to sediment suspension (Berry et al. 2011).[75] These impacts are expected to be minor because they will disturb a small portion of available EFH in the area and temporary because the substrates within nearshore portions of the ECC are expected to return to essentially the same as pre-existing conditions, allowing for continued use by spawning winter flounder, YOY, and eggs. Juveniles and adult flounder may also be temporarily displaced by seafloor disturbing activities. Winter flounder are expected to recolonize most areas once construction is complete, however similar to other species that utilize sandy habitats, they may experience small amounts of permanent habitat loss in areas that are converted from sandy sediments to hard bottom habitats should secondary cable protection be needed.

Loss of habitat due to conversion to hard bottom where cable protection is required is not expected to have a significant impact on these species due to the large area of alternate suitable habitat available. See Section 2.3.9 for additional details on the potential need for secondary cable protection.

The concentrations of suspended sediment in the water column (measured as turbidity) will increase for a short period during and following cable installation in the seabed; see Section 3.2.2 of this application

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[74] Reubens, J., Braeckman, U., Vanaverbeke, J., Van Colen, C., Degraer, S., & Vincx, M. (2013). Aggregation at windmill artificial reefs: CPUE of Atlantic cod (Gadus morhua) and pouting (Trisopterus luscus) at different habitat in the Belgian part of the North Sea. Fish. Res. 139: 28-34.

[75] Berry, W. J., Rubinstein, N. I., Hinchey, E. K., Klein-MacPhee, K. G., & Clarke, D. G. (2011). Assessment of DredgingInduced Sedimentation Effects on Winter Flounder (Pseudopleuronectes americanus) Hatching Success: Results of Laboratory Investigations. Proceedings of the Western Dredging Association Technical Conference and Texas A&M Dredging Seminar. Nashville, TN.

and the Hydrodynamics and Sediment Dispersion Modeling Report in Attachment G. Elevated turbidity levels are expected to decrease quickly following cable installation, dropping to under 100 mg/L over ambient concentrations within five hours. Given the short duration and relatively low levels of increase, impacts to fish and fishing activities are not anticipated.

Potential harassment or mortality could occur due to seabed disturbance, planned and unplanned discharges, and other accidental events. The Emergency Spill Response Plan will be followed to prevent and respond to unplanned discharges and accidental events. Reduced prey availability and habitat loss may occur during Project construction. The seabed surface is expected to return to pre-construction conditions due to natural infill from tidal motion, except where secondary cable protection is necessary. In these areas, habitat modification will occur through the addition of cable and scour protection.

3.4.2.2. EMF Impacts Assessment - Finfish

EMFs are created anywhere there is a flow of electricity, and their strength diminishes within a short distance from the source. Thus, a change in ambient EMF may occur around the submarine power cables. The strength of electric fields depends on voltage, which is the pressure behind the flow of electricity. Magnetic fields are produced by current, which is the flow of electricity. A Magnetic Field Analysis study was conducted by POWER and Gradient, Inc. to model the magnetic fields produced by typical offshore cable configurations for the Project and contextualize them to the latest research and guidelines for the marine environment (Attachment J). The modeling analysis focuses on magnetic fields because the electric fields arising from the voltage on the export cables will be shielded by cable materials.

Three configurations of offshore HVDC cables were modeled, including the typical installation case where the two direct current conductors are bundled together as well as two atypical, worst-case installation scenarios.[76] Only for the two atypical installation cases will magnetic field levels above the offshore export cables appreciably differ from the earth's steady (DC) geomagnetic field, and only within short distances from the cables. The weight of the currently available evidence does not provide support for concluding there would be population-level harms to marine species from EMF associated with HVDC submarine transmission. This conclusion regarding a lack of evidence of population-level harm to marine species from HVDC-related EMFs is supported by findings from recent governmental reports and expert state of the science reviews.

No regulatory thresholds or guidelines for allowable EMF levels in marine environments have been established for either HVDC or HVAC transmission. There is a growing body of evidence suggesting that EMFs from HVDC cables may be perceptible to some electromagnetic-sensitive marine species, but there remains a lack of evidence indicating potential harmful impacts at the population- or community-level for the various types of marine species which may experience exposure to DC EMFs from submarine export cables.[77] Additional details can be found in Attachment J – Magnetic Field Modeling

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[76] One worst-case installation case assumes the bundled conductors are laid directly on the seafloor surface and covered by a concrete mattress, such as at a cable crossing location. The other is an unbundled installation case where the two DC conductors are separately buried approximately 164 ft (50 m) apart at a target depth of 2.0 m to be used as needed to ensure safe installation and repair of the separate cables, as well as to minimize risk of damage to both cables from threats such as anchor strike.

[77] CSA Ocean Sciences Inc.; Exponent. 2019. "Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England." Report to US Department of the Interior, Bureau of Ocean Energy Management (BOEM). OCS Study BOEM 2019-049, 62p., August.; Gill, AB; Desender, M. 2020. "Risk to Animals from Electromagnetic Fields Emitted by Electric Cables and Marine Renewable Energy Devices." Report to Ocean Energy Systems (OES), in OES-Environmental 2020 State of the Science Report: Environmental Effects of Marine Renewable Energy Development Around the World (Eds: Copping, AE; Hemery, LG), p. 87-103. doi: 10.2172/1633088.; US Offshore Wind Synthesis of Environmental Effects Research (SEER). 2022. "SEER Webinar #4: Electromagnetic Fields &

Report. This conclusion regarding a lack of evidence of population-level harms to marine species from HVDC-related EMFs is supported by findings from recent governmental reports and expert state of the science reviews. A BOEM sponsored study in 2019 concluded, based on its review of the state of the knowledge regarding potential EMF-related impacts on marine life, "The operation of offshore wind energy projects is not expected to negatively affect commercial and recreational fishes within the southern New England area. Negligible effects, if any, on bottom-dwelling species are anticipated. No negative effects on pelagic [*i.e.*, in upper layers of the open sea] species are expected due to their distance from the power cables buried in the seafloor."

3.4.3. Proposed Avoidance, Minimization, and Mitigation Measures

Proposed avoidance, minimization, and mitigation measures applicable to the potential impacts to finfish and EFH are presented below.

- SouthCoast Wind will design the sea-to-shore transition to reduce the dredging footprint and effects to benthic organisms (e.g., offshore cofferdam and/or gravity cell).
- Cable route engineering is being completed to achieve target burial depth of 6.0 ft where practicable, to avoid use of surface cable protection and to minimize the potential for EMF effects.
- The Project will use HDD at landfall locations to avoid disturbance to finfish and invertebrate EFH to the extent practicable.
- SouthCoast Wind will coordinate with RIDEM Division of Fish and Wildlife (RI DFW), RI DMF, RI CRMC, RIDEM, the USFWS and the NMFS to identify appropriate mitigation measures, including seasonal construction constraints, if required.
- SouthCoast Wind will select lower impact construction methods, where possible.
- SouthCoast Wind has engineered the cable route to avoid EFH and sensitive benthic habitats, where possible.
- The ECC was designed to minimize length of cable (and associated seabed impacts). SouthCoast Wind will bury cables, where feasible, to allow for benthic recolonization after construction is complete. Use of secondary cable protection (rock and/or mattresses) will be limited to the extent practicable.
- The offshore export cables will be installed in a bundled configuration where practicable, to reduce installation impact area and post-installation occupied area.

Vessel Collision: Effects on Marine Life from Offshore Wind Energy." February 22, 32p. Accessed on March 7, 2022 at https://tethys.pnnl.gov/sites/default/files/events/SEER-EMFVessels-Webinar-Slides.pdf.; Taormina, B; Bald, J; Want, A; Thouzeau, G; Lejart, M; Desroy, N; Carlier, A. 2018. "A review of potential impacts of submarine power cables on the marine environment: Knowledge gaps, recommendations and future directions." Renew. Sustain. Energy Rev. 96 :380-391. doi: 10.1016/j.rser.2018.07.026.

3.5. Marine Mammals and Sea Turtles

3.5.1. Affected Environment

This section includes and evaluation of whales, other marine mammals and sea turtles within the ECC.

3.5.1.1. Marine Mammals

SouthCoast Wind evaluated available literature and government databases, marine mammal-specific surveys conducted for the proposed Project, as well as local and regional information regarding habitat use, abundance, and distribution of marine mammal species known to occur in the waters surrounding the ECC.

Sightings of whales and dolphins in the Sakonnet River, Mount Hope Bay, and nearshore Rhode Island are rare, and there have only been a few reported sightings of marine mammal species, besides seals, within Narragansett Bay.[78] Harbor seals (*Phoca vitulina)* are routinely sited from fall through spring and several haul-out sites exist at Rome Point, Brenton Point, Citing Rock, Cold Spring Rock, Seal Rock, and Cormorant Cove with the size of the region harbor seal population and number of haul-out sites increasing in recent years.[79] Since the majority of the Rhode Island ECC is within the Sakonnet River and Mount Hope Bay, the risk of impact to marine mammals in Rhode Island waters is very low given the low overall densities of animals and the avoidance and mitigation measures that SouthCoast Wind vessels are required to implement, such as assigning protected species and environmental observers to operating vessels and implementing strike avoidance measures.

Additional marine mammal species can be found in the Rhode Island Sound, as listed in Table 3-10 Fifteen species are considered common or uncommon in terms of their likely occurrence within the ECC in Rhode Island Sound. The remaining sixteen species are considered rare within the ECC. The marine mammal species listed in Table 3-10 have been previously observed and/or recorded during surveys specific to offshore wind development for BOEM-specific assessments, surveys conducted in and around the Rhode Island/Massachusetts Wind Energy Area and the ECC as part of long-term population assessments, and/or in NOAA Marine Mammal Stock Assessment reports of the Rhode Island/ Massachusetts Wind Energy Area.

TABLE 3-10. MARINE MAMMAL SPECIES WITH POTENTIAL TO OCCUR IN RHODE ISLAND SOUND

Common Name	Scientific Name	Stock	RI SGCN[a]	Likely Occurrence within Project Area
Baleen whales				
Blue whale	*Balaenoptera musculus*	Western North Atlantic	-	Rare
Fin whale	*Balaenoptera physalus*	Western North Atlantic	SGCN	Common
Humpback whale	*Megaptera novaeangliae*	Gulf of Maine	SGCN	Common
Minke whale	*Balaenoptera acutorostrata*	Canadian East Coast	-	Common

[78] Raposa, K.B., and M.L. Schwartz. 2009. *An Ecological Profile of the Narragansett Bay National Estuarine Research Reserve*. 2009.
[79] Schwartz, 2021

Common Name	Scientific Name	Stock	RI SGCN[a]	Likely Occurrence within Project Area
North Atlantic right whale	*Eubalaena glacialis*	Western North Atlantic	SGCN	Common
Sei whale	*Balaenoptera borealis*	Nova Scotia	-	Common
Toothed whales				
Atlantic white-sided dolphin	*Lagenohynchus acutus*	Western North Atlantic	-	Common
Atlantic spotted dolphin	*Stenella frontalis*	Western North Atlantic	-	Rare
Blainville's beaked whale	*Mesoplodon densirostris*	Western North Atlantic	-	Rare
Common bottlenose dolphin[b]	*Tursiops truncatus*	Western North Atlantic	-	Common
Cuvier's beaked whale	*Ziphius cavirostris*	Western North Atlantic	-	Rare
Dwarf sperm whale	*Kogia sima*	Western North Atlantic	-	Rare
Gervais' beaked whale	*Mesoplodon europaeus*	Western North Atlantic	-	Rare
Killer whale	*Orcinus orca*	Western North Atlantic	-	Rare
Long-finned pilot whale	*Globicephala melas*	Western North Atlantic	-	Uncommon
Pantropical spotted dolphin	*Stenella attenuata*	Western North Atlantic	-	Rare
Pygmy sperm whale	*Kogia breviceps*	Western North Atlantic	-	Rare
Risso's dolphin	*Grampus griseus*	Western North Atlantic	-	Uncommon
Short-beaked common dolphin	*Delphinus delphis*	Western North Atlantic	-	Common
Short-finned pilot whale	*Globicephala macrorhynchus*	Western North Atlantic	-	Rare
Sowerby's beaked whale	*Mesoplodon bidens*	Western North Atlantic	-	Rare
Sperm whale	*Physeter macrocephalus*	North Atlantic	-	Uncommon
Striped dolphin	*Stenella coeruleoalba*	Western North Atlantic	-	Rare
True's beaked whale	*Mesoplodon mirus*	Western North Atlantic	-	Rare
White-beaked dolphin	*Lagenorhynchus albirostris*	Western North Atlantic	-	Rare
Porpoises				
Harbor porpoise	*Phocoena phocoena*	Gulf of Maine/Bay of Fundy Stock	SGCN	Common

Common Name	Scientific Name	Stock	RI SGCN[a]	Likely Occurrence within Project Area
Pinnipeds				
Gray seal	*Halichoerus grypus*	Western North Atlantic	-	Common
Harp seal	*Pagophilus groenlandicus*	Western North Atlantic	-	Uncommon
Harbor seal	*Phoca vitulina*	Western North Atlantic	SGCN	Common
Hooded seal	*Crysophora cristata*	Western North Atlantic	-	Rare
West Indian Manatee	*Trichechus manatus*	Florida	-	Rare

Notes:

[a] Species of Greatest Conservation Need (SGCN) are identified by RIDEM and the Rhode Island Chapter of The Nature Conservancy in the Rhode Island Wildlife Action Plan.

3.5.1.2. Sea Turtles

Four species of sea turtles have the potential to occur in the ECC, all of which are federally listed and listed as a Species of Greatest Conservation Need (SGCN) in Rhode Island (Table 3-10). Sea turtle species that have the potential to occur in and in the vicinity of the ECC include the loggerhead sea turtle (*Caretta caretta*), leatherback sea turtle (*Dermochelys coriacea*), Kemp's ridley sea turtle (*Lepidochelys kempii*) and green sea turtle (*Chelonia mydas*). Federally endangered hawksbill sea turtles (*Eretmochelys imbricata)* generally prefer tropical and subtropical waters and are very rarely seen in Massachusetts and Rhode Island waters (observations are typically the result of cold-stun strandings), and therefore, will not be evaluated further in this assessment.[80, 81, 82] The sea turtle species listed in Table 3-11 have been previously observed and recorded during surveys for BOEM-specific offshore wind development assessments and/or surveys conducted near and within the ECC as part of long-term population assessments. Although sea turtles could occur in the Sakonnet River and Mount Hope Bay, they are more apt to be in the Rhode Island Sound waters of the ECC.

TABLE 3-11. SEA TURTLE SPECIES WITH POTENTIAL TO OCCUR IN THE ECC

Common Name	Scientific Name	ESA Status[a]	RI Status[a]	Occurrence within Project Area
Green sea turtle	*Chelonia mydas*	T	SGCN	Uncommon
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	SGCN	Uncommon
Atlantic Hawksbill sea turtle	*Eretmochelys imbricata*	E	-	Rare
Leatherback sea turtle	*Dermochelys coriacea*	E	SGCN	Common

[80] Lutz, P.L. &. Musick, J.A. 1997. *The Biology of Sea Turtles*. Boca Raton, Florida: CRC Press.

[81] National Marine Fisheries Service & United State Fish and Wildlife Service. 1993. Recovery Plan for Hawksbill Turtles in the U.S. Caribbean Sea, Atlantic Ocean, and Gulf of Mexico National Marine Fisheries Service, St. Petersburg, Florida.

[82] Lazell, J. 1980. New England Waters: Critical Habitat for Marine Turtles. *Copeia*, 2: 290-295. doi:10.2307/1444006.

Common Name	Scientific Name	ESA Status[a]	RI Status[a]	Occurrence within Project Area
Loggerhead sea turtle	*Caretta caretta*	T	SGCN	Common

Notes:

[a] ESA = Endangered Species Act (16 U.S.C. §.1531 et seq.); Rhode Island Wildlife Action Plan Species Profiles, Species of Greatest Conservation Need (SGCN). SGCN species are identified by RIDEM and the Rhode Island Chapter of The Nature Conservancy in the Rhode Island Wildlife Action Plan. It should be noted that SGCN designation does not represent an equivalent to ESA species listings; rather, this represents a publicly available data source to identify species which Rhode Island considers to be of greatest concern, based on the threat affecting each (RIDEM 2015). E = Endangered; T = Threatened; NL = Not listed.

Data on sea turtle abundance and distribution in Rhode Island state waters are limited. However, available studies suggest that all four species are generally found offshore during the summer and fall.[83, 84, 85] Loggerhead, leatherback, green, and Kemp's ridley sea turtles are highly migratory and are known to forage in nearby Cape Cod Bay during the summer months when sea surface temperatures range from 61 to 79 degrees Fahrenheit (16 to 26 degrees Celsius).[86]

3.5.2. Potential Project Impacts

The risk of impact to marine mammals in Rhode Island waters is very low given the low overall densities of animals and the avoidance and mitigation measures that SouthCoast Wind vessels are required to implement. Also, impact pile driving is not planned within Rhode Island waters, and sound sources will be non-impulsive, which is less of a concern than impulsive noise sources for marine mammals. Noise producing vessels within Rhode Island state waters will include the use of a DP vessel.

During the construction phase, marine mammals and sea turtles may co-occur with, and be affected by, Project activities in the ECC. During the operations phase, marine mammals and sea turtles may co-occur with the proposed ECC, including minimal vessel traffic for maintenance and associated effects. Marine mammal and sea turtle likelihood of co-occurrence with Project activities in specific Project locations is a function of overall occurrence levels that range from "rare" to "common" as listed in Tables 3-9 and 3-10, respectively.

To minimize the potential for vessel strikes, environmental monitoring, reporting, and vessel strike avoidance measures are required during in-water activities as outlined in SouthCoast Wind's COP Appendix O Marine Mammal and Sea Turtle Monitoring and Mitigation Plan. Given these strike avoidance measures and the low probability of marine mammal occurrence (with the possible exception of seals) in the Sakonnet River and Mount Hope Bay, risk of potential vessel strikes is low in Rhode Island waters. Unplanned discharges will be prevented through the use of best management practices and the Emergency Response Plan (Attachment E).

Pinnipeds that may be present along the ECC could also be susceptible to in-air noise disturbance at haul out sites or pupping grounds, and in-air thresholds have been established by the National Marine

[83] Kraus, S.D., Leiter, S., Stone, K., Wikgren, B., Mayo, C., Hughes, P., Kenney, R.D., Clark, C.W., Rice, A.N., Estabrook, B. & Tielens, J. 2016. *Northeast Large Pelagic Survey Collaborative Aerial and Acoustic Surveys for Large Whales and Sea Turtles*. U.S. Department of the Interior, Bureau of Ocean Energy Management, Sterling, Virginia. OCS Study BOEM 2016-054. 117 pp. + appendices.

[84] Lazell. 1980.

[85] Schwartz. 2021.

[86] Cetacean and Turtle Assessment Program. 1982. *A Characterization of Marine Mammals and Turtles in the Mid and North Atlantic Areas of the U.S. Outer Continental Shelf* (Report No. AA551-CT8-48). Report by University of Rhode Island. Report for U.S. Department of the Interior.

Fisheries Service. However, in-air noise producing activities, which do not include pile driving in Rhode Island waters or the Ocean SAMP area, are anticipated to produce relatively low levels of in-air noise and are expected to be short in duration.

During the construction phase of the Project, temporary displacement may occur due to disturbance and modification of habitat and/or temporary disturbance of prey species causing reduced prey availability. Following construction and during the operational phase, the seafloor is expected to return to pre-construction condition through natural movement (transport) and sorting by waves and currents and marine mammals, sea turtles, and their prey are expected to return.

Artificial lighting during construction will be associated with navigational and deck lighting on vessels from dusk to dawn. Only a limited area would be associated with the artificial lighting used on Project vessels relative to the surrounding unlit areas and the linear installation of the ECC will cause the lit area to constantly move along the cable route. Because of the relatively short duration of installation activities, impacts are considered short-term for marine mammals.

3.5.3. Proposed Avoidance, Minimization, and Mitigation Measures

Below is a list of measures applicable to marine mammals and sea turtles that SouthCoast Wind will adopt:

- All relevant requirements of the BOEM *Project Design Criteria and Best Management Practices for Protected Species Associated with Offshore Wind Data Collection* will be followed wherever applicable, including strike avoidance measures, vessel speed restrictions, monitoring, mitigation, and reporting.
- Adhere to NMFS vessel speed restrictions and monitor relevant channels for alerts and updates, as appropriate.
- SouthCoast Wind will implement measures as identified in the Project Marine Mammal and Sea Turtle Monitoring and Mitigation Plan (COP, Appendix O) and the final Incidental Take Authorization to be authorized by NMFS.
- Marine construction staff will be trained in species identification, monitoring and mitigation.
- Environmental Monitors and/or Protected Species Observers will be identified on all vessels to perform monitoring and mitigation, as necessary and required.
- Adhere to the NMFS Guidelines for the Northern Right Whale Ship Strike Avoidance Rule.
- SouthCoast Wind will continue to consult with the RIDEM DFW, RIDEM DMF, RI CRMC, USFWS and NMFS to identify appropriate mitigation measures.
- SouthCoast Wind will train construction staff on biodiversity management and environmental compliance requirements.

3.6. Commercial and Recreational Fishing

This section describes and analyzes commercial and recreational fisheries and fishing activity that has the potential to occur in the ECC, followed by an evaluation of potential Project-related effects and corresponding potential avoidance, minimization, and mitigation measures. Fishing activity is impacted by species abundance, market forces, regulations, and a large number of other variables.

3.6.1. Affected Environment

This section includes an evaluation of commercial and recreational fisheries within the ECC.

3.6.1.1. Commercial Fishing

Aquaculture

SouthCoast Wind will avoid or minimize adverse impact to aquaculture in Rhode Island and will work with RI CRMC, the RI DMF other relevant agencies, and the local aquaculture industry to achieve that end. RI CRMC is the regulatory body that manages aquaculture leasing and permits within Rhode Island waters. Much of the Rhode Island aquaculture activities occur within the State's several inland salt ponds, but aquaculture is also scattered nearshore in Narragansett Bay.[87] Although there are several approved aquaculture areas within The Cove on Aquidneck Island and adjacent to Hog Island, the export cable route is not directly adjacent or collocated with any of these sites. There are no aquaculture lease sites within the ECC within Rhode Island state waters, based on the RI DMF (2021) mapping of aquaculture lease areas in Rhode Island state waters (Figure 3-3).

SouthCoast Wind is continuing their routing assessment and inventory of marine resources to minimize impacts on recreational fishing and recreational boating with the intention to avoid important recreational fishing areas and established moorings. In the event that any moorings in the Sakonnet River and Mount Hope Bay are temporarily displaced, SouthCoast Wind will coordinate with the applicable Harbor Master and owner of the mooring(s).

Fish Traps

The floating fish trap fishery in Rhode Island is a gear type unique to Rhode Island. Essentially a hybrid of a fishing weir and a fish trap, this gear is predominantly fished in shallower, inshore areas close to shore. While this is a wild capture fishery, it is in some ways permitted and operated as an aquaculture activity. Permits to operate fish traps are tied to specific, permanent locations which offer certainty in the spatial extent of fishing effort, unlike other wild capture fisheries. However, while fish trap locations offer spatial certainty, the issuance of a permit or appearance of a fish trap on the RI DMF Map does not necessarily mean that that fish trap is being actively fished. Fish traps may become actively fished at any time, although there are requirements for the fisherman to provide the necessary notifications.[88] SouthCoast Wind has conducted outreach, including to the RI DMF, and performed scouting in advance of geophysical and geotechnical surveys to gain temporal knowledge of the location of fish traps in addition to the spatial certainty offered by permit location information. There are currently no licenses in Mount Hope Bay. Several licenses for fish traps have been issued for locations at the mouth of the Sakonnet River. SouthCoast Wind will coordinate with RI DMF prior to construction operations to confirm permitted locations of fish traps that may likely be fished during the period of Project impacts and will communicate directly with the operators of those fish traps.

[87] RIDEM. 2021. *RIDEM Marine Fisheries Maps*. https://ridemgis.maps.arcgis.com/apps/webappviewer/index.html?id=8beb98d758f14265a84d69758d96742f.

[88] J. Livermore. 2021. RIDEM Division of Marine Fisheries [COP], personal communication, July 22, 2021.

3.6.1.2. *Commercial Fishing Landings*

A diverse array of commercial fishing activity occurs in the region. Fisheries resources are targeted in the region and within the ECC by vessels of different sizes using different gear types and are dictated by seasons, quotas, environmental factors, market forces, and federal and state-led regulations.

Table 3-12 shows the landings for Rhode Island ports in 2019 and 2020 as reported by NMFS. Point Judith on the coast of Narragansett is the highest valued port in Rhode Island. In 2019, it was the 12th highest valued in the United States, and the 18th highest valued in 2020.

TABLE 3-12. LANDINGS BY PORTS IN RHODE ISLAND (VIA NMFS)

Port	2019		2020	
	Millions of Pounds	Millions of Dollars	Millions of Pounds	Millions of Dollars
Point Judith, RI	48.1	$65.9	42.6	$46.7
North Kingstown, RI	19.2	$14.1	19.6	$14.4
Newport, RI	4.9	$7.8	5.2	$7.0
Little Compton, RI	3.9	$3.4	4.7	$2.8
Total	**76.1**	**$91.2**	**72.1**	**$70.9**

Source: NOAA Fisheries. (NMFS). 2021. NOAA Fisheries Landing Queries. Retrieved from: https://foss.nmfs.noaa.gov/apexfoss/f?p=215:200.

In 2019, these ports landed 76.1 million pounds of fish valued at $91.2 million. The most commonly landed species in Rhode Island by weight were shortfin squid, longfin squid, and butterfish. The highest landed species by value were sea scallops, longfin squid, and American lobster. In 2020, these ports landed 72.1 million pounds of fish valued at $70.9 million. The most commonly landed species in Rhode Island by weight were shortfin squid, longfin squid, and skate. The highest landed species by value were longfin squid, sea scallops, and shortfin squid.

Table 3-13 shows the landings for Rhode Island ports in 2020 and 2021 as reported by RIDEM via the Standard Atlantic Fisheries Information System. In Table 3-13 a dash ("-") does not necessarily mean that no landings were reported but can instead mean that landings are confidential. Commercial fisheries landings data have confidentiality protections in place when disclosing landings could feasibly be tied back to an individual business.

Note: Because of what is assumed to be rounding, the total field for the 'Percentage of State Landings by Value' column in Table 3-13 does not sum to exactly 100%. However, it is essentially 100% for both 2020 and 2021 when summing all fields in that column. Also, differences in port and total values for the same areas in the same time frame can be attributed to how source data was collected, packaged, and in some cases withheld to protect confidentiality.

TABLE 3-13. LANDINGS BY PORTS IN RHODE ISLAND (VIA RIDEM)

Port	2020			2021		
	Pounds	Dollars	% of Total State Landings by Value	Pounds	Dollars	% of Total State Landings by Value
Barrington	-	-	-	-	-	-
Bristol	1,767,460	$1,065,623	2.26%	1,532,789	$1,003,387	0.98%
Bristol (County)	-	-	-	3,572,204	$1,098,001	1.07%
Charlestown	-	-	-	-	-	-
Davisville (community)	-	-	-	-	-	-
East Greenwich	-	-	-	-	-	-
Jamestown	23,200	$37,119	0.03%	31,850	$86,990	0.08%
Little Compton	3,272,004	$2,798,250	4.18%	2,130,088	$2,483,433	2.42%
Melville	-	-	-	-	-	-
Middletown	-	-	-	-	-	-
Narragansett (census name Narragansett Pier)	-	-	-	-	-	-
New Shoreham	15,118	$35,616	0.02%	14,024	$46,412	0.05%
Newport	4,824,613	$6,997,646	6.17%	6,029,861	$6,378,574	6.22%
Newport (County)(in PMSA 2480,6480)	-	-	-	9,401	$10,430	0.01%
North Kingstown (local name Wickford)	20,613,405	$13,597,762	26.34%	18,884,680	$14,131,846	13.77%
Point Judith	42,240,850	$45,537,030	53.98%	43,916,203	$71,079,310	69.27%
Portsmouth	159,809	$402,232	0.20%	136,212	$425,457	0.41%
Providence (County)(in PMSA 6060,6480)	-	-	-	-	-	-
Rhode Island (State)	46,892	$189,030	0.06%	180,987	$2,975,245	2.90%
South Kingstown (Town of)	58,406	$179,608	0.07%	76,814	$218,455	0.21%
Tiverton	335,629	$400,194	0.43%	463,197	$808,330	0.79%

Port	2020			2021		
	Pounds	Dollars	% of Total State Landings by Value	Pounds	Dollars	% of Total State Landings by Value
Unknown	-	-	-	-	-	-
Wakefield	600	$512	0.00%	-	-	-
Warren	33,107	$140,131	0.04%	12,109	$66,966	0.07%
Warwick	-	-	-	-	-	-
Warwick (RR name Apponaug)	4,837,338	$1,324,468	6.18%	5,609,852	$1,695,417	1.65%
Westerly (census name Westerly Center)	25,512	$71,997	0.03%	-	-	-
Total	**78,253,942**	**$72,777,217**	**100.00%**	**82,600,271**	**$102,508,252**	**100.00%**

Source: RIDEM DMF. 2022. Rhode Island Annual Fisheries Report: 2020. March 2022. Retrieved from: https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-08/AnnualRpt_2020.pdf. and RIDEM DMF. 2022. Rhode Island Annual Fisheries Report: 2021. May 2022. Retrieved from: https://dem.ri.gov/sites/g/files/xkgbur861/files/2022-08/AnnualRpt_2021.pdf.

Year to year variations (e.g., a large decrease from 2019 to 2020 and then an increase from 2020 to 2021) seen in Tables 3-12 and 3-13 can largely be attributed to the COVID-19 pandemic and its severe impact on the fishing industry. Outreach to the commercial fishing industry in Rhode Island by SouthCoast Wind confirmed that there were differential impacts on fisheries (e.g., squid) because of the pandemic's differential impact on restaurant versus at-home seafood consumption and the species typically consumed in those different situations.

While the fishing activity in the ECC is relatively lower than in other areas of the region, there are commercial fishing vessels from Rhode Island, Massachusetts, and other states that fish in the ECC and fish caught in the ECC may be landed in other states besides Rhode Island and Massachusetts. The top 10 ports with the highest annual average landings based on annual totals from 2008 to 2018 in the ECC are presented in Table 3-14. When considering ports with sufficient dealers and unique permits,[89] the top three ports in the ECC were New Bedford, Massachusetts, Point Judith, Rhode Island, and Newport, Rhode Island.

TABLE 3-14. ANNUAL AVERAGE LANDINGS AND VALUE FOR TOP 10 PORTS IN THE ECC

Port Landed	Average Yearly Landings (lbs.)	Average Yearly Value (dollars)
New Bedford, MA	575,459	$265,404
Point Judith, RI	264,544	$248,449
Newport, RI	114,982	$37,928
Little Compton, RI	91,258	$120,977

[89] Data for ports with an insufficient number of unique dealers and/or permit holders are anonymized and aggregated and fall under the "All Others" category.

Port Landed	Average Yearly Landings (lbs.)	Average Yearly Value (dollars)
All Others	85,044	$40,282
Fall River, MA	56,161	$13,358
Gloucester, MA	28,054	$4,226
Montauk, NY	21,992	$24,981
Boston, MA	19,966	$3,646
Barnstable, MA	2,609	$2,458
Total for All Ports	1,331,827	$910,751

Source: Source: B. Galuardi, personal communication, 2 July 202.1

3.6.1.3. Vessel Trip Report Data Analysis

National Marine Fisheries Service Vessel Trip Report (VTR) data was used to determine the average fish landings from 2008-2018 as presented below in Table 3-15. VTR is a self-reported data reporting system required for all federally permitted fishing vessels. There are some reasonable limitations to VTR data but it currently represents the best Offshore Project Area-specific data sets available and it is analyzed here to provide a sense of where, when, and how certain species are being caught. Full records of the VTR data analyzed by SouthCoast Wind can be found in Appendix V of the COP - Commercial and Recreational Fisheries and Fishing Activity Technical Report.

Within the ECC, the average annual fish landings were 1,331,827 pounds valued at $910,751. The most commonly landed species by weight were Atlantic herring, skate wings, and Loligo squid. The most commonly landed species by revenue were American lobster, Loligo squid, and summer flounder/fluke (Table 3-15). Bluefish also represented the highest percent exposure (0.05%) of total landings by weight caught within the ECC. Atlantic herring represented the highest average landings, but also the highest variability. In 2013, landings of Atlantic herring in the ECC totaled $238,472 and 2,000,563 pounds but did not exceed $90,492 and 1,081,204 pounds in any other year between 2008 and 2018 (B. Galuardi, personal communication, 6 October 2020).

TABLE 3-15. AVERAGE VTR LANDINGS IN THE ECC FROM 2008-2018

Species	Average Annual Landings (lbs.)/Year	Average Annual Value ($)/Year	Species Landings (lbs.) Exposure (percent)	
			Minimum	Maximum
Atlantic herring	441,022	$ 50,638	0.0	0.01
Skate Wings	299,731	$ 44,196	0.0	0.02
Loligo Squid	167,324	$191,311	0.0	0.01
All others	113,148	$72,783	N/A	N/A
Scup/ Porgy	59,187	$39,147	0.0	0.01
American lobster	43,638	$211,205	0.0	0

Species	Average Annual Landings (lbs.)/Year	Average Annual Value ($)/Year	Species Landings (lbs.) Exposure (percent)	
			Minimum	Maximum
Spiny dogfish	31,903	$7,026	0.0	0.01
Silver Whiting/hake	27,256	$15,480	0.0	0
Summer flounder/fluke	25.457	$85,426	0.0	0
Bluefish	21,344	$10,859	0.0	0.05
Jonah crab	18,843	$12,924	0.0	0.0
Atlantic mackerel	18,229	$3,921	0.0	0.0
Monk	11,397	$18,629	0.0	0.0
Butterfish	8,961	$5,917	0.0	0.0
Black sea bass	8,021	$30,510	0.0	0.0
Channeled whelk (bushel)	6,189	$48,848	0.0	0.0
Total for All Species	**1,331,827**	**$910,751**	**0.0**	**0.05**

Source: B. Galuardi, personal communication, 2 July 2021.

3.6.1.4. Vessel Monitoring System Data Analysis

Vessel Monitoring System (VMS) data was used to supplement the VTR analysis above. Commercial vessels are required by law to carry mechanisms of monitoring on board to aid in management and regulatory enforcement. VMS utilize mobile transceiver units to record and transmit vessel locations at least once per hour (50 C.F.R. § 660.14).

A fishing vessel is required to carry a VMS and transmit a signal indicating its position when fishing for species in a method that triggers VMS requirements. Within the ECC, VMS is broadly required when fishing for Atlantic sea scallops, monkfish, Atlantic herring, Atlantic surf clam, ocean quahog, shortfin squid, longfin squid, butterfish and species managed under the Northeast Multispecies Management and Consolidated Atlantic Highly Migratory Species Management Plans. The results of the VMS data analysis (using data from 2011-2014 and 2015-2016) indicated a varied density of commercial fishing vessel activity within the applicable fisheries; squid, Northeast Multispecies, monkfish, Atlantic herring, Atlantic sea scallop, Atlantic surf clam, and Atlantic mackerel fisheries in the northeast and mid-Atlantic regions. Overall, there is a comparatively higher density of fishing activity in the ECC than the SouthCoast Wind Lease Area, due to the variety of favorable benthic habitat characteristics in the ECC. A characterization of the benthic habitat in the ECC can be found in Section 3.3.

3.6.1.5. Automatic Identification System Data Analysis

Automatic Identification System (AIS) is an automated, continuous Global Positioning System (GPS) tracking system that provides a record of the operational history of a vessel. Federal regulations (33 C.F.R. § 164.46) mandate which vessels are required to carry AIS; this includes fishing vessels that are greater than 65 ft (20 m) in length and are self-propelled. The AIS data analysis showed that the ECC passes one area of high fishing vessel transit activity within Rhode Island waters, including vessels

transiting to and from New Bedford.[90] As a caveat, not all fishing vessels carry AIS transponders or have them actively recording vessel locations outside of 12 nm (22 km) from the coastline.

3.6.1.6. Common Commercial Gear Types in the ECC

Bottom Trawling

Bottom trawling (also referred to as otter trawling or dragging) is a common mobile gear type in the Northeast used for catching target species that live on the seafloor. Each trawl fishery utilizes unique gear designed specifically to capture the target species (i.e., various mesh sizes, often different within various panels of the same net, different panel configurations, various sizes, designs, and varied doors and door spreads). Modern trawling operations sometimes employ sensors that can be monitored from the wheelhouse in real-time to verify that the gear is properly deployed and fishing effectively as it is towed.

Common species commercially caught in southern New England and within the ECC using bottom trawls include butterfish, flounder species, scup, cod, silver hake, monkfish, and other species.

Pots and Traps

Pots and traps are submerged wire cages that attract target species (usually by bait) and allow them to enter but make it difficult to exit.[91] Fishermen haul the traps back onto their vessel typically using lines attached to the trap with a marker buoy or a high-flyer buoy at the surface to mark its location. Traps can be set individually or strung together in what are called "trawls." Target species for pots and traps include crabs, lobsters, whelk, scup, black sea bass, and eels.[92] In southern New England, lobsters are the primary species targeted by pots and traps, although whelk is becoming increasingly more common as lobster populations have been declining in recent decades in this area.[93, 94, 95] Engagement with individual vessels targeting whelk in the ECC has confirmed that gear configurations and deployment/ hauling methods are consistent with standards in the region, pot and trap gear being set in an approximately east-west orientation at regular intervals, although the whelk effort in the Sakonnet River is reported to currently be lower than it had been in recent years.[96]

Jonah crab is another species that has seen targeted increases in southern New England in recent years. The increase in Jonah crab landings is generally attributed to the decrease in the abundance of southern New England lobsters, resulting in a shift in fishing activity and an increase in the price of other crab species, creating a substitute market for Jonah crab meat.[97]

VTR data from 2008 to 2018 demonstrates that pot and trap fishermen in the ECC landed an annual average of 43,638 pounds of American lobster, 18,843 pounds of Jonah crab, and 6,440 pounds of whelk (channeled and knobbed).

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[90] Northeast Regional Ocean Council (NROC). 2018. *Vessel Monitoring Systems (VMS) Commercial Fishing Density, Northeast and Mid-Atlantic Regions.* Data download: https://services.northeastoceandata.org/arcgis1/rest/services/OceanUses.
[91] NMFS. 2019. *Fishing Gear: Traps and Pots.* https://www.fisheries.noaa.gov/national/bycatch/fishing-gear-traps-and-pots.
[92] NMFS 2019.
[93] Atlantic States Marine Fisheries Commission (ASMFC). 2019. *Jonah Crab*. Available at: http://www.asmfc.org/species/jonah-crab.
[94] Gomez-Chiarri, M. & J.S. Cobb. 2012. Shell Disease in the American Lobster, Homarus americanos: A Synthesis of Research from the New England Lobster Research Initiative: Lobster Shell Disease. *Journal of Shellfish Research*, 31(2) : 583-590. https://bioone.org/journals/journal-of-shellfish-research/volume-31/issue-2/035.031.0219/Shell-Disease-in-the-American-Lobster-iHomarus-americanus-i/10.2983/035.031.0219.pdf.
[95] Giannini, C. and P. Howell. 2010. *Connecticut Lobster (Homarus americanus) Population Studies*. NOAA - NMFS, Northeast Region, New London, Connecticut.
[96] Atlantic Coastal Cooperative Statistics Program (ACCSP). 2021. *Comprehensive, species-specific landings database*. https://www.accsp.org.
[97] ASMFC. 2019. *American Lobster*. http://www.asmfc.org/species/american-lobster.

Midwater Trawls

Midwater trawls are similar to bottom trawls that utilize the same general types of equipment (net, doors, etc.), but utilize doors that are configured to allow the gear to be towed at varying levels in the water column off bottom. Common species targeted by midwater trawls include squid, shrimp, and pelagic schooling fish.[98] In southern New England, squid are the primary species targeted with midwater trawl gear. Commercial squid trawling comprises a substantial percentage both by value and by weight of commercial catch landed in Rhode Island.[99]

Engagement by SouthCoast Wind with the New England squid fishery has confirmed that gear configurations and fishing patterns are consistent with standards for the region. Squid are captured by trawling in either a directed fishery or a mixed species fishery, often with mackerel or butterfish, which is broadly the reason for those species being managed under a shared Fisheries Management Plan. Midwater trawling is far more concentrated in state and federal waters along the ECC compared to within the Lease Area, according to VMS data from 2011 to 2016.

Gillnetting

Gillnets trap fish by their gills as they try to swim through the netting.[100] The size of the gaps in the net determine which species will get caught and which will be able to swim through freely. Gillnets can be configured in a variety of ways, but typically consist of floats along the top of the net and weights along the bottom to keep the panel aligned vertically in the water column.

Common gillnet target species include, but are not limited to: groundfish (cod, haddock, pollock, flounder, hake), herring, black sea bass, sharks, and other species, depending on the region.[101] In southern New England, gillnets are typically tended on a daily to semi-weekly basis for groundfish species, managed under the Northeast Multispecies Fisheries Management Plan. Anchored gillnets set very near the seabed are known as 'bottom gillnets or 'sink gillnets' and represent the most common type of gillnetting in the New England commercial fishing industry.[102, 103]

Hydraulic Clam Dredge

Hydraulic clam dredges harvest bivalves from the soft bottom sediments in which they are buried. This technique of harvesting Atlantic surf clams and ocean quahogs is utilized where soft bottom conditions allow for the gear to penetrate the seafloor enough to make this method efficient for capturing clams. The hydraulic dredges are dragged slowly along the bottom by the fishing vessel as a large hydraulic pump on the fishing vessel pumps sea water through a hose to a manifold on the front of the dredge.

The manifold jets the water into the sand, temporarily fluidizing the sand and allowing the dredge to penetrate the sediment to a depth below the seafloor of approximately 1.0 ft (0.3 m), capturing bivalves (and similarly sized rocks, debris, or fish) in the process.

As this is a depletion fishery, these vessels will make repeated passes through an area until the clam numbers drop. In addition, clams are long-lived bivalves, and it has historically proven difficult to predict

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[98] NMFS. 2019. *Fishing Gear: Midwater Trawls.* https://www.fisheries.noaa.gov/national/bycatch/fishing-gear-midwater-trawls
[99] Liberman, Ellen. 2017. Squid fishing is a boon to the local economy. *Rhode Island Monthly. May 30, 2017.* Available online: https://www.rimonthly.com/squid-fishing-boon-local-economy/.
[100] NMFS. 2019. *Fishing Gear: Gillnets.* https://www.fisheries.noaa.gov/national/bycatch/fishing-gear-gillnets.
[101] NMFS. 2019. *Fishing Gear: Gillnets.*
[102] NMFS. 2019. *Fishing Gear: Gillnets.*
[103] Pol, M. and H.A. Carr. 2000. Overview of Gear Developments and Trends in the New England Commercial Fishing Industry. *Northeastern Naturalist* 7(4): 329-336.

where commercially viable volumes may be found, resulting in a high degree of inter-annual variation in landings.

Atlantic surf clams and ocean quahogs are the most common species commercially targeted by this gear in southern New England, but fishing activity is more concentrated outside of the ECC than in it.

3.6.1.7. Summary of Commercial Fishing in the ECC

VMS, AIS, and VTR data were used to evaluate fishing activity in the ECC. In addition to actively fishing in the ECC, commercial fishing vessels also transit through this area throughout the year. This is based on an analysis of charts of AIS tracks overlaid on the proposed ECC and discussions of relative fishing effort via VMS and VTR data analysis. Based on the time ranges of these datasets, SouthCoast Wind anticipates that fishing vessel transit and activity will continue in this area for the lifetime of the proposed Project.

VTR data shows bottom trawl and pots and trap fishing activity within the Sakonnet River near the cable landfall location in the ECC.

As shown above in Table 3-13, Point Judith, Rhode Island and New Bedford, Massachusetts received the highest revenue from commercial fish caught and landed from the ECC. The Port of New Bedford is identified as a potential port for Project construction, O&M, and decommissioning activities. SouthCoast Wind has validated fisheries landing data with field observations from geophysical surveys, consultation with fishing stakeholders, including Fisheries Representatives, fishing organizations, and individual vessels. Further consultation with stakeholders as well as fisheries economists will determine the level of exposure that exists for boats using the ports and their use of the ECC.

Fishing is considered exposed in the 2017 Kirkpatrick et al.[104] study if it occurs within 1.0 nm (1.9 km) of a Wind Energy Area, which, for the purposes of the proposed Project, is the Kirkpatrick Study Area (composed of both the Rhode Island/ Massachusetts Wind Energy Area and the Massachusetts Wind Energy Area).[105] For commercial fisheries, exposure does not measure economic impact or loss but is defined as the potential for a fishery to see an impact from offshore wind development. Based on the exposed fisheries within the Kirkpatrick Study Area[106] trawling, midwater trawling, gillnetting, and pots and traps are the most prominent gear types utilized in the area. Bottom trawlers in the Kirkpatrick Study Area target species within the Small Mesh Multispecies Fishery Management Plan (FMP) (silver hake, red hake, offshore hake) as well as Squid, Mackerel, Butterfish FMP (Atlantic mackerel, chub mackerel, longfin squid, shortfin squid, and butterfish).[107, 108, 109] Gillnetters in the Kirkpatrick Study Area primarily target monkfish, skates, and spiny dogfish, as well as summer flounder, scup, and black sea

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[104] Kirkpatrick, A.J., S. Benjamin, G.S. DePiper, T. Murphy, S. Steinback, and C. Demarest. 2017. SocioEconomic Impact of Outer Continental Shelf Wind Energy Development on Fisheries in the U.S. Atlantic. Volume II—Appendices. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Atlantic OCS Region, Washington, D.C. OCS Study BOEM 2017-012. 191 pp.

[105] Kirkpatrick et al. 2017

[106] Kirkpatrick et al. 2017

[107] Kirkpatrick et al. 2017

[108] New England Fishery Management Council. 2021. *Small-mesh Multispecies FMP. Plan Overview.* https://www.nefmc.org/management-plans/small-mesh-multispecies

[109] Mid-Atlantic Fishery Management Council. 2021. Overview. *Mackerel, Squid, and Butterfish.* https://www.mafmc.org/msb.

bass.[110] Pots and traps catch species in the ECC including Jonah crab,[111] American lobster,[112] whelks,[113] rock crabs,[114] and black sea bass.[115] A description of these gear types is provided above.

3.6.2. Recreational Fishing

For the purposes of this section, recreational fishing is referred to as saltwater fishing for sport or pleasure, either by for-hire boats or by private anglers.[116] Saltwater recreational fishing takes place from shore, aboard private or rented boats, and on boats that take passengers for hire. For-hire recreational fishing can be assessed from either a boat level or angler level. Boat level recreational fishing activity is assessed in terms of the average annual number and percentage of exposed boats, trips, and revenues. Angler level recreational fishing activity is assessed in terms of average annual number and percentage of exposed angler trips and expenditures. Approximately 96 for-hire recreational fishing boats are ported in Rhode Island.[117] The intensity and locations of recreational fishing within Rhode Island state waters are not expected to be affected. In fact, the proposed Project may provide some positive effects to recreational fisheries by creating new fish-friendly habitats for certain species.[118] It has been recognized that the Project infrastructure may function as fish aggregating devices[119] and provide additional habitat for certain species.

Species targeted by this fishing community exist throughout the entire near-coastal region and within the Kirkpatrick Study Area. Commonly caught species for recreational fishing include striped bass, Atlantic mackerel, scup, black sea bass, and haddock (Table 3-16).

TABLE 3-16. COMMONLY CAUGHT RECREATIONAL FISH SPECIES IN RHODE ISLAND (2019)

Rank	Species	Pounds (lbs.)
1	Scup	2,856,492
2	Striped bass	2,299,617
3	Tautog	1,483,139
4	Black sea bass	1,225,072
5	Bluefish	932,001
6	Summer flounder	837,116
7	Atlantic cod	143,753
8	Atlantic menhaden	135,763

[110] Kirkpatrick et al. 2017

[111] Atlantic States Marine Fisheries Commission. (ASFMC). 2021. *Jonah Crab*. http://www.asmfc.org/species/jonah-crab.

[112] ASMFC. 2019. *American Lobster*. Available online: http://www.asmfc.org/species/american-lobster.

[113] Massachusetts Division of Marine Fisheries. (MA DMF). 2021. *Whelks and Whelk Management*. https://www.mass.gov/service-details/whelks-and-whelk-management.

[114] Maine Sea Grant. (n.d.). *Maine Seafood Guide – Crab*. https://seagrant.umaine.edu/maine-seafood-guide/crab/.

[115] ASFMC. 2021. *Black Sea Bass*. http://www.asmfc.org/species/black-sea-bass.

[116] NMFS. 2020. *Saltwater Recreational Fishing in the Greater Atlantic Region*. Retrieved November 2020 from: https://www.fisheries.noaa.gov/new-england-mid-atlantic/recreational-fishing/saltwater-recreational-fishing-greater-atlantic.

[117] Steinback, S. & A. Brinson. 2013. *The Economics of the Recreational For-hire Fishing Industry in the Northeast United States*, 2nd ed. Northeast Fisheries Science Center Social Sciences Branch, NOAA Fisheries. Woods Hole, MA. https://www.savingseafood.org/images/recreational_econ.pdf.

[118] Kirkpatrick, A.J., S. Benjamin, G.S. DePiper, T. Murphy, S. Steinback, and C. Demarest. 2017. SocioEconomic Impact of Outer Continental Shelf Wind Energy Development on Fisheries in the U.S. Atlantic. Volume I—Report Narrative. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Atlantic OCS Region, Washington, D.C. OCS Study BOEM 2017-012. 150 pp. Retrieved from: https://espis.boem.gov/final%20reports/5580.pdf

[119] Kramer, S. H., C. D. Hamilton, G. C. Spencer, and H. D. Ogston. 2015. Evaluating the Potential for Marine and Hydrokinetic Devices to Act as Artificial Reefs or Fish Aggregating Devices, Based on Analysis of Surrogates in Tropical, Subtropical, and Temperate U.S. West Coast and Hawaiian Coastal Waters. OCS Study BOEM 2015-021. U.S. Department of Energy, Energy Efficiency and Renewable Energy, Golden, Colorado.

Rank	Species	Pounds (lbs.)
9	Atlantic bonito	102,213
10	Striped sea robin	53,819

Source: NMFS. 2019. Recreational Fishing Data and Statistics Queries. Accessed from NOAA Fisheries Recreational Fishing Data: https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-and-statistics-queries.

Total expenditures of recreational fishing between 2007 and 2012 in Rhode Island were $1.1 million with 3.8% exposed to Wind Energy Areas.[120] Recreational fishing aboard and private boats is considered exposed if it occurs within 1.0 nm (1.9 km) of the Offshore Project Area. In 2019, 3,739,018 angler trips via shore fishing, private/rental boats, charter boats, and party boats were estimated to occur in state and federal waters off the coast of [121] Rhode Island.

Recreational fishing locations occur throughout the Sakonnet River, Mount Hope Bay, and Rhode Island Sound. Recreational fishing boats may also transit through the ECC to reach a site, but their exact transit routes are not represented on commonly used, publicly available datasets, as these vessels do not have the VTR, VMS, or AIS requirements discussed previously for commercial fishing vessels. However, recreational fishing effort is known to exist in and around the ECC and much of the effort is clustered in several locations as these boats target these locations (Table 3-17).

TABLE 3-17. FOR-HIRE RECREATIONAL FISHING LOCATIONS WITHIN OR NEAR THE ECC

Name of Fishing Location	Location	Fish species targeted a/
Brown's Ledge	Offshore of Sakonnet Point	Scup, black sea bass, striped bass, summer flounder, bluefish
Beavertail State Park	The opening of the West Passage, inshore	Scup, black sea bass, striped bass, summer flounder, bluefish
Brenton Point State Park	The opening of the West Passage, inshore	Scup, black sea bass, striped bass, summer flounder, bluefish
Sachuest Point National Wildlife Refuge	The opening of the East Passage, inshore	Scup, black sea bass, striped bass, summer flounder, bluefish
Breakwater at Sakonnet	Inshore of the East Passage, Sakonnet River	Scup, black sea bass, striped bass, summer flounder, bluefish

Sources: CRMC. 2010. Rhode Island Ocean SAMP. https://seagrant.gso.uri.edu/oceansamp/pdf/samp_crmc_revised/RI_Ocean_SAMP.pdf.

For-hire recreational fishing typically occurs from spring through fall for summer flounder, black sea bass, and scup and in late summer/early fall for yellowfin, bluefin, and albacore tuna, sharks, bonito, and false albacore. Striped bass recreational fishing typically occurs in the spring, summer, and fall.

In the Sakonnet River, there are relatively low levels of recreational shellfishing, notably for hard clams. Rhode Island allows recreational harvesting of whelk and bay scallops by Rhode Island residents (with no license requirement), and for the recreational harvesting of lobster and crabs (with a license requirement.[122] In Rhode Island waters, oysters may be harvested with a state permit from September-May, and bay scallops may be harvested in November and December, depending on the gear type.[123]

[120] Kirkpatrick et al. 2017

[121] NMFS. 2019. *Recreational Fishing Data and Statistics Queries*. Accessed from NOAA Fisheries Recreational Fishing Data: https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-and-statistics-queries.

[122] RIDEM. 2021. *Recreational Fishing*. http://www.dem.ri.gov/programs/marine-fisheries/recreational-fishing.php.

[123] RIDEM. 2021

3.6.3. Potential Project Impacts

This analysis includes potential impacts to commercial and recreational fishing (both for-hire and private anglers).

3.6.3.1. Aquaculture

Although there are several approved aquaculture areas within The Cove on Aquidneck Island and adjacent to Hog Island, the export cable route is not directly adjacent or co-located with any of these sites. Further, the ECC is being engineered to select the most feasible and least impactful route centerline and therefore the entire width of the ECC will not be disturbed during cable installation. No impacts are anticipated on aquaculture facilities.

3.6.3.2. Commercial and Recreational Fishing

Commercial and recreational fishermen may be temporarily excluded from actively fishing within or transiting through the localized construction areas and safety exclusion zones during construction of the Project. This may result in a temporary loss of access to fishing grounds. Short-term disturbance of species targeted by commercial or recreational fisheries may occur during the construction phase of the proposed Project, resulting from cable burying and disturbance to the seafloor. However, these impacts will be temporary and localized to discrete zones within the ECC.

Construction activities will cover discrete and localized portions of the offshore Project Area on a temporary basis, relative to the available open water to navigate through, or grounds to fish within. Once construction activities are completed within safety exclusion zones, marine activities, including commercial and recreational fishing, will be allowed to continue as they were prior to construction. SouthCoast Wind will provide the fishing community with advance notice, prior to formal LNMs being issued, describing the location, extent, and duration of construction activities. Should fixed gear become separated from marker buoys, set adrift inadvertently, or mobile gear becoming snagged on, or entangled in cables or other Project components, SouthCoast Wind will work with fishermen through a lost gear claims form process to determine if reimbursement is warranted. A process to compensate fishermen for entanglements of fishing gear by geophysical and geotechnical survey gear has already been developed jointly with other offshore wind developers and with input from the fishing industry via Fisheries Representatives. This joint developer gear loss compensation application form has been made publicly accessible and is available on SouthCoast Wind's website. Additionally, the SouthCoast Wind Fisheries Liaison Officer (FLO) proactively contacts fishermen if their gear is entangled by geophysical and geotechnical survey operations and will continue to do so in later phases of the proposed Project, including during construction.

Short-term disturbance of species targeted by commercial or recreational fisheries may also occur during the construction phase of the proposed Project, resulting from cable burying and disturbance to the seafloor. However, these impacts will be temporary and localized to discrete zones within the ECC. These commercially and recreationally targeted species are expected to disperse to other nearby locations accessible by commercial or recreational fishing vessels.

The concentrations of suspended sediment in the water column (measured as turbidity) will increase for a short period during and following cable installation in the seabed; see Section 3.2.2 of this application and the Hydrodynamics and Sediment Dispersion Modeling Report in Attachment G. Elevated turbidity levels are expected to decrease quickly following cable installation, dropping to under 100 mg/L over

ambient concentrations within five hours. Given the short duration and relatively low levels of increase, impacts to fish and fishing activities are not anticipated.

As conveyed in Table 3-16, the ECC is more frequently used for vessels transiting through to their desired fishing locations than for active fishing. As construction begins, commercial and recreational fishermen may find their route extended at times to accommodate certain construction activities, which could temporarily increase their steam times to access fishing grounds.

SouthCoast Wind will coordinate with commercial and recreational fishermen and the RI DMF to provide advance notice of the pre-lay grapnel run/ gear clearance plan, which is performed to clear the centerline of the cable route to facilitate burial of the cable via the jet-plow. The advance notice is intended to allow fishermen the opportunity to remove their deployed fishing gear.

SouthCoast Wind will coordinate with fishermen and the USCG ahead of marine construction operations to review operational planning and schedules to identify areas where fishing operations may be temporarily displaced. These strategies include broad communication strategies (e.g., USCG LNMs and also targeted, direct outreach) to coordinate construction and fishing activities in order to minimize risks to the commercial and recreational fishing industries and deployed gear, as well as other mariners.

Vessel activity during the operational phase will typically involve single vessels transiting at far less frequent intervals than during construction (or decommissioning phases), and therefore is not expected to create measurable interference with commercial or recreational fisheries activities. Therefore, once the proposed Project is operational, fishing vessels will not be considerably impeded from accessing their home ports or their fishing grounds within or outside of the ECC. As part of the future decommissioning of the Project, should the buried export cables be retired in-place, effects on commercial and recreational fishing are not expected.

Secondary cable protection (e.g., mattresses, rock placement, fronded mattress) will be used at cable crossings and for additional cable protection along the ECC if needed where target burial depth is not achieved. Cable protection may result in that area of bottom being a snag concern for trawling or dredging (i.e., due to the potential for gear hangs). Cable protection areas will be marked appropriately on nautical charts, which will limit the likelihood of interaction with fixed or mobile gear. In some cases, areas of hardbottom may have already been known seabed obstructions (snags) prior to construction, as they often represent pre-existing surficial obstructions. Lobster, crabs, and other invertebrate species may also seek shelter within cable protection, resulting in localized, indirect changes in species assemblages and concentrations.

SouthCoast Wind has conducted a Cable Burial Risk Assessment (see Attachment D - "Confidential", provided under separate cover) to calculate the target cable lowering depth to minimize risks to the offshore export cables from damage, and to mitigate potential conflicts between commercial or recreational fishermen and the new structure. This also includes potential risks to the cable from trawling activity along the ECC. To minimize conflicts between fishing gear and the proposed Project's offshore export cables, the offshore export cables will be buried at depths of 3.2 to 13.1 ft (1.0 to 4.0 m), with a target burial depth of 6.0 ft.

For unplanned maintenance of the offshore export cables, a vessel may require anchoring within the ECC. If required, this would also be a low-frequency, short-term activity. In addition, SouthCoast Wind will continue to ensure that all Project-related vessels follow appropriate navigational routes and other USCG requirements, communicate via USCG LNMs, issue regular mariner updates and/or direct offshore radio communications to help mitigate risks to the commercial and recreational fishing industries, as well as other mariners.

Within the Brayton Point export cable corridor, the annual yearly landings for all species were valued at $910,751. Loligo squid and lobster represented the highest annual value per year in the ECC from 2008 to 2018. Once the proposed Project is operational, the gear types primarily used by these fisheries (e.g., midwater trawls for squid, pots for lobster) are not expected to be impacted by the presence of the buried offshore export cables within the ECC. Therefore, following installation of the proposed Project, these fisheries are expected to continue to account for landings within the ranges reported from 2008 to 2018, barring outside sources of variance (e.g., inter-annual variation of population abundance, geographic shifts, climate change, or other factors, such as market forces or regulations).

Impacts resulting from decommissioning of the proposed Project are expected to be similar to or less than those already described for construction. The proposed Project's offshore export cables may be left in place to minimize environmental impact, which will also result in a reduction in vessel traffic along the ECC. If cable removal is required, vessel activity for removing the offshore export cables will be limited temporally to the cable removal process, limited spatially to the offshore export cable route, and similar to those experienced during cable installation. Furthermore, decommissioning techniques are expected to advance during the lifetime of the proposed Project. Prior to the decommissioning phase, a full decommissioning plan will be provided to the appropriate regulatory agencies for approval, along with a re-evaluation of potential impacts within the context of the best available science to be considered at that time.

Overall, adverse effects to commercially and recreationally targeted species are expected to be negligible within the context and scale of the southern New England region.[124]

3.6.3.3. Commercial Fishing Landings

Vessel intensity for the Atlantic herring, pelagic species (herring, mackerel, squid), monkfish, and squid fisheries are medium-high to very high along portions of the ECC; therefore, these fisheries are most likely to be affected during installation of the ECC. During O&M, commercial and recreational fisheries are expected to experience none to limited effects from the presence of the offshore export cables because they will be buried beneath the seabed. SouthCoast Wind has and will continue to work to limit the amount of protection associated with cable crossings and areas in which target burial depth is infeasible. Cable crossings are coordinated with pre-existing cable owners and areas in which target burial depth is infeasible are typically areas of hard bottom, so any added cable protection closely resembles the existing bottom type. SouthCoast Wind will make available the locations of cable protection and use design and installation methods for protection that minimize impacts to both fisheries resources and fishing activity.

The USCG's stated policy is that in the United States vessels will have the freedom to navigate through [wind farms], including export cable routes.[125] Commercial and recreational fishermen will have the ability to continue to fish along the ECC. SouthCoast Wind is currently working with a fisheries economist to prepare an economic exposure analysis to provide a more detailed estimation of impacts to commercial fishing landings (as well as impacts to recreational fisheries) from Project impacts.

[124] CRMC. 2010. *Rhode Island Ocean SAMP*. https://seagrant.gso.uri.edu/oceansamp/pdf/samp_crmc_revised/RI_Ocean_SAMP.pdf.
[125] See Coast Guard Navigation and Vessel Inspection Circular 01-19 dated 1 August 2019.

3.6.4. Proposed Avoidance, Minimization, and Mitigation Measures

3.6.4.1. Proposed Fisheries Monitoring Research and Activities

SouthCoast Wind has prepared an FMP (included as Attachment K) for Rhode Island state waters. This plan is a product of engagement with RI DMF and outreach to the recreational and commercial fishing industry. In addition, in federal waters, SouthCoast Wind is working with the University of Massachusetts Dartmouth's School for Marine Science and Technology, the Anderson Cabot Center of Ocean Life at the New England Aquarium to conduct baseline surveys of existing fisheries information in and around the Offshore Project Area and establish monitoring plans for pre-construction, construction, post-construction. These fisheries monitoring plans will be designed to align with Bureau of Ocean Energy Management guidelines (BOEM 2020a[126]), and additional recommendations provided by the Responsible Offshore Science Alliance (ROSA) Fisheries Monitoring Working Group. SouthCoast Wind began a regional monitoring study of Highly Migratory Species and recreational fishing in 2021; collaborating with the New England Aquarium, Inspire Environmental, and other Rhode Island/ Massachusetts Wind Energy Area developers. SouthCoast Wind is also actively participating in regional efforts with other developers, the fishing industry, and academic researchers to promote and standardize fisheries monitoring research and non-extractive survey methods.

The SouthCoast Wind Project will help fuel innovation, advance research, and build consistency across modeling, monitoring and research efforts.

3.6.4.2. Proposed Fisheries Mitigation Measures

Below is a list of measures applicable to commercial and recreational fisheries that SouthCoast Wind will adopt:

- SouthCoast Wind has developed a Fisheries Communication Plan (COP, Appendix W) with the aid of a FLO and multiple Fisheries Representatives.
- SouthCoast Wind has taken Input from the commercial fishing industry on Project siting, design, navigation, and access.
- SouthCoast Wind has developed a process for financial compensation to commercial fishermen for damages to or loss of fishing gear as well as lost revenue due to gear loss from Project activities.
- SouthCoast Wind has and will continue to add fishermen with local experience as Fisheries Onboard Representatives on geophysical survey vessels, when possible, to coordinate survey activities with fishing activities
- SouthCoast Wind will work with municipal shellfish constables to coordinate shellfish seeding with planned activities prior to construction activities.
- SouthCoast Wind is currently not aware of any aquaculture lease sites that would be directly affected by the ECC, but will continue to coordinate with RIDEM, RI DMF, RI CRMC, the Habitat Advisory Board, and the Fishermen's Advisory Board.

[126] Bureau of Ocean Energy Management (BOEM) Office of Renewable Energy Programs. 2019. Guidelines for Providing Information on Fisheries for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585. June 2019 and 2020.

- SouthCoast Wind is currently working with commercial and recreational fishermen as well as fisheries representatives to determine construction timing and locations with fishing vessels to anticipate and avoid/minimize/mitigate gear interactions that may occur during construction.
- Temporary safety zone restrictions associated with construction activities will limit direct access to areas with construction activity for the safety of mariners and Project employees, but these areas will be limited spatially and temporally.
- SouthCoast Wind will implement temporary safety zones around active construction areas in consultation with USCG and in communication with RIDEM.
- SouthCoast Wind will notify mariners via LNMs of the presence and location of partially installed structures.
- The SouthCoast Wind FLO will proactively contact fishermen if their gear is entangled during construction.
- SouthCoast Wind will consider the use of fixed mooring buoys at various strategic locations in the Project Area to avoid the need for anchoring.
- SouthCoast Wind will continue to ensure that all Project-related vessels follow appropriate navigational routes and other USCG requirements, communicate via USCG LNMs, issue regular mariner updates and/or direct offshore radio communications to help mitigate risks to the commercial and recreational fishing industries, as well as other mariners.

4.0 REGULATORY STANDARDS

SouthCoast Wind prepared this section of the application to demonstrate compliance with the Rhode Island WQR Standards, and to identity avoidance, minimization and mitigation measures that will be implemented to reduce the potential for impacts on water quality within state marine waters.

Impacts to marine waters will be temporary and localized along the offshore export cable corridor (i.e., Brayton Point ECC) and offshore HDD locations in the Sakonnet River and Mount Hope Bay. Disturbance to the seafloor during the cable installation and HDD operations will cause turbidity within the water column and sediment dispersion, as modeled in the Hydrodynamics and Sediment Dispersion Modeling Technical Report (Attachment G).

Construction of the in-water export cables will be a short-term occurrence with the following estimated timeline (Table 4-1):

TABLE 4-1. ESTIMATED CONSTRUCTION TIMELINE

Construction Activity	Construction Duration (estimate)
Offshore HDD (Sakonnet River and Mt. Hope Bay)	HDD: 2 to 4 months (at each landfall; may be simultaneous) Offshore Pit Excavation: 1 week (at each landfall)
Seabed Preparation for Cable Installation (Mount Hope Bay, Sakonnet River, and RI Sound)	1 to 2 weeks
Cable Installation (Laying and Burial)	3 to 6 weeks in RI Sound and the Sakonnet River 1 to 2 weeks in Mt. Hope Bay
Post-Installation Activities (i.e., mattress/rock installation)	1 week

Maintenance of the cable that could result in sediment disturbance is not anticipated during the operational period, but if it is needed, will be very short term, likely on the order of days. SouthCoast Wind will select and use BMPs to minimize sediment mobilization during offshore construction and operations.

Other marine users, including fishermen and recreational boaters, may be temporarily affected during construction by being asked to avoid deploying fishing gear along the cable route and to abide by any temporary safety zones that may be imposed by the USCG or applicable Harbormasters during the construction phase of the Project.

4.1. WATER QUALITY REGULATORY STANDARDS

The RIDEM WQR, codified at 250-RICR-150-05-1,[1] establish surface water quality standards, water use classifications and water quality criteria applicable to all waters of the state. SouthCoast Wind requires a

[1] https://risos-apa-production-public.s3.amazonaws.com/DEM/REG_10722_20190117114831.pdf

WQC pursuant to WQR Section 1.15(A)(3) and the below responses to each WQR criterion demonstrates SouthCoast Wind's compliance with these requirements.

(a) In accordance with Section 401 of the Clean Water Act, 33 U.S.C. § 1341, applicants for any project which may result in a discharge to waters of the State and which requires a federal permit....

and

(b) projects involving one or more of the activities listed below which are within the jurisdiction of the Rhode Island Coastal Resources Management Council in accordance with R.I. Gen. Laws Chapter 46-23....

(1) Dredging and Dredged Material Disposal

and

(2) Filling of Waters of the State

Response: The Project includes the following proposed activities in state waters extending seaward to the three-nautical mile limit of Rhode Island state waters. The entirety of the proposed work outlined below is subject to the jurisdiction of the RIDEM pursuant to the RIDEM WQRs (250-Rhode Island Code of Regulations [RICR]-150-05-1) and requires a WQC pursuant to WQR Section 1.15(A)(3):

- Installation, operation, and maintenance of two submarine power export cables and associated communications cabling, installed on one bundle where practicable, measuring approximately 20.4 mi (32.8 km) in length.
- Placement of fill (i.e., secondary cable protection) in state waters over the proposed subsea export cables to protect segments of the submarine export cables and existing utilities. Fill may consist of rock bags, concrete mattresses, fronded mattresses, half-shells, and/or rock berms.
- Installation of the two submarine power export cables and associated communications cabling at the Project's proposed landfall work areas utilizing HDD with work including temporary excavation / dredging in nearshore waters at eight offshore HDD locations off the coastline of Portsmouth.

In addition, a Dredge Permit is required for the HDD pits in the Sakonnet River and in Mount Hope Bay pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the R.I.G.L.; and §2.4.13 in the Dredging Regulations (250 RICR-150-05-2).

The sections that follow identify the WQR criteria, conditions, prohibitions, and standards applicable to the Project. Sections 1.1 through 1.9, 1.10(A), (D) and (F), 1.14, 1.15, 1.17-1.19, 1.23-1.25,1.28 and 1.29 of the WQR are noted and/or do not directly apply to the Project and are therefore not addressed herein.

WQR Section 1.10 B – General Criteria

The following minimum criteria are applicable to all waters of the State, unless criteria specified for individual classes are more stringent:

1. At a minimum, all waters shall be free of pollutants in concentrations or combinations or from anthropogenic activities subject to these regulations that:

a. Adversely affect the composition of fish and wildlife;

b. Adversely affect the physical, chemical, or biological integrity of the habitat;

c. Interfere with the propagation of fish and wildlife;

d. Adversely alter the life cycle functions, uses, processes and activities of fish and wildlife; or

e. Adversely affect human health.

Response: The Project will not discharge pollutants to waters of the state (see Section 3.2 of this Application). The installation of the offshore export cables will not permanently, adversely affect, alter, or interfere with fish and wildlife; the physical, chemical, or biological integrity of the habitat; the life cycle functions, uses, processes and activities of fish and wildlife; or human health. SouthCoast Wind will site Project components to avoid locating onshore facilities and landfall sites in or near sensitive fish and wildlife habitats to the greatest extent practicable. SouthCoast Wind will coordinate with the RIDFW, RI DMF, RI CRMC, RIDEM, the USFWS and the NMFS to identify appropriate mitigation measures, including seasonal construction constraints, if required. See Sections 3.3, and 3.4 for an assessment of fish and wildlife. To evaluate the potential effects of EMF on marine organisms, a Magnetic Field Analysis Report and Magnetic Field Modeling Report was prepared and is provided in Attachment J.

2. Aesthetics - all waters shall be free from pollutants in concentrations or combinations that:

a. Settle to form deposits that are unsightly, putrescent, or odorous to such a degree as to create a nuisance, or interfere with the existing or designated uses;

b. Float as debris, oil, grease, scum or other floating material attributable to wastes in amounts to such a degree as to create a nuisance or interfere with the existing or designated uses;

c. Produce odor or taste or change the color or physical, chemical, or biological conditions to such a degree as to create a nuisance or interfere with the existing or designated uses; or,

d. Result in the dominance of species of fish and wildlife to such a degree as to create a nuisance or interfere with the existing or designated uses.

Response: The Project will not discharge pollutants to waters of the state (see Section 3.2 of this Application). SouthCoast Wind has prepared an Emergency Response Plan (Attachment E) that will be supplemented by the awarded Contractors' plan to avoid and/or minimize the risk of impacting the water column and benthic habitats from any accidental releases of oil and/or hazardous materials.

3. Radioactive substances – The level of radioactive materials in all waters shall not be in concentrations or combinations which will likely be harmful to humans, fish and wildlife, or result in concentrations in organisms producing undesirable conditions.

Response: Not applicable. The Project will not discharge radioactive substances to waters of the state.

4. Nutrients – Nutrients shall not exceed the limitations specified in §§ 1.10(D)(1) and 1.10(E)(1) of this Part and/or more stringent site-specific limits necessary to prevent or minimize accelerated or cultural eutrophication.

Response: Not applicable. The Project will not discharge nutrients to waters of the state.

5. Thermal Mixing Zones – In the case of thermal discharges into tidal rivers, freshwater streams or estuaries, where thermal mixing zones are allowed by the Director, the mixing zone will be limited to no more than one quarter (1/4) of the cross-sectional area and/or volume of river flow, stream, or estuary,

leaving at least three quarters (3/4) free as a zone of passage. In wide estuaries and oceans, the limits of mixing zones will be established by the Director.

Response: Not applicable. The Project does not propose thermal discharges which require a mixing zone to waters of the state.

6. Non-thermal Mixing Zones – In the case of non-thermal discharges, in applying these standards the Director may recognize, where appropriate, a limited acute and/or chronic mixing zone(s) on a case-by-case basis. The locations, size and shape of these zones shall provide for the maximum protection of fish and wildlife.

Response: Not applicable. The Project does not involve non-thermal discharges to state waters or associated mixing zones.

7. At a minimum, all mixing zones must:

a. Meet the criteria for aesthetics, in accordance with § 1.10(B)(2) of this Part;

b. Be limited to an area or volume that will prevent interference with the existing and designated uses in the associated waterbody segment and beyond;

c. Allow an appropriate zone of passage for migrating fish and other organisms, prohibit lethality to organisms passing through the mixing zone, and protect for spawning and nursery habitat; and

d. Not allow substances to accumulate in sediments, fish and wildlife or food chains such that known or predicted safe exposure levels for the health of humans or fish and wildlife will be exceeded.

Response: Not applicable. The Project does not propose discharges to waters of the state that require a mixing zone. It is SouthCoast Wind's interpretation of the regulations to mean mixing zones related to permanent or long-term industrial-type discharges into waters of the state.

SouthCoast Wind will continue to work with RI CRMC, RI DMF, and the NMFS to identify necessary time-of-year (TOY) restrictions to allow for unimpeded fish migration, spawning and nursery habitat.

8. For activities that will likely cause or contribute to flow alterations, streamflow conditions must be adequate to support existing and designated uses.

Response: Not applicable. The Project does not propose activities that would alter flows or streamflow conditions.

WQR Section 1.10 C – Applicable Conditions

The water quality standards apply under the most adverse conditions, as determined by the Director according to sound engineering and scientific practices on a case-by-case basis unless defined below. The ambient water quality criteria are applicable at or in excess of the following flow conditions:

1. *Aquatic Life Criteria- The acute and chronic aquatic life criteria for freshwaters shall not be exceeded at or above the lowest average 7 consecutive day low flow with an average reoccurrence frequency of once in 10 years (7Q10). The acute and chronic aquatic life criteria for seawater shall not be exceeded beyond the boundary of the mixing zone(s), as defined and determined by §§ 1.10(B)(5) and (6) of this Part, and thence throughout the waterbody. If a mixing zone has not been established, these criteria shall not be exceeded in any portion of the receiving water.*

Response: Not applicable. The Project does not propose any discharges to freshwaters or seawaters requiring a mixing zone.

2. *Human Health Criteria - The freshwater human health criteria for noncarcinogens and carcinogens are applicable at or in excess of the harmonic mean flow, which is a long-term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows. For seawaters, the ambient human health water quality criteria for carcinogens and non-carcinogens are applicable when the most adverse hydrographic and pollution conditions occur at the particular point of evaluation.*

Response: Not applicable. The Project does not propose discharges to waters of the state.

WQR Section 1.10 E – Class-Specific Criteria, Salt Waters

Table 4-2 below presents the class-specific criteria for salt waters: Classes SA, SB, and SB1, and any partial use designations as defined in the RIDEM WQR [250-RICR-150-05-01 § 1.26(E)].

TABLE 4-2. CLASS SPECIFIC CRITERIA- SALT WATERS

Criterion	Class SA, SA{b}	Class SB, SB1, SB{a}, SB1{a}	Class SC	Response
Sludge deposits, solid refuse, floating solids, oil, grease, scum	None allowable		None in such amounts that would impair any usages specifically assigned to this class.	Not Applicable. The Project proposes no such discharges.
Color and turbidity	None in such concentrations that would impair any usages specifically assigned to this class. Turbidity not to exceed 5 NTU over background.	None in such concentrations that would impair any usages specifically assigned to this class. Turbidity not to exceed 10 NTU over background.		Short term temporary sediment suspension is expected to occur during cable installation activities and excavation/backfill of the HDD exit pits. Duration and extent of potential effects are described in Section 3 and Attachment G Hydrodynamics and Sediment Transport Modeling Report.

Criterion	Class SA, SA{b}	Class SB, SB1, SB{a}, SB1{a}	Class SC	Response
Fecal Coliform Bacteria	Shellfishing Criteria: - Not to exceed a geometric mean MPN or MF (mTEC) value of 14 per 100 ml and not more than either 10% of the estimated 90th percentile of the samples shall exceed an MPN value of 49 per 100 ml for a three-tube decimal dilution or 31 cfu per 100ml for MF (mTEC).		None in such concentrations that would impair any usages specifically assigned to this class.	Not Applicable. The Project proposes no such discharges. The state of Rhode Island does not allow the discharge of untreated sewage from boats within the three-nautical mile limit of state waters. Boats with permanently installed marine toilets must be inspected and certified as compliant with Rhode Island No-Discharge Law. All vessels will comply with USCG and USEPA regulations that require operators to develop waste management plans, post informational placards, manifest trash sent to shore, and use special precautions such as covering outside trash bins to prevent accidental loss of solid materials.
	Primary Contact Recreational/Swimming Criteria - Not to exceed a geometric mean value of 50 MPN/100 ml and not more than 10% of the total samples taken shall exceed 400 MPN/100 ml, applied only when adequate enterococci data are not available.			
Enterococci	Primary Contact Recreational/Swimming Criteria Geometric Mean Density: 35 colonies/100 ml Single Sample Maximum*: 104 colonies/ 100 ml * Criteria for determining beach swimming advisories at designated beaches as evaluated by the Rhode Island Department of Health.		None in such concentrations that would impair any usages specifically assigned to this class.	Not Applicable. The Project proposes no such discharges. See previous response.

Criterion	Class SA, SA{b}	Class SB, SB1, SB{a}, SB1{a}	Class SC	Response
Taste and odor	None allowed except as naturally occurs	None in such concentrations that would impair any usages specifically assigned to this class nor cause taste or odor in edible portions of fish or shellfish.		Not Applicable. The Project does not propose activities that will affect ambient water taste or odor, nor cause taste or odor in edible portions of fish or shellfish.
pH	6.5-8.5 but not more than 0.2 units outside of the normally occurring range.			Not Applicable. The Project does not propose activities that will affect ambient water pH.
Dissolved Oxygen	See 250-RICR-150-05-1 § 1.10(F).			Not Applicable. The Project does not propose activities that will affect ambient water dissolved oxygen.
Chemical Constituents	None in concentrations or combinations that could be harmful to humans or fish and wildlife for the most sensitive and governing water class use, or unfavorably alter the biota, or which would make the waters unsafe or unsuitable for fish and wildlife or their propagation, impair the palatability of same, or impair the waters for any other existing or designated use. None in such concentrations that would exceed the Water Quality Criteria and Guidelines as found in 250-RICR-150-05-1 § 1.26. The ambient concentration of a pollutant in a water body shall not exceed the RIDEM Ambient Water Quality Criteria & Guidelines (250-RICR-150-05-1 § 1.26) for the protection of aquatic organisms from acute or chronic effects, unless the criteria or guideline is modified by the Director based on results of bioassay tests conducted in accordance with the terms and conditions provided in 250-RICR-150-05-1 § 1.29.			Not Applicable. The Project proposes no such discharges.
Nutrients	None in such concentration that would impair any usages specifically assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication. Shall not exceed site-specific limits if deemed necessary by the Director to prevent or minimize accelerated or cultural eutrophication. Total phosphorus, nitrates and ammonia may be assigned site-specific permit limits based on reasonable Best Available Technologies. Where waters have low tidal flushing rates, applicable treatment to prevent or minimize accelerated or cultural eutrophication may be required for regulated nonpoint source activities.			Not Applicable. The Project proposes no such discharges.

Criterion	Class SA, SA{b}	Class SB, SB1, SB{a}, SB1{a}	Class SC	Response
Temperature/ Temperature Increase	Activities shall not increase the temperature except where the increase will not exceed the recommended limit on the most sensitive receiving water use and in no case shall an activity cause the temperature to exceed 83 degrees Fahrenheit (°F) nor raise the normal temperature more than 1.6 degrees °F, 16 June through September and not more than 4 degrees °F from October through 16 June. All measurements shall be made at the boundary of such mixing zones as is found to be reasonable by the Director.			Not Applicable. The Project does not propose activities that will affect ambient water temperatures.

WQR Section 1.11 – Effect of Activities on Water Quality Standards

A. *Activities Shall Not Violate Water Quality Standards - No person shall discharge pollutants into any waters of the State or perform any activities alone or in combination which the Director determines will likely result in the violation of any State water quality criterion or interfere with one or more of the existing or designated uses assigned to the receiving waters or to downstream waters in accordance with §§ 1.9, 1.10, and 1.20 of this Part. In addition, Best Management Practices, as determined by the Director, shall be used to control erosion, sedimentation and runoff in accordance with § 1.17 of this Part.*

Response: SouthCoast Wind will comply with the Rhode Island water quality standards. The Project does not propose discharges of pollutants to waters of the state. See Section 2.3 for a description of the proposed cable installation methodologies including temporary excavation / dredging, and Section 3.2 for a discussion of water quality.

B. *Activities Shall Not Further Degrade Low Quality Waters....*

C. *Activities Shall Not Violate Antidegradation....*

D. *Mixing Zone - Due to discharges to surface waters, the Director may recognize, where appropriate, a limited mixing zone on a case-by-case basis. In no case may a mixing zone cause a loss of, or impair, any existing or designated use.*

E. *Restrictions to New Discharges....*

   1) *New discharges into the terminal reservoir of a public drinking water supply....*

   2) *New discharges into waters that are not public drinking water supplies may include:*

      a. *discharges of stormwater drainage;*

      b. *discharges from industrial non-contact cooling water;*

      c. *discharges from construction site dewatering provided that the applicant has demonstrated to the satisfaction of the Director that no reasonable alternatives exist;*

      d. *discharges from groundwater remediation projects provided that the applicant has demonstrated to the satisfaction of the Director that no reasonable alternatives exist;*

e. *discharges from aquaculture facilities as appropriately authorized by all required state agencies;*

f. *discharges from water main maintenance such as main flushing and cleaning operations;*

g. *discharges of dredged material;*

h. *discharges from farming activities into surface waters which are hydrographically disconnected from all other surface waters;*

i. *placement of suitable solid materials in appropriate amounts for the purpose of the formation of an artificial reef as approved by the Director;*

j. *discharges from aquatic research related activities provided that the applicant has demonstrated to the satisfaction of the Director that no reasonable alternatives exist;*

k. *discharges from desalination facilities into seawaters; and*

l. *other new discharges provided the applicant demonstrates to the satisfaction of the Director that: (1) the discharge serves a compelling public purpose which provides benefits to the public as a whole as opposed to individual or private interests; (2) there is no reasonable alternative means of, or location for, serving the compelling public purpose cited; and (3) the discharge will not impair existing uses nor attainment of designated uses.*

Response: The Project will not result in discharges of pollutants to waters of the state or any discharges to public drinking water supplies. The Project is expected to result in short-term increased turbidity in the water column which will generally dissipate within hours in the Sakonnet River and Mount Hope Bay during marine cable installation (see Section 3.2, Water Quality). The potential for increased turbidity during cable installation was assessed through a quantitative model, which is summarized in the Hydrodynamics and Sediment Dispersion Modeling Report included in Attachment G.

Project vessels will follow USCG requirements at 33 C.F.R. 151 and 46 C.F.R. 162 regarding bilge and ballast water. All Project vessels are to comply with regulatory requirements related to the prevention and control of discharges and accidental spills including USEPA requirements under the USEPA 2013 Vessel General Permit and state and local government requirements.

WQR Section 1.12 – Procedures for Determining Additional Requirements for Effluent Limitations, Treatment, and Pretreatment

A. Effluent Limited and Water Quality Limited Waters - No person shall discharge pollutants into any surface waters of the State or discharge to a treatment works unless the discharge complies with any additional effluent limitations and receives any additional treatment/pretreatment which the Director determines is necessary to comply with § 1.11 of this Part, or to prevent overloading or damaging effect upon a treatment works. In order to determine which waters require additional effluent limitations, treatment or pretreatment to comply with § 1.11 of this Part, or to prevent overloading or damaging effects upon a treatment works, the Director will categorize the surface waters of the State into effluent limited and water quality limited waters. Such classifications will be recorded in Section 305(b) of the Clean Water Act, 33 U.S.C. § 1315, biennial State of the State's waters reports, and will be revised as necessary.

Response: Not applicable. The Project does not propose discharge of pollutants to waters of the state or a treatment works facility. If necessary, decant water from drilling operations may be filtered through an

appropriate filtration system prior to onsite discharge and/or transported from the site to an approved receiving facility via vac truck or tight tank. SouthCoast Wind will submit the proposed filtration plan and address the Project's compliance with the Construction and Development Effluent Guidelines (40 C.F.R. 450) with the application for coverage under the RIPDES program.

B. Total Maximum Daily Loads in Water Quality Limited Waters - For water quality limited waters, the Director shall identify those pollutants within discharges to the water quality limited waters which do or have the reasonable potential to cause or contribute to a violation of § 1.11 of this Part. The Director shall develop a total maximum daily load (TMDL) for each of these pollutants. The TMDL shall determine the maximum amount of the pollutant that can be discharged into the water quality limited waters and be in compliance with § 1.11 of this Part. The TMDL shall be based on best available scientific information and allocation of the TMDL may be based on, but not limited to, technical feasibility of pollutant removal, the relative costs of treatment to the contributing discharges, and the relative contribution from each source. The Director shall not be required to allocate the full amount of the pollutant specified in § 1.11 of this Part, but may designate a portion of the allocation as a reserve or margin of safety as deemed necessary.

Response: The proposed Project will not contribute to existing TMDLs (pathogens and fecal coliform bacteria).

WQR Section 1.13 – Prohibited Discharges

§1.13 of the WQR list prohibited discharges which are enumerated in this rule apply to all pollutants, regardless of the effect on water quality standards or the treatment which the pollutants receive.

Response: The Project does not propose any of the prohibited discharges listed in WQR Section 1.13, including pollutants, urban runoff, hazardous waste and substances, oil, petroleum products, and solvents, or sewage. During construction and operations and maintenance activities, sanitation will be provided on service vessels utilized by personnel for construction and transport. The transport vessels will hold sewage within holding tanks and dispose of all raw or treated sewage in accordance with all applicable discharge rules and regulations. No sewage or other discharges that would contribute to fecal coliform and pathogen levels will be discharged into Mount Hope Bay or the Sakonnet River in relation to the Project. Any discharge of sewage from vessels will be discharged to an approved marina pump-out facility, as necessary.

Refer to Attachment E for the Project's Emergency Response Plan. Marine contractors conducting Project work within Rhode Island state waters will be responsible for amending the plan, as needed to be consistent with their specific means and methods and spill control protocols.

See Table 2-7 in Section 2 for a list of avoidance, minimizations, and mitigation measures related to surface waters, the marine environment and vessel discharge requirements.

WQR Section 1.16 – Application for Approvals

§1.16 of the WQR states Applications for Orders of Approval and Water Quality Certifications will be on forms provided by or in the manner prescribed by, DEM, to be submitted to the Director and shall contain such documentation and/or information as the Director may require ...

Response: SouthCoast Wind acknowledges the application requirements in § 1.16 of the WQR. This Application narrative and supporting documentation, including preliminary engineering plans and supporting attachments, is provided for review and approval of SouthCoast Wind's WQC and Dredge

Permit per WQR Section 1.16 for work activities within waters of the state.

WQR Section 1.20 – Antidegradation of Water Quality Standards

A. Purpose - The State Antidegradation Regulations are based on the federal Antidegradation Policy requirements, Antidegradation Policy and Implementation Methods, 40 C.F.R. § 131.12 and have as their objective the maintenance and protection of various levels of surface water quality and uses. Antidegradation applies to all projects or activities subject to these regulations which will likely lower water quality or affect existing or designated water uses, including but not limited to all Water Quality Certification reviews and any new or modified RIPDES permits. For the disposal of dredged or fill material into the waters of the State, Guidelines for Specification of Disposal Sites for Dredged or Fill Material, 40 C.F.R. § 404(b)(1), incorporated above in § 1.3(C) of this Part, guidelines shall be followed in the evaluation of 40 C.F.R. § 131.12(a)(1), incorporated above in § 1.3(F) of this Part, and the State's Antidegradation Policy. The Antidegradation regulations consist of four (4) tiers of water quality protection.

Response: SouthCoast Wind will comply with the state antidegradation standards. The Project does not include any discharges of pollutants to waters of Rhode Island. Also, as outlined in Section 2, the Project is designed to minimize sediment mobilization during offshore construction. Further, a hydrodynamic and sediment transport model was prepared for the Project to evaluate the potential short-term effects of suspended sediment in the water column during construction (Attachment G).

B. Tier 1 - Protection of Existing Uses - Any existing in situ water uses and level of surface water quality necessary to protect the existing uses, shall be maintained and protected.

Response: The Project does not include any discharges of pollutants to waters of Rhode Island, and no surface water quality impacts that would affect existing uses are anticipated.

C. Tier 2 - Protection of Water Quality in High Quality Waters

Response: SouthCoast Wind will comply with the state antidegradation standards. The Project does not include any discharges of pollutants to waters of Rhode Island. See Section 3.2 for a discussion of RIDEM Water Quality Classifications and Clean Water Act Assessments.

D. Tier 2½ – Protection of Water Quality for Special Resource Protection Waters (SRPWs)

Response: Not applicable. The Brayton Point ECC is not proposed within a Special Resource Protection Water. Special Resource Protection Water means surface waters identified by the Director of CRMC as having significant recreational or ecological uses, and may include but are not limited to: wildlife refuge or management areas; public drinking water supplies; State and Federal Parks; State and Federal designated Estuarine Sanctuary Areas; waterbodies identified by the RIDEM Natural Heritage Program as critical habitat for rare or endangered species; wetland types or specific interest or of special concern by the Rhode Island Natural Heritage Program; waterbodies identified by the U.S. Department of the Interior on the Final List of Rivers for potential inclusion in the National Wild and Scenic Rivers System.[2]

E. Tier 3 - Protection of Water Quality for Outstanding National Resource Waters (ONRWs)

Response: Not applicable. The Brayton Point ECC is not proposed within an Outstanding National

[2] RICR Template (risos-apa-production-public.s3.amazonaws.com)

Resource Water. Outstanding National Resource Water means waters of National and State parks, Wildlife Refuges, and other such waters designated as having special recreational or ecological value.

F. Implementation - The Antidegradation provisions shall be implemented in accordance with the Antidegradation Implementation Policy § 1.27 of this Part.

Response: SouthCoast Wind will comply with the state Antidegradation Implementation Policy (see response to WQR Section 1.20 above).

WQR Section 1.21 – Modification of Water Quality Standards

§ 1.21(E) states, in part, that *Modifications of Designated Uses - Modifying a designated use may result in modifying the applicable criteria of the affected/identified water segment, to criteria necessary to protect the new designated use of that affected/identified water segment. In no case may a criteria be modified if it would adversely affect existing uses or other designated uses.*

Response: The Project does not require a modification to a water quality standard.

WQR Section 1.22 – Variances from Water Quality Standards

§ 1.22(A) of the WQR *Conditions for Granting Variances - A variance from the water quality standards may be granted by the Director when the Director has a reasonable belief that the standard can ultimately be attained. A variance from meeting the standard is granted to the discharger for the particular constituent that is causing non-attainment of the standard. All other applicable criteria and standards must be met by the discharger. The criteria protective of the standard must be maintained for all other dischargers on the waterbody.*

Response: SouthCoast Wind does not anticipate requiring a variance for the Project from any water quality standard because all standards are expected to be attained.

WQR Section 1.25 – RIDEM Water Quality Classifications

§ 1.25 of the WQR establishes a *waterbody classification listing consistent with the geographical / numerical waterbody listing in the State of the State's Waters Report, also known as the 305(b) Report.*

Response: Noted. See Section 3.2 for RIDEM water quality classifications in the Project area.

WQR Section 1.26 – RIDEM Ambient Water Quality Criteria and Guidelines for Toxic Pollutants

§ 1.26(A) of the WQR states that *Section 304(a)(1) of the Clean Water Act, 33 U.S.C. § 1314, requires the USEPA to develop and publish water quality criteria. The USEPA has published criteria for a number of the pollutants listed pursuant to Section 307(a)(1) of the Clean Water Act, 33 U.S.C. § 1317, as well as for other toxic substances, based on available toxicological information on the pollutants. Section 303(c)(2)(B) of the Clean Water Act, 33 U.S.C. § 1313, requires States to adopt numeric criteria to protect the uses of their waters from all toxic pollutants listed pursuant to Section 307(a)(1) (33 U.S.C. § 1317) for which criteria have been published pursuant to Section 304(a)(1) (33 U.S.C. § 1314), and which are present, or could reasonably be expected to be present, at levels that would impair the uses. A complete list of "priority pollutants" is contained in 40 C.F.R. § 423, incorporated above in § 1.3(G) of this Part. § 1.26 of this Part contains the ambient chemical-specific numeric criteria and guidelines for aquatic life and human health which satisfies the requirements of Section 303(c)(2)(B) (33 U.S.C. § 1313). Certain criteria in the table have been modified and approved by EPA in accordance with applicable EPA guidance.*

Response: SouthCoast Wind acknowledges the standards in Section 1.26 of the WQR. The Project does not involve discharges of toxic pollutants to waters of the state. SouthCoast Wind developed an Emergency Response Plan (Attachment E) to avoid and/or minimize the risk of impacting marine waters from any accidental releases of oil and/or hazardous materials. The emergency response plan will be implemented along with the Project OSRP (COP, Appendix E2). The OSRP includes provisions for responding to oil and fuel spills. SouthCoast Wind also prepared a HDD Inadvertent Release of Drilling Muds Contingency Plan (Attachment F) to describe best management practices to avoid and respond to an inadvertent release should one occur during HDD operations.

WQR Section 1.27 – The Implementation of the Antidegradation Provisions of the Rhode Island Water Quality Regulations

§1.27(B) of the WQR states Antidegradation applies to all new or increased projects or activities which may lower water quality or affect existing water uses, including but not limited to all 401 Water Quality Certification reviews and any new, reissued, or modified RIPDES permits. This Antidegradation Implementation Policy describes the general strategy the State will use to determine on a case-by-case basis whether, and to what extent, water quality may be lowered.

Response: SouthCoast Wind acknowledges the standards in Section 1.27 of the WQR. The Project is consistent with the Federal Antidegradation Policy requirements (40 C.F.R. § 131.12) and the Antidegradation Provisions of the Rhode Island Water Quality Regulations. As mentioned previously in response to WQR Section 1.20, no discharges are proposed in High Quality Waters, Special Resource Protection Waters, or Outstanding National Resource Waters. No prohibited discharges are proposed and the Project requests no modifications or variances of any water quality standards.

In addition, SouthCoast Wind is seeking a State Water Quality Certification for the Project as described in this Application and will submit a separate application for coverage under the RIPDES General Construction Permit.

4.2. Dredging and the Management of Dredged Materials Regulatory Standards

The RIDEM and RI CRMC Rules and Regulations for Dredging and the Management of Dredged Materials, codified at 250-RICR-150-05-2[3], establish standards to ensure that dredging and management of associated dredged material is managed in a way that is protective of groundwater and surface water quality so as to ensure the continued viability and integrity of drinking water and fish and wildlife resources.

"Dredging" means the movement of sediments from beneath surface waters by mechanical or hydraulic means.

Response: This Application is being filed to authorize the temporary excavation/dredging of up to eight offshore HDD exit pits including four in the Sakonnet River and four in Mount Hope Bay. Excavated material will be used as backfill and will not be transported for disposal. Additional details can be found in Section 2.3.

[3] https://rules.sos.ri.gov/regulations/part/250-150-05-2

SouthCoast Wind acknowledges Subparts 2.1 through 2.4 and 2.13 through 2.15 of the Dredging Regulations. Subparts 2.7 C through E, 2.9, 2.10, and 2.12 disposal or beneficial reuse of dredged material, are not applicable to the Project. Subparts 2.5, 2.6, 2.7, 2.8, 2.11, and 2.16 of the Dredging Regulations are addressed below.

Dredging Regulations Section 2.5 – General Provisions

A. No person shall perform dredging, dewatering, handling, disposal, or make beneficial use of dredged material without prior written approval from the Director, except as provided for in §2.12 of this Part.

Response: SouthCoast Wind acknowledges this general provision and is submitting this Application to obtain authorization to construct the Project within Rhode Island state waters.

B. Dredging, dewatering, handling, disposal, or beneficial use of dredged material, whether licensed or unlicensed, shall not cause pollution of the waters of the United States or the State of Rhode Island so as to violate the Water Pollution Act, R.I. Gen. Laws., Chapter 46-12, the Groundwater Protection Act, R.I. Gen. Laws Chapter 46-13.1, the Fresh Water Wetlands Act, R.I. Gen. Laws § 2-1- 18 et seq., or §§ 402 and 404 of the Clean Water Act, 33 U.S.C. 1251 et seq.; or cause air pollution, including objectionable odors and fugitive dust, so as to violate the Clean Air Act, R.I. Gen. Laws Chapter 23-23 or the federal Clean Air Act, 42 U.S.C. § 7401 et seq., and any regulations promulgated under these authorities.

Response: SouthCoast Wind will comply with above-referenced provisions and regulations. Table 2.7 and Section 3 of this Application discuss the BMPs, avoidance and minimization measures, and monitoring that will be implemented for the Project.

C. In accordance with 40 C.F.R § 230.10, the in-water disposal of dredged material is prohibited unless:

1. *There is no practicable alternative to the proposed disposal that would have less adverse impact on the aquatic ecosystem, and that would not itself have significant adverse environmental consequences. A practicable alternative is defined as one that is "available and capable of being done after taking into consideration cost, existing technology and logistics in light of the overall project purposes";*
2. *The disposal will not cause or contribute to violations of applicable water quality standards;*
3. *The disposal will not cause or contribute to significant degradation of waters of the state; or,*
4. *Appropriate and practicable steps to minimize the potential adverse impacts of the disposal on the aquatic environment have been taken.*

Response: SouthCoast Wind does not propose offsite, offshore or onshore disposal of excavated material. SouthCoast Wind plans to side-cast sediments immediately adjacent to the offshore construction areas to allow a readily available means of backfilling the trench and subsea cables.

D. Land dewatering, disposal or beneficial use of dredged material is prohibited in the following areas, unless the dredged material meets the criteria listed in § 2.9(B)(3) of this Part or unless the dewatering, disposal or beneficial use location is within 200 feet of the coastal zone:

1. *Areas where groundwater is classified as GAA, as defined in the DEM Rules and Regulations for Groundwater Quality, Part 3 of this Subchapter;*
2. *Areas where groundwater is classified as GA, as defined in the DEM Rules and Regulations for Groundwater Quality, Part 3 of this Subchapter and where public water is not available; and,*

3. *The watershed of a drinking water reservoir or any Wellhead Protection Area as defined pursuant to the Rules and Regulations for Groundwater Quality, Part 3 of this Subchapter.*

Response: The Project does not involve land dewatering, disposal or beneficial use of excavated offshore material.

E. Land disposal of dredge material shall be placed at a location in a manner that will prevent its later erosion into a waterway or wetland.

Response: The Project does not involve land disposal of dredged material.

Dredging Regulations Section 2.6 and Pre-Application Process and Section 2.7 Characterizing Material to be Dredged

Response: SouthCoast Wind has participated in meetings and conference calls with RIDEM and RI CRMC on multiple occasions including on June 7, 2021; May 26, 2022; and monthly with additional interim meetings since August 2022, to discuss the status of the marine surveys, engineering design and permitting requirements for the SouthCoast Wind 1 Project.

Since the excavated material from the HDD pits will not be moved or transported, it is SouthCoast Wind's understanding, and as concurred by the RIDEM[4] and the RI CRMC,[5] that no sediment chemistry is required to consider SouthCoast Wind's State Water Quality Certification and Dredge Permit application administratively complete. SouthCoast Wind has analyzed benthic sediments for grain size distribution and has completed hydrodynamic and sediment dispersion modeling for the offshore cable installations and the HDD installations to evaluate potential short-term effects on water quality during sediment excavation (see Attachment G).

Dredging Regulations Section 2.8 – Application for Dredging and the Management of Dredged Material

A. An application for permission to dredge in the marine waters of the state and/or to dewater, dispose or make beneficial use of dredged material shall be submitted to both the Department [RIDEM] *and the Council* [CRMC] *on forms prescribed and provided by the agencies. The Department will accept applications that have been made part of a submittal to the Council, provided such part complies with all requirements set forth in these regulations and in the form(s) prescribed by the Department.*

Response: SouthCoast Wind's application for Marine Dredging and Associated Activities pursuant to the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, Chapter 46-6.1 of the Rhode Island General Laws is submitted with the RI CRMC and RIDEM as part of this Application. The Project does not involve disposal or beneficial use of dredge material.

B. To be accepted as complete, an application must include, or address, at a minimum, all of the following:

1. Site plan(s), including all applicable requirements as identified in § 2.16 of this Part, Appendix A;

Response: Offshore Export Cable Engineering Drawings (Attachment C-1) and HDD Engineering

[4] N. Personeus (RIDEM), personal communication (email), March 3, 2022.
[5] J. Boyd (RI CRMC), personal communication, February 28, 2022.

Drawings (Attachment C-2) for the offshore export cables and HDD operation in Rhode Island state waters are attached herein.

2. Results of the sampling conducted pursuant to the Sediment Sampling Plan, as approved by the Department in accordance with § 2.7 of this Part;

Response: See the response to Dredging Regulations Sections 2.6 and 2.7 above.

3. A description of the dredging process, including the proposed dredging method and an estimate of the length of time necessary to complete the dredging project;

Response: A description of the dredging process and estimated time frame are provided in Section 2.3, and further avoidance, minimization and mitigation measures are described in Section 3 of this Application.

4. Type of dredging equipment to be used;

Response: Multiple offshore excavation methods are under consideration for the HDD offshore exit pits. These include use of trailing suction hopper dredge, water injection dredge, clamshell and/or controlled flow excavation. One of or a combination of these methods may be used by the Project. Information about the type of dredging equipment to be used can be found in Section 2.3.

5. Stamped calculations performed by a Professional Engineer with experience with dredge projects, verifying the estimated volume of dredged material;

Response: The Project does not involve standard dredging and disposal of materials. See Section 2.3 for a description of the proposed excavation/dredging activities. The estimated dredged material calculations and preliminary engineering plans have been checked by a Rhode Island Registered Professional Engineer with experience in HDD projects. Please refer to Attachment C-2 – HDD Engineering Drawings. These dredged-volume calculations are based upon the "Typical HDD Detail" found in Attachment C-2 – HDD Engineering Drawings, which is a preliminary design; as a conservative approach, some contingency (above the calculated value) was included in the overall estimated volume of dredged material, to account for the possibility of a reasonable amount of variation between the preliminary and final design.

6. Cross sectional plans of the area to be dredged. Plans must show the existing and proposed contours of the dredging area;

Response: Submarine cable details are shown in Attachment C-1 Offshore Export Cable Engineering Drawings, and a cross-sectional view of the offshore HDD areas and a cross-section of the offshore cable trench are shown in Attachment C-2 HDD Engineering Drawings.

7. A narrative description of aquatic resources in the area to be dredged such as shellfish beds, eel grass beds, spawning areas and migratory pathways for finfish, and other aquatic resources;

Response: Descriptions of the affected environment, potential impacts, and proposed avoidance, minimization and mitigation measures are provided in Section 3 of this Application narrative. The Benthic Habitat Mapping Report (Attachment H) provides details on the characteristics of benthic habitat within the Brayton Point ECC. Section 3.3 describes benthic and shellfish resources; Section 3.4 finfish and fish habitat, and Section 3.6 commercial and recreational fishing.

8. The proposed starting and completion dates for the dredging project. Depending on the size, location and complexity of the project, the Department may require the submission of an evaluation of the impacts to fishery resources including migratory and spawning behavior and habitat, and the presence of early life stages of particular sensitivity. Dredging projects proposed outside the standard dredge window may require the submission of additional resource information;

Response: The anticipated timeline and construction of the Project is presented in Section 2.2. SouthCoast Wind is consulting with the NOAA NMFS and RI DMF regarding potential seasonal or TOY restrictions for marine construction.

9. The method of transport to the disposal or beneficial use area and a description of handling techniques (i.e. stockpiling, dewatering);

Response: No offshore or onshore transport, or offsite disposal of dredged material, is proposed as part of the Project. SouthCoast Wind is not intending to transport or dispose of dredged material.

10. Consistency of the proposed project with the beneficial use and disposal priorities for dredged material management established in the R.I. Gen. Laws Chapter 46-6.1-2 and with the dredging plan adopted by the Council pursuant to R.I. Gen. Laws § 46-6.1-5;

Response: SouthCoast Wind plans to side-cast sediments adjacent to the offshore construction areas to allow for a readily available means of backfilling the trench and subsea cables. The excavated material may also be used to serve to temporarily contain the HDD construction area.

11. Location(s) of dredged material dewatering, handling, disposal or beneficial use site(s);

Response: SouthCoast Wind plans to side-cast sediments immediately adjacent to the offshore construction areas in the Sakonnet River and Mount Hope Bay to allow a readily available means of backfilling the trench and burying the subsea cables.

12. Other specific information required by §§ 2.9, 2.10 and 2.11 of this Part, to the extent applicable.

Response: SouthCoast Wind plans to side-cast sediments immediately adjacent to the offshore construction areas to allow a readily available means of backfilling the trench and burying the subsea cables. The excavated material can also serve to temporarily contain the HDD construction area. Section 2 of this Application describes SouthCoast Wind's continuing evaluation of several cable installation methodologies and tools to minimize impacts to water quality.

Dredging Regulations Section 2.11 – Dewatering of Dredged Material

§ 2.11 (A)(2) The selection and design of settling basins shall be consistent with the USACE publication entitled Engineering and Design, Confined Disposal of Dredged Material, Engineer Manual No. 1110-2-5027. Characterization of the dredged material, engineering computations for the system, and analysis of receiving water mixing to demonstrate the discharge will not violate water quality standards must be included. If the dewatering facility processes dredged material from multiple dredging operations, a Rhode Island Pollutant Discharge Elimination System (RIPDES) permit may also be required.

and

§ 2.11(B) All dewatering activities must comply with the standards and criteria for disposal or beneficial use in accordance with § 2.9 of this Part.

Response: SouthCoast Wind does not propose offshore or onshore dewatering of materials excavated from the offshore HDD construction areas, and instead intends to side-cast sediments adjacent to the offshore construction areas.

Dredging Regulations Section 2.16 – Appendix A: Application Site Plan Requirements

§ 2.16 Application site plan requirements for Dredging and the Management of Dredged Materials.

Response: The Offshore Export Cable Engineering Drawings (Attachment C-1) and HDD Engineering Drawings (Attachment C-2) of this Application were prepared to meet the requirements stated within Section 2.16 A through G and K. Subparts H, I, J and L do not apply because the Project does not include disposal or beneficial reuse of dredged material, beach nourishment, or rehandling facility projects.