WIND ENERGY RESEARCH LEASE ON THE ATLANTIC OUTER CONTINENTAL SHELF OFFSHORE MAINE

BIOLOGICAL ANALYSIS

Prepared using IPaC

Generated by Megan O'Donnell (megan.odonnell@icf.com)

April 24, 2024

The purpose of this document is to assess the effects of the proposed project and determine whether the project may affect any federally threatened, endangered, proposed, or candidate species. If appropriate for the project, this document may be used as a biological assessment (BA), as it is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)).

In this document, any data provided by U.S. Fish and Wildlife Service is based on data as of October 25, 2023.

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WIND ENERGY RESEARCH LEASE ON THE ATLANTIC OUTER CONTINENTAL SHELF OFFSHORE MAINE BIOLOGICAL ASSESSMENT

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1 DESCRIPTION OF THE ACTION

1.1 PROJECT NAME

Wind Energy Research Lease on the Atlantic Outer Continental Shelf Offshore Maine

1.2 EXECUTIVE SUMMARY

This Biological Assessment was prepared by the Bureau of Ocean Energy Management (BOEM) in accordance with the National Environmental Policy Act (NEPA) to consider the reasonably foreseeable environmental consequences associated with the issuance of a research lease to the State of Maine. The Proposed Action for this EA is the issuance of a wind energy research lease in support of wind energy development in the Gulf of Maine. The research lease would not authorize any activities on the U.S. Outer Continental Shelf (OCS) but would result in site assessment activities (i.e., placement of a meteorological ocean buoy) within the lease and site characterization activities (i.e., geophysical and geotechnical, biological, and archaeological surveys and monitoring activities) within and around the lease and potential future project easements.

At this time, BOEM is not considering construction and operation of a wind energy facility on a lease that may be issued in the WEAs. If, after a lease is issued, a lessee proposes to construct a commercial wind energy facility, the lessee would be required to submit a COP to BOEM for review and approval. BOEM would then conduct a project-specific National Environmental Policy Act (NEPA) review and would initiate project-specific ESA consultation with FWS, which would include the lessee's proposed transmission line(s) to shore. Three federally listed birds, one federally listed bat, one candidate insect, one federally listed turtle, and one bat proposed to be listed as endangered under USFWS jurisdiction occur or potentially occur in all or portions of the Action Area, depending on species and Project element: piping plover, red knot, roseate tern, monarch butterfly, northern long-eared bat (NLEB), and tricolored bat. For the remaining species, Plymouth redbelly turtle, the potential effects within the Action Area are unlikely as there are no onshore Project elements.

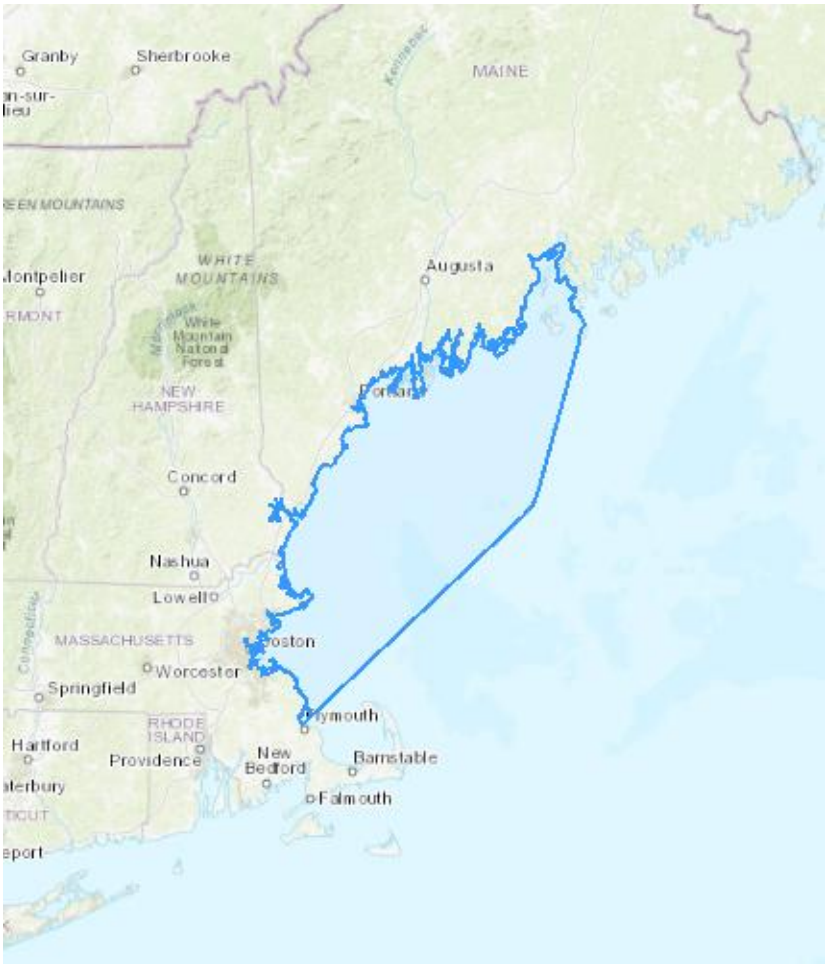
This BA is based upon BOEM’s experience with similar actions proposed in the Gulf of Maine: On March 24, 2011, BOEM requested informal ESA Section 7 consultation (consultation) with FWS for lease issuance and site assessment activities off New Jersey, Delaware, Maryland, and Virginia. On June 20, 2011, FWS concurred with BOEM’s determinations that the risk to the roseate tern, piping plover, Bermuda petrel, and red knot regarding lease issuance, associated site characterization and site assessment activities was “small and insignificant” and, therefore, not likely to adversely affect the three ESA listed species and one candidate species. On February 12, 2014, BOEM requested informal consultation with FWS for lease issuance and site assessment activities off North Carolina, South Carolina, and Georgia. On March 17, 2014, the Service concurred with BOEM's determination that commercial wind lease issuance and site assessment activities on the Atlantic OCS may affect, but will not likely adversely affect the Bermuda petrel, black-capped petrel, Kirland's warbler, roseate tern, piping plover, and red knot. On July 27, 2016, BOEM requested informal consultation with FWS for the construction, operation, and decommissioning of a single met tower off New York in what is now OCS-A 0512. On September 14, 2016, FWS concurred with BOEM’s not likely to adversely affect determination for roseate tern, red knot, and piping plover and a no effect determination for the NLEB. On August 10, 2021, BOEM requested informal consultation with USFWS for lease and grant issuance and site assessment activities on the Atlantic OCS of the New York Bight. On March 15, 2021, USFWS concurred with BOEM’s determination that commercial wind lease issuance and site assessment activities would “not likely adversely affect” the Bermuda petrel, roseate tern, piping plover, and red knot and a no effect determination for the NLEB.

1.3 EFFECT DETERMINATION SUMMARY

SPECIES (COMMON NAME) OR CRITICAL HABITAT	SCIENTIFIC NAME	LISTING STATUS	PRESENT IN ACTION AREA	EFFECT DETERMINATION
Atlantic Salmon	Salmo salar	Endangered	Yes	NE
Monarch Butterfly	Danaus plexippus	Candidate	Yes	NE
Northern Long-eared Bat	Myotis septentrionalis	Endangered	Yes	NLAA
Piping Plover	Charadrius melodus	Threatened	Yes	NLAA
Plymouth Redbelly Turtle = Plymouth Redbelly Cooter	Pseudemys rubriventris bangsi	Endangered	No	NE
Roseate Tern	Sterna dougallii dougallii	Endangered	Yes	NLAA
Rufa Red Knot	Calidris canutus rufa	Threatened	Yes	NLAA
Tricolored Bat	Perimyotis subflavus	Proposed Endangered	Yes	NLAA
Atlantic Salmon critical habitat	Salmo salar	Final	No	NE

1.4 PROJECT DESCRIPTION

1.4.1 LOCATION



LOCATION
Maine, Massachusetts, and New Hampshire

1.4.2 DESCRIPTION OF PROJECT HABITAT

The habitat for the Proposed Action will occur offshore Maine in the Gulf of Maine on the U.S. Outer Continental Shelf (OCS).

The Gulf of Maine is a semi-enclosed sea in the Atlantic Ocean, bordered by the coastlines of Massachusetts, New Hampshire, Maine, New Brunswick, and Nova Scotia. It is an ecologically diverse region with unique benthic features and oceanographic circulation patterns that contribute to flourishing and productive marine resources, which in turn support culturally significant fisheries and recreational activities.

1.4.3 PROJECT PROPONENT INFORMATION

Provide information regarding who is proposing to conduct the project, and their contact information. Please provide details on whether there is a Federal nexus.

REQUESTING AGENCY

Department of Interior

Bureau of Ocean Energy Management

FULL NAME
Megan O'Donnell

STREET ADDRESS
1902 Reston Metro Plaza

CITY	STATE	ZIP
Reston	VA	20190

PHONE NUMBER	E-MAIL ADDRESS
7328740094	megan.odonnell@icf.com

LEAD AGENCY

Lead agency is the same as requesting agency

1.4.4 PROJECT PURPOSE

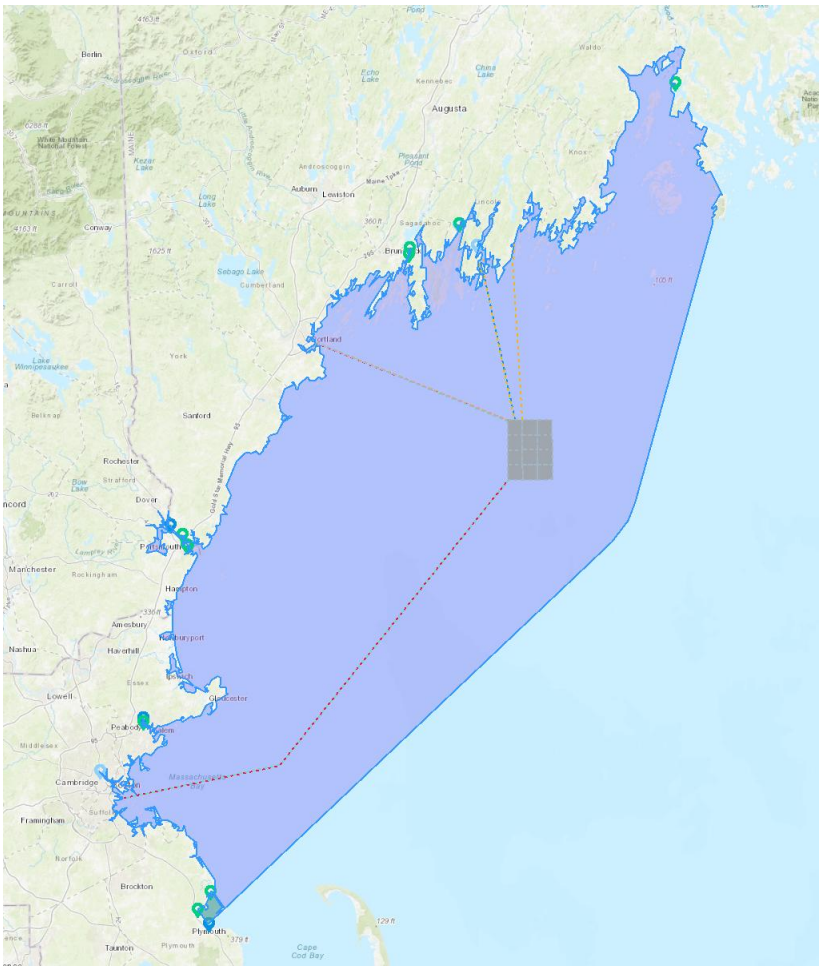
The purpose of the Proposed Action is to issue a wind energy research lease on the OCS of the Gulf of Maine. BOEM's issuance of this lease is needed: (a) to confer upon the lessee the exclusive right to submit an SAP and a RAP to BOEM for potential development, such that the lessee will commit to site characterization and site assessment activities necessary to determine the suitability of its lease and potential future project easements for offshore wind production and/or transmission and develop plans for BOEM's review; and (b) to impose terms and conditions intended to ensure that site assessment and site characterization activities are conducted in a safe and environmentally responsible manner.

The Proposed Action for the EA is the issuance of a wind energy research lease in support of wind energy development in the Gulf of Maine. The research lease would not authorize any activities on the U.S. Outer Continental Shelf (OCS) but would result in site assessment activities (i.e., placement of a meteorological ocean buoy) within the lease and site characterization activities (i.e., geophysical and geotechnical [G&G], biological, and archaeological surveys and monitoring activities) within and around the lease and potential future project easements. Issuance of the research lease would also give the State of Maine the exclusive right to submit a detailed site assessment plan (SAP) and a research activities plan (RAP) for wind energy-related research activities offshore Maine. The research lease application submitted to BOEM by the State of Maine in October 2021 included a preliminary plan for development of an array of up to 12 floating offshore wind turbines (Research Array) on the OCS offshore Maine capable of generating up to 144 megawatts of renewable energy (State of Maine, 2021). Prior to the approval of any plan authorizing the construction and operation of the Research Array, installation of inter-array and export cables, and associated wind energy-related research facilities, which is outside the scope of the EA, BOEM would prepare a subsequent plan-specific environmental analysis.

1.4.5 PROJECT TYPE AND DECONSTRUCTION

This project is a offshore wind research lease issuance to conduct site assessment and site characterization activities project.

1.4.5.1 PROJECT MAP



LEGEND

- Project footprint
- Layer 2: Install meteorological buoy
- Layer 3: Benthic surveys
- Layer 4: Benthic surveys
- Layer 5: Physical oceanographic monitoring, seafloor habitat characterization sampling and surveys
- Layer 6: Geotechnical investigation
- Layer 8: High-resolution geophysical surveys
- Layer 9: Biological surveys (aerial)

Met Buoy Decommissioning: Meteorological buoy decommissioning (structure)

Site characterization Activities: Biological surveys (marine), conduct offshore geophysical survey

1.4.5.2 METEOROLOGICAL BUOY DECOMMISSIONING

STRUCTURE COMPLETION DATE
June 30, 2026

REMOVAL/DECOMMISSION DATE (IF APPLICABLE)
June 30, 2026

STRESSORS

- Change in noise
- Increase in artificial lighting
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
Decommissioning is essentially the reverse of the deployment process. Equipment recovery would be performed with the support of a vessel equivalent in size and capability to that used for deployment. Typically for small buoys, a crane-lifting hook would be secured to the buoy. A water/air pump system would de-ballast the buoy, causing it to tip into the horizontal position. The mooring chain and anchor would be recovered to the deck using a winching system. The buoy would then be transported to shore. Buoy decommissioning is expected to be completed within 1 to 2 days.

1.4.5.3 BENTHIC SURVEYS

ACTIVITY START DATE
September 01, 2024

ACTIVITY END DATE
November 30, 2024

STRESSORS

- Change in artificial lighting
- Change in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
Description: PTOW would conduct detailed benthic surveys of the Research Lease Area, potential export cable routes, and wet storage area identified in the State of Maine's research lease application.

The surveys would be used to characterize seafloor habitats of the Research Lease Area, export cable routes, and wet storage area identified in the State of Maine's research lease application.

Activity and Frequency: Expected to require 30 multi-day trips, conducted as part of G&G surveys. September 2024 through November 2024.

Equipment or method: Benthic grabs (Hamon grab or Van Veen grab), sediment profile imaging/plan view cameras, and underwater video. The number and location of benthic grab sites would be determined based on the results of the geophysical reconnaissance survey, likely up to several hundred grab sites.

1.4.5.4 BIOLOGICAL SURVEYS (AERIAL)

ACTIVITY START DATE
Unspecified

ACTIVITY END DATE
Unspecified

STRESSORS
This activity is not expected to have any impact on the environment.

DESCRIPTION
The aerial surveys will occur after consultations are complete and the Final EA has been published.

High-definition digital aerial surveys will occur in the Research Lease Area to sample and map seasonal occurrence and activity of birds, bats, marine mammals, sea turtles, and large fish. Surveys would focus on birds and document the number of individuals, distribution, behaviors (e.g., foraging, flying, resting), and flight height and direction (if applicable). Flights will originate in Plymouth, Massachusetts.

The method of survey includes high-resolution digital video cameras mounted on a fixed-wing aircraft flying at an altitude of approximately 1,312 feet (400 meters) and ground speed of approximately 137 mph (220 kph or 120 knots), providing imagery at 0.6-inch (1.5-centimeter) ground sample distance. Initially, surveys would cover the entire Research Lease Area, but may be reduced to cover the requested research lease, if issued, plus a 2.5-mile (4-km) buffer.

1.4.5.5 BIOLOGICAL SURVEYS (MARINE)

ACTIVITY START DATE
Unspecified

ACTIVITY END DATE
Unspecified

STRESSORS

- Change in artificial lighting
- Change in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
Surveys will occur after the consultations are complete and the Final EA has been published.

Marine biological surveys include Visual Wildlife Surveys, Passive Acoustic Monitoring of Marine Mammals and Ambient Noise, Motus tracking, Active Acoustic Surveys and Environmental DNA (eDNA) Sampling of Marine Fish and Invertebrates, Passive Acoustic Monitoring of Large Pelagic and Benthic Fish, Bottom Trawl Surveys for Marine Fish and Invertebrates, Plankton and Larval Lobster Surveys, and Lobster Trawl Surveys.

Additional survey details including descriptions, activity frequency and timing, ports, vessel types, and equipment or methods can be found in Section 2.2.1, Table 2-1 of the Environmental Assessment included as a supplemental document.

1.4.5.6 CONDUCT OFFSHORE GEOPHYSICAL SURVEY

ACTIVITY START DATE
September 01, 2024

ACTIVITY END DATE
November 30, 2024

STRESSORS

- Change in artificial lighting
- Increase in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
PTOW would conduct geophysical reconnaissance surveys of the Research Lease Area, potential export cable routes, and wet storage area identified in the State of Maine's research lease application. The surveys would cover a broader area and collect relatively lower-resolution data to identify specific locations for subsequent high-resolution geophysical surveys.

The surveys would be conducted via 15 multi-day trips by 24-hour vessels. Each multi-day trip would be approximately 7-14 days depending on many factors, including weather downtime, vessel replenishment, and crew changes. Additionally, there will be 60 daily trips by 12-hour vessel from March through May 2024. The port used would be Portland, Maine.

Vessel Type: 24-hour vessel, with length of approximately 164 feet (50 meters), for offshore locations. 12-hour vessel, with length of approximately 49 feet (15 meters), for nearshore and inshore locations. Equipment: Hull-mounted multibeam echosounder with backscatter measurement (proxy for seafloor hardness) and a parametric sub-bottom profiler (e.g., Innomar) with directional chirp signal with operation frequency of 30–115 kHz. The sensors are of such frequency and amplitude level to not require Incidental Harassment Authorization for marine mammals.

1.4.5.7 GEOTECHNICAL INVESTIGATION

ACTIVITY START DATE
Unspecified

ACTIVITY END DATE
Unspecified

STRESSORS
- Change in artificial lighting
- Increase in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
PTOW would conduct geotechnical surveys of the Research Lease Area, potential export cable routes, and wet storage area identified in the State of Maine's research lease application. The surveys would sample or test seabed characteristics to inform design specifications of and locations suitable for placement of anchors and cable infrastructure.

Activity Frequency: 30 multi-day trips. Each multi-day trip would be approximately 7–14 days depending on many factors, including weather downtime, vessel replenishment, and crew changes. August 2024 through November 2024.

Equipment or method: Shallow geotechnical coring (piston or vibracores) and cone penetration testing. The number and location of test sites would be determined based on the results of the geophysical reconnaissance survey, likely up to several hundred test sites.

1.4.5.8 HIGH-RESOLUTION GEOPHYSICAL SURVEYS

ACTIVITY START DATE
March 01, 2025

ACTIVITY END DATE
May 31, 2025

STRESSORS

- Change in artificial lighting
- Change in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
PTOW would conduct high-resolution geophysical surveys of the Research Lease Area, potential export cable routes, and wet storage area identified in the State of Maine's research lease application. The surveys would collect bathymetrical (seafloor depth), morphological (topography), and geological data to inform various charting, interpretation, analyses, and reporting efforts for the State of Maine's research project, including assessment of archaeological resources.

Activity Frequency and Timing: 15 multi-day trips by 24-hour vessel. Each multi-day trip would be approximately 7–14 days depending on many factors, including weather downtime, vessel replenishment, and crew changes. 60 daily trips for 12-hour vessel. March through May 2025.

Port: Portland, Maine

Vessel type: 24-hour vessel, with length of approximately 164 feet (50 meters) for offshore locations. 12-hour vessel, with length of approximately 49 feet (15 meters) for nearshore and inshore locations.

Equipment or method: Multibeam echosounder, side-scan sonar, parametric sub-bottom profiler, magnetometer, and ultrahigh-resolution seismic imaging.

1.4.5.9 INSTALL METEOROLOGICAL BUOY

ACTIVITY START DATE
Unspecified

ACTIVITY END DATE
Unspecified

STRESSORS
- Change in artificial lighting
- Change in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
PTOW would deploy a FLiDAR buoy in the Research Lease Area to collect and transmit information on wind, waves, currents, sea level, and other meteorological parameters in real time. The FLiDAR buoy diameter is 9.5 feet (2.9 meters), with an overall height of 23 feet (6.8 meters), and approximate weight of 5,512 pounds (2,500 kg). The buoy would be moored with a single gravity anchor estimated to be approximately 6,000 pounds (2,722 kg) and is not expected to exceed a footprint of 32 ft2 (3 m2). The anticipated ports are Boston, Massachusetts or Portland, Maine.

Activity Frequency and Timing: 4 total vessel trips anticipated for deployment, maintenance (2 trips), and decommissioning. Anticipated 24-month buoy deployment (Q2 2024 through Q2 2026).

Vessel Type: Crew boat up to 200 feet (61 meters) in length.

Equipment or Method: Fugro SEAWATCH Wind FLiDAR buoy equipped with an independent tracker and dual global positioning system to allow for real-time position monitoring. Primary power from solar panels with backup energy supplied by methanol fuel cells in the hull.

1.4.5.10 PHYSICAL OCEANOGRAPHIC MONITORING

ACTIVITY START DATE
Unspecified

ACTIVITY END DATE
Unspecified

STRESSORS

- Change in artificial lighting
- Change in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
Frequency and Timing: Installation of radar stations began in 2023. Test glider deployments to work out logistics began in July 2023. Data collecting glider deployments beginning in July 2024 and continuing until approval of the RAP. Monitoring from shore-based radar stations would occur continuously. Glider deployments would occur every other month or less frequently based on data needs.

Port: Undetermined. Portland, ME assumed for analysis.

Vessel Type: 45-foot (14-meter) research vessel capable of deploying/retrieving sampling equipment at depth.

Equipment or Method: Shore-based radar stations. Underwater glider.

1.4.5.11 SEAFLOOR HABITAT CHARACTERIZATION SAMPLING AND SURVEYS

ACTIVITY START DATE
Unspecified

ACTIVITY END DATE
Unspecified

STRESSORS

- Change in artificial lighting
- Change in noise
- Change in air emissions
- Change in routine vessel discharge

DESCRIPTION
Activity Frequency and Timing: Once annually. Number of trips per annual survey depends on steam time of contracted vessel. Beginning in Quarter 1 2023 and continuing until approval of the RAP.

Port: Boothbay, Maine

Vessel Type: 45-foot (14-meter) research vessel capable of deploying/retrieving sampling equipment at depth.

Equipment or Method: Seafloor sampling with benthic grab. Multibeam sonar surveys. The number and location of benthic grab sites would be determined based on the results of the geophysical reconnaissance survey, likely up to several hundred grab sites.

1.4.6 ANTICIPATED ENVIRONMENTAL STRESSORS

Describe the anticipated effects of your proposed project on the aspects of the land, air and water that will occur due to the activities above. These should be based on the activity deconstructions done in the previous section and will be used to inform the action area.

1.4.6.1 ANIMAL FEATURES

Individuals from the Animalia kingdom, such as raptors, mollusks, and fish. This feature also includes byproducts and remains of animals (e.g., carrion, feathers, scat, etc.), and animal-related structures (e.g., dens, nests, hibernacula, etc.).

1.4.6.2 PLANT FEATURES

Individuals from the Plantae kingdom, such as trees, shrubs, herbs, grasses, ferns, and mosses. This feature also includes products of plants (e.g., nectar, flowers, seeds, etc.).

1.4.6.3 AQUATIC FEATURES
Bodies of water on the landscape, such as streams, rivers, ponds, wetlands, etc., and their physical characteristics (e.g., depth, current, etc.). This feature includes the groundwater and its characteristics. Water quality attributes (e.g., turbidity, pH, temperature, DO, nutrients, etc.) should be placed in the Environmental Quality Features.

1.4.6.4 ENVIRONMENTAL QUALITY FEATURES
Abiotic attributes of the landscape (e.g., temperature, moisture, slope, aspect, etc.).

1.4.6.5 LANDFORM (TOPOGRAPHIC) FEATURES
Topographic (landform) features that typically occur naturally on the landscape (e.g., cliffs, terraces, ridges, etc.). This feature does not include aquatic landscape features or man-made structures.

1.4.6.6 SOIL AND SEDIMENT
The topmost layer of earth on the landscape and its components (e.g., rock, sand, gravel, silt, etc.). This feature includes the physical characteristics of soil, such as depth, compaction, etc. Soil quality attributes (e.g, temperature, pH, etc.) should be placed in the Environmental Quality Features.

1.4.6.7 HUMAN ACTIVITIES
Human actions in the environment (e.g., fishing, hunting, farming, walking, etc.).

1.4.6.7.1 CHANGE IN ARTIFICIAL LIGHTING

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Vessel activity over the approximately 8-year span of activities associated with the Proposed Action is expected to be relatively small compared to existing vessel traffic at the ports and between the shore and the Research Lease Area. Therefore, implementing the conservation measures will result in a negligible change in artificial lighting.

CONSERVATION MEASURES

- • ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable.
- • coordinate with USFWS to identify appropriate mitigation measures.

STRUCTURES AND ACTIVITIES

- Conduct offshore geophysical survey
- Biological surveys (marine)
- Install meteorological buoy
- Geotechnical investigation
- Benthic surveys
- Seafloor habitat characterization sampling and surveys
- Physical oceanographic monitoring
- High-resolution geophysical surveys

1.4.6.7.2 CHANGE IN NOISE

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Vessel activity over the approximately 8-year span of activities associated with the Proposed Action is expected to be relatively small compared to existing vessel traffic at the ports and between the shore and the Research Lease Area. Therefore, this stressor is not anticipated to have an impact on ESA-listed species within the proposed action area.

CONSERVATION MEASURES

- • coordinate with USFWS to identify appropriate mitigation measures.

STRUCTURES AND ACTIVITIES

- Biological surveys (marine)
- Install meteorological buoy
- Benthic surveys
- Seafloor habitat characterization sampling and surveys
- Physical oceanographic monitoring
- Meteorological buoy decommissioning
- High-resolution geophysical surveys

1.4.6.7.3 INCREASE IN ARTIFICIAL LIGHTING

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Vessel activity over the approximately 8-year span of activities associated with the Proposed Action is expected to be relatively small compared to existing vessel traffic at the ports and between the shore and the Research Lease Area. Therefore, this stressor is not anticipated to have an impact on ESA-listed species within the proposed action area.

CONSERVATION MEASURES

- • coordinate with USFWS to identify appropriate mitigation measures.

STRUCTURES AND ACTIVITIES

- Meteorological buoy decommissioning

1.4.6.7.4 INCREASE IN NOISE

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Vessel activity over the approximately 8-year span of activities associated with the Proposed Action is expected to be relatively small compared to existing vessel traffic at the ports and between the shore and the Research Lease Area. Therefore, this stressor is not anticipated to have an impact on ESA-listed species within the proposed action area.

CONSERVATION MEASURES

- • coordinate with USFWS to identify appropriate mitigation measures.

STRUCTURES AND ACTIVITIES

- Conduct offshore geophysical survey
- Geotechnical investigation

1.4.6.8 MISCELLANEOUS

Miscellaneous should only be used if the created feature does not fit into one of the other categories or if the creator is not sure in which category it should be placed.

1.4.6.8.1 CHANGE IN AIR EMISSIONS

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Vessel activity over the approximately 8-year span of activities associated with the Proposed Action is expected to be relatively small compared to existing vessel traffic at the ports and between the shore and the Research Lease Area. Therefore, this stressor is not anticipated to have an impact on ESA-listed species within the proposed action area.

CONSERVATION MEASURES

- • coordinate with USFWS to identify appropriate mitigation measures.

STRUCTURES AND ACTIVITIES

- Conduct offshore geophysical survey
- Biological surveys (marine)
- Install meteorological buoy
- Geotechnical investigation
- Benthic surveys
- Seafloor habitat characterization sampling and surveys
- Physical oceanographic monitoring
- Meteorological buoy decommissioning
- High-resolution geophysical surveys

1.4.6.8.2 CHANGE IN ROUTINE VESSEL DISCHARGE

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Vessel activity over the approximately 8-year span of activities associated with the Proposed Action is expected to be relatively small compared to existing vessel traffic at the ports and between the shore and the Research Lease Area. Therefore, this stressor is not anticipated to have an impact on ESA-listed species within the proposed action area.

CONSERVATION MEASURES

- • coordinate with USFWS to identify appropriate mitigation measures.
- • use approved OSRP mitigation measures, as necessary, to prevent birds from going to affected areas including chumming, hazing, and relocating to unaffected areas.

STRUCTURES AND ACTIVITIES

- Conduct offshore geophysical survey
- Biological surveys (marine)
- Install meteorological buoy
- Geotechnical investigation
- Benthic surveys
- Seafloor habitat characterization sampling and surveys
- Physical oceanographic monitoring
- Meteorological buoy decommissioning
- High-resolution geophysical surveys

1.5 ACTION AREA

LEGEND

Project footprint

Stressor location

1.6 CONSERVATION MEASURES

1.6.1 ANNUAL REPORTING

DESCRIPTION

The applicant must provide an annual report to the BOEM and U.S. Fish and Wildlife Service (USFWS). This report must document any dead or injured birds or bats found during activities conducted in support of plan submittal. The annual report must document any dead (or injured) birds or bats found on vessels and structures during surveys. The report must contain the following information: the name of species, date found, location, a picture to confirm species identity (if possible), and any other relevant information. Carcasses with Federal or research bands must be reported to the United States Geological Survey Bird Band Laboratory, available at https://www.usgs.gov/centers/eesc/science/bird-banding-laboratory.

DIRECT INTERACTIONS

- auditory disturbance
- collisions
- disturbance

1.6.2 HELP ADDRESS INFORMATION GAPS ON OFFSHORE MOVEMENT OF BIRDS AND BATS

DESCRIPTION

Motus Wildlife Tracking Systems will help address information gaps on offshore movements of birds and bats, including ESA-listed species. The applicant must install a Motus station on any meteorological buoy in coordination with USFWS Offshore Motus network.

DIRECT INTERACTIONS

- auditory disturbance
- collisions
- disturbance

1.6.3 INSTALL BIRD DETERRENT DEVICES

DESCRIPTION

To minimize the attraction of birds, the applicant must install bird deterrent devices (e.g., anti-perching), where appropriate.

DIRECT INTERACTIONS

- collisions
- disturbance

1.6.4 THE LESSEE MUST PROVIDE THE RESULTS OF AVIAN AND BAT SURVEYS AND DATA TO BOEM AND FWS WITH ITS PLANS.

DESCRIPTION

The Lessee must provide the results of avian surveys and data to BOEM and USFWS with its plans.

DIRECT INTERACTIONS

- auditory disturbance
- collisions
- disturbance

1.6.5 • COORDINATE WITH USFWS TO IDENTIFY APPROPRIATE MITIGATION MEASURES.

DESCRIPTION

Coordinate with USFWS.

STRESSORS

- Change in air emissions
- Change in artificial lighting
- Change in noise
- Change in routine vessel discharge
- Increase in artificial lighting
- Increase in noise

DIRECT INTERACTIONS

- auditory disturbance
- collisions
- disturbance

1.6.6 • ENSURE THAT LIGHTING WILL BE MINIMIZED TO REDUCE POTENTIAL ATTRACTION OF BIRDS AND BATS TO VESSELS AND AIRCRAFT DURING SITE ASSESSMENT AND SITE CHARACTERIZATION ACTIVITIES TO THE EXTENT PRACTICABLE.

DESCRIPTION

ENSURE THAT LIGHTING WILL BE MINIMIZED TO REDUCE POTENTIAL ATTRACTION OF BIRDS AND BATS TO VESSELS AND AIRCRAFT DURING SITE ASSESSMENT AND SITE CHARACTERIZATION ACTIVITIES TO THE EXTENT PRACTICABLE.

ANY LIGHTS USED TO AID MARINE NAVIGATION BY THE LESSEE DURING CONSTRUCTION, OPERATIONS, AND DECOMMISSIONING OF A METEOROLOGICAL BUOY MUST MEET USGS REQUIREMENTS FOR PRIVATE AIDS TO NAVIGATION [HTTPS://WWW.USCG.MIL/FORMS/CG/CG_2554.PDF] AND BOEM'S GUIDELINES FOR LIGHTING AND MARKING OF STRUCTURES SUPPORTING RENEWABLE ENERGY DEVELOPMENT [HTTPS://WWW.BOEM.GOV/2021-LIGHTING-AND-MARKING-GUIDELINES]. FOR ANY ADDITIONAL LIGHTING, THE LESSEE MUST USE SUCH LIGHTING ONLY WHEN NECESSARY, AND THE LIGHTING MUST BE HOODED DOWNWARD AND DIRECTED WHEN POSSIBLE, TO REDUCE UPWARD ILLUMINATION AND ILLUMINATION OF ADJACENT WATERS.

STRESSORS

- Change in artificial lighting

DIRECT INTERACTIONS

- auditory disturbance
- collisions
- disturbance

1.6.7 • USE APPROVED OSRP MITIGATION MEASURES, AS NECESSARY, TO PREVENT BIRDS FROM GOING TO AFFECTED AREAS INCLUDING CHUMMING, HAZING, AND RELOCATING TO UNAFFECTED AREAS.

DESCRIPTION

USE APPROVED OSRP MITIGATION MEASURES, AS NECESSARY, TO PREVENT BIRDS FROM GOING TO AFFECTED AREAS INCLUDING CHUMMING, HAZING, AND RELOCATING TO UNAFFECTED AREAS

STRESSORS

- Change in routine vessel discharge

DIRECT INTERACTIONS

- collisions
- disturbance

1.7 PRIOR CONSULTATION HISTORY

This informal consultation for the Proposed Action builds upon BOEM's experience with similar offshore wind assessment and development projects in the Atlantic. A list of similar offshore wind assessments is included as an attachment in Section 1.9.

BOEM first submitted a Draft Biological Assessment to USFWS in June 2023. USFWS responded with comments in September 2023. BOEM addressed these comments and submitted a revised Draft Biological Assessment to USFWS using the Consultation Package Builder in IPaC in October 2023. USFWS provided comments to the revised CPB BA in March 2024. This revised CPB BA is revised to address comments from USFWS. Please note, in the March 2024 comments, the USFWS Maine Field Office requested that BOEM includes all listed species identified in the action area and assess all the potential impacts to species resulting from project activities for this or future offshore wind-related consultations in the BA, rather than using the Determination Keys. Piping plover, northern long-eared bat, and tricolored bat should be included in the effects analysis of the BA. As a result, the determination keys were not used for this BA.

1.8 OTHER AGENCY PARTNERS AND INTERESTED PARTIES

N/A

1.9 OTHER REPORTS AND HELPFUL INFORMATION

RELEVANT DOCUMENTATION

- BOEM_FL_23_3947_GOME_RL_NMFS-BA
- References_Wind Energy Research Lease on the Atlantic Outer Continental Shelf Offshore Maine Biological Assessment
- Tricolored Bat
- Drat Environmental Assessment_July 2023_Wind Energy Research Lease on the Atlantic Outer Continental Shelf Offshore Maine

2 SPECIES EFFECTS ANALYSIS

This section describes, species by species, the effects of the proposed action on listed, proposed, and candidate species, and the habitat on which they depend. In this document, effects are broken down as direct interactions (something happening directly to the species) or indirect interactions (something happening to the environment on which a species depends that could then result in effects to the species).

These interactions encompass effects that occur both during project construction and those which could be ongoing after the project is finished. All effects, however, should be considered, including effects from direct and indirect interactions and cumulative effects.

2.1 ATLANTIC SALMON

2.1.1 STATUS OF THE SPECIES

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.1.1.1 LEGAL STATUS

The Atlantic Salmon is federally listed as 'Endangered' and additional information regarding its legal status can be found on the ECOS species profile.

2.1.1.2 RECOVERY PLANS

Available recovery plans for the Atlantic Salmon can be found on the ECOS species profile.

2.1.1.3 LIFE HISTORY INFORMATION

No description available

IDENTIFIED RESOURCE NEEDS

Cover

Type: woody debris, boulders, submerged aquatic vegetation

Dissolved oxygen

Concentration: ≥ 4 mg/l

Estuaries

Fish

Species: alewives, blueback herring, dace, minnows, american shad, species: capelin, barracudina, miscellaneous, and type: freshwater

Invertebrates

Species: larvae of mayflies, stoneflies, chironomids, caddisflies, blackflies, aquatic annelids, mollusks, zooplankton, insect larvae

Streamflow

Multiple types

Substrate structure and characteristics

Diameter: 1.6-6.4 cm and 30-51.2 cm, percent cobble: at least 20% cobble, type: boulders, intersticial cavities, and cobble

Water ph

Ph level: >6.0 is ideal

Water temperature

Degrees celsius: 5-20°c and time of year: year-round

2.1.1.4 CONSERVATION NEEDS

Atlantic Salmon is covered under the NMFS Biological Assessment.

2.1.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.1.2.1 SPECIES PRESENCE AND USE

We can not rule out the presence of Atlantic salmon in the action area; however, the action area of the project is entirely in marine and estuarine waters and any Atlantic salmon present are under the jurisdiction of the NMFS. Impacts to Atlantic salmon will be addressed in consultation with NMFS. The Service has directed BOEM to exclude Atlantic salmon from further analysis in the Consultation Package Builder on this basis by answering "yes" to the question asking if we can rule out the presence of Atlantic salmon within the project's action area.

2.1.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

Atlantic Salmon is covered under the NMFS Biological Assessment.

2.1.2.3 HABITAT CONDITION (GENERAL)

Atlantic Salmon is covered under the NMFS Biological Assessment.

2.1.2.4 INFLUENCES

Atlantic Salmon is covered under the NMFS Biological Assessment.

2.1.2.5 ADDITIONAL BASELINE INFORMATION

Atlantic Salmon is covered under the NMFS Biological Assessment.

2.1.3 EFFECTS OF THE ACTION

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.1.3.1 INDIRECT INTERACTIONS

As part of your project description, you identified that all anticipated stressors have been completely avoided through appropriate conservation measures. Because there are no stressors occurring, no resource needs will be exposed to or affected by changes in the environment. Therefore, no indirect interactions will occur that would result in effects to the Atlantic Salmon.

2.1.3.2 DIRECT INTERACTIONS

No direct interactions leading to effects on species are expected to occur from the proposed project.

2.1.4 CUMULATIVE EFFECTS

Atlantic Salmon is covered under the NMFS Biological Assessment.

2.1.5 DISCUSSION AND CONCLUSION

DETERMINATION: NE

RELEVANT DOCUMENTATION

- BOEM_FL_23_3947_GOME_RL_NMFS-BA

2.2 MONARCH BUTTERFLY

2.2.1 STATUS OF THE SPECIES

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.2.1.1 LEGAL STATUS

The Monarch Butterfly is federally listed as 'Candidate' and additional information regarding its legal status can be found on the ECOS species profile.

2.2.1.2 RECOVERY PLANS

Available recovery plans for the Monarch Butterfly can be found on the ECOS species profile.

2.2.1.3 LIFE HISTORY INFORMATION

Note - the monarch is a candidate species and not yet listed or proposed for listing. Consultation with U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act is not required for candidate species, like the monarch. We encourage agencies, however, to take advantage of any opportunity they may have to conserve the species.

For information on monarch conservation, visit https://www.fws.gov/initiative/pollinators/monarchs, http://www.mafwa.org/?page_id=2347, and, for the West, https://wafwa.org/committees-working-groups/monarch-working-group/.

Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches. The bright coloring of a monarch serves as a warning to predators that eating them can be toxic.

During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily Asclepias spp.), and larvae emerge after two to five days. Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months.

In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. This migration can take monarchs distances of over 3,000 km and last for over two months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds and their offspring start the cycle of generational migration over again.

IDENTIFIED RESOURCE NEEDS

Milkweed

Obligate host plant

2.2.1.4 CONSERVATION NEEDS

East of the Rocky Mountains, most monarch butterflies migrate north in successive generations from overwintering areas in central Mexico to as far north as southern Canada. As they migrate north, monarch butterflies mate and deposit their eggs and die. The offspring typically survive 2 to 5 weeks in the adult stage, moving north generation by generation as temperatures warm and plants flower. After three to four generations, the population reaches the northern United States and southern Canada; the final generation makes the return migration in the fall to overwintering sites. Monarch butterflies may travel over 1,864 miles (3,000 kilometers) during the fall migration for over two months. Unlike previous generations, the last generation of each year lives for about 8 months over winter and begins the multi-generational migration the following spring (NJDEP 2017). The preferred habitat for monarchs is open meadows, fields, and wetland edges with the presence of milkweed and flowering plants (Mass Audubon 2022). While overwintering, the eastern North American population prefers a specific microclimate of oyamel fir tree roosts found within mountainous regions in central Mexico (USFWS 2022a).

2.2.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.2.2.1 SPECIES PRESENCE AND USE

The eastern North American monarch population has been observed both in Massachusetts, New Hampshire, and Maine during the spring and fall migration period. As stated above, monarchs rely on their obligate host plant, *Asclepias*, which is known to occur within Maine, New Hampshire, and Massachusetts. Monarchs are known to traverse the open water and may occur within the Potential Action Area.

2.2.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

IPFs from the site characterization and assessment of the proposed Project will not impact monarch butterflies. Monarch butterflies have been documented offshore on oil platforms in the Gulf of Mexico, 72 miles south of the Louisiana coastline potentially utilizing the structures as a safe haven to cross from Louisiana to northeastern Mexico each fall (Ross 1998). Although monarchs are far-ranging fliers, they are easily blown off course, likely by storms, into offshore waters. Therefore, because the occurrence of monarch butterflies in the offshore portions of the Action Area is anticipated to be very rare, potential collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

2.2.2.3 HABITAT CONDITION (GENERAL)

The eastern North American monarch population has been observed both in Massachusetts, New Hampshire, and Maine during the spring and fall migration period. As stated above, monarchs rely on their obligate host plant, *Asclepias*, which is known to occur within Maine, New Hampshire, and Massachusetts. Monarchs are known to traverse the open water and may occur within the Potential Action Area.

2.2.2.4 INFLUENCES

Deforestation and lack of obligate host species, milkweed.

2.2.2.5 ADDITIONAL BASELINE INFORMATION

N/A

2.2.3 EFFECTS OF THE ACTION

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.2.3.1 INDIRECT INTERACTIONS

As part of your project description, you identified that all anticipated stressors have been completely avoided through appropriate conservation measures. Because there are no stressors occurring, no resource needs will be exposed to or affected by changes in the environment. Therefore, no indirect interactions will occur that would result in effects to the Monarch Butterfly.

2.2.3.2 DIRECT INTERACTIONS

No direct interactions leading to effects on species are expected to occur from the proposed project.

2.2.4 CUMULATIVE EFFECTS

Cumulative impacts were not analyzed for this project

2.2.5 DISCUSSION AND CONCLUSION

DETERMINATION: NE

2.3 NORTHERN LONG-EARED BAT

2.3.1 STATUS OF THE SPECIES

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.3.1.1 LEGAL STATUS

The Northern Long-eared Bat is federally listed as 'Endangered' and additional information regarding its legal status can be found on the ECOS species profile.

2.3.1.2 RECOVERY PLANS

Available recovery plans for the Northern Long-eared Bat can be found on the ECOS species profile.

2.3.1.3 LIFE HISTORY INFORMATION

The northern long-eared bat is a medium-sized bat about 3 to 3.7 inches in length but with a wingspan of 9 to 10 inches. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, Myotis, which are actually bats noted for their small ears (Myotis means mouse-eared). The northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia. The species range includes 37 states. White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to this bat, especially throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. Although the disease has not yet spread throughout the northern long-eared bats entire range (white-nose syndrome is currently found in at least 25 of 37 states where the northern long-eared bat occurs), it continues to spread. Experts expect that where it spreads, it will have the same impact as seen in the Northeast.

IDENTIFIED RESOURCE NEEDS

Hibernacula

Humidity: high, noise: low, with minimal distrubance, temperature: 0-9 degrees celsius, time of year: august through april, type: caves, mines, sewers, and spillways

Insects

Type: lepidoptera (moths and butterflies), coleoptera (beetles), trichoptera (caddisflies), diptera (flies), spiders, lepidopterous larvae

Open water

Type: streams, rivers, ponds, wetlands, lakes, road ruts

Travel corridors

Location: between forest patches and type: riparian corridors, wooded paths, hedgerows, fence rows

Trees

Size: > or equal to 3 inch dbh, spatial arrangement: within 1000 feet of forest, structure: cracks, crevices, cavities, exfoliating bark, time of year: april through august, type: dead, nearly dead, living tree with dead parts, and living with appropriate structure

2.3.1.4 CONSERVATION NEEDS

The northern long-eared bat is an insectivore which feeds on moths, flies, leafhoppers, caddisflies, and beetles approximately 3 to 10 feet (1 to 3 meters) above the ground (Brack and Whitaker 2001) in open forests, edges, and around ponds, streams, and wetlands. Similar to most bats, the northern long-eared bat emerges at dusk and uses echolocation to hunt for insect or by gleaning motionless insects from vegetation. The annual life-cycle of the northern long-eared bat includes winter hibernation (caves and mines), spring staging, spring migration, summer birth of young, fall migration, and fall swarming and mating. In spring, the bats leave their hibernacula to roost in trees and forage near the hibernaculum in preparation for migration. From approximately mid-May through mid-August, northern long-eared bats occupy summer habitat. Trees used are typically greater than or equal to 3 inches (7.6 centimeters) diameter at breast height, within 1,000 feet (305 meters) of forest. Northern long-eared bats roost under bark and in cavities or crevices of both live and dead trees (Foster and Kurta 1999; Owens et al. 2002; Perry and Thill 2007a; Sasse and Perkins 1996), as well as in anthropogenic structures (Amelon and Burhans 2006; Timpone et al. 2010). Although most northern long-eared bats are opportunistic in regard to tree-roost selection, depending on the reproductive stage of female northern long-eared bats, roost-site selection with respect to canopy cover and height may change. Females are known to roost in small maternity colonies and males roost alone (Amelon and Burhans 2006). A recent study on northern long-eared bats on Nantucket documented up to 18 bats sharing a maternity roost (Dowling 2017). Northern long-eared bats also switch roosts frequently, typically every two to three days (Carter and Feldhamer 2005; Foster and Kurta 1999; Owen et al. 2002; Timpone et al. 2010). Northern long eared bats forage relatively close (a few kilometers) to their roost sites (Sasse and Perkins 1996; Timpone et al. 2010). Compared to migratory tree-roosting bat species, northern long-eared bats are short-distance migrants and are thought to have a small home range of less than 25 acres (10 hectares; Silvis et al. 2016 as cited in Dowling et al. 2017). During the fall migration, individuals congregate in the vicinity of their hibernacula in August or September and enter hibernacula in October and November. An individual will use the same hibernaculum for multiple years.

2.3.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.3.2.1 SPECIES PRESENCE AND USE

Myotis species were detected at two dozen coastal and offshore sites in the Gulf of Maine region; however, none of the detections were identified northern long-eared bats (Stantec 2016). BOEM anticipates limited use of the offshore environment by the northern long-eared bat, and exposure to the Wind Energy Area, if occurs, is anticipated to be minimal. The USGS's NAB at Status and Trends data indicate that northern long-eared bat summer occupancy is lower along the Atlantic coast and higher in interior areas (Udell et al. 2022). Of all the offshore surveys for bats on the Atlantic, there is only one of potential detection of Northern long eared bat during geo surveys for South Fork Wind by 2 acoustic bat detectors were deployed on the Fugro Enterprise vessel railing from July 14 to November 15, 2017. During the offshore construction of the Block Island Wind Farm, bats were monitored with acoustic detectors on boats; no northern long-eared bats were detected among the 1,546 bat passes. (Stantec 2018). There are no records of northern long-eared bats on the OCS, and the available bat survey data suggest there is little evidence of use of the offshore environment (Pelletier et al. 2013; ESS Group, Inc. 2014; Hatch et al. 2013; Sjollema et al. 2014; Smith and McWilliams 2016; Dowling et al. 2017), and the same expected in the potential lease area.

2.3.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

There are no anticipated conservation needs within the action area. BOEM anticipates limited use of the offshore environment by the northern long-eared bat, and exposure to the Wind Energy Area, if occurs, is anticipated to be minimal. The USGS's NABat Status and Trends data indicate that northern long-eared bat summer occupancy is lower along the Atlantic coast and higher in interior areas (Udell et al. 2022). Of all the offshore surveys for bats on the Atlantic, there is only one of potential detection of Northern long eared bat during geo surveys for South Fork Wind by 2 acoustic bat detectors were deployed on the Fugro Enterprise vessel railing from July 14 to November 15, 2017. During the offshore construction of the Block Island Wind Farm, bats were monitored with acoustic detectors on boats; no northern long-eared bats were detected among the 1,546 bat passes. (Stantec 2018). There are no records of northern long-eared bats on the OCS, and the available bat survey data suggest there is little evidence of use of the offshore environment (Pelletier et al. 2013; ESS Group, Inc. 2014; Hatch et al. 2013; Sjollema et al. 2014; Smith and McWilliams 2016; Dowling et al. 2017). Although no surveys have been conducted for Northern-long eared bats within the Lease Area.

2.3.2.3 HABITAT CONDITION (GENERAL)

As previously stated, although there have been no surveys conducted for NLEB within the Lease Area, there are no records of northern long-eared bats on the OCS, and the available bat survey data suggest there is little evidence of use of the offshore environment (Pelletier et al. 2013; ESS Group, Inc. 2014; Hatch et al. 2013; Sjollema et al. 2014; Smith and McWilliams 2016; Dowling et al. 2017).

2.3.2.4 INFLUENCES

As discussed in Section 2.3.2.2, there are no records of northern long-eared bats on the OCS.

2.3.2.5 ADDITIONAL BASELINE INFORMATION

BOEM anticipates limited use of the offshore environment by the northern long-eared bat, and exposure to the Wind Energy Area, if occurs, is anticipated to be minimal. The USGS's NABat Status and Trends data indicate that northern long-eared bat summer occupancy is lower along the Atlantic coast and higher in interior areas (Udell et al. 2022). Of all the offshore surveys for bats on the Atlantic, there is only one of potential detection of Northern long eared bat during geo surveys for South Fork Wind by 2 acoustic bat detectors were deployed on the Fugro Enterprise vessel railing from July 14 to November 15, 2017. During the offshore construction of the Block Island Wind Farm, bats were monitored with acoustic detectors on boats; no northern long-eared bats were detected among the 1,546 bat passes. (Stantec 2018). There are no records of northern long-eared bats on the OCS, and the available bat survey data suggest there is little evidence of use of the offshore environment (Pelletier et al. 2013; ESS Group, Inc. 2014; Hatch et al. 2013; Sjollema et al. 2014; Smith and McWilliams 2016; Dowling et al. 2017). Although no surveys have been conducted for Northern-long eared bats within the Lease Area.

2.3.3 EFFECTS OF THE ACTION

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.3.3.1 INDIRECT INTERACTIONS

Provide a brief overview of what the applicable science has discovered regarding the species and its response to the stressors that each project activity may cause. This should include an explanation of the pathways and mechanisms that have potential to translate environmental change (impact) into response and effects to individuals.

2.3.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Auditory disturbance	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site	No	Anthropogenic noise associated with vessels and aircrafts during site characterization and assessment activities has the potential to result in impacts on bats in the

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
	characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures. Help address information gaps on offshore movement of birds and bats Annual reporting The lessee must provide the results of avian and bat surveys and data to BOEM and FWS with its plans.		Action Area. BOEM anticipates impacts from noise would be temporary and highly localized, and that the low potential presence of northern long-eared bat in the offshore Action Area would result in minimal, if any, exposure to these potential impacts.
Collisions	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures.	No	The species' exposure to vessels during site characterization and assessment activities is expected to be insignificant if exposure were to occur at all. Therefore, because few, if any, northern long-eared bats are expected to be in the Action Area and because bats are agile flyers, collisions are considered unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

2.3.4 CUMULATIVE EFFECTS

Cumulative effects were not analyzed for this project.

2.3.5 DISCUSSION AND CONCLUSION

DETERMINATION: NLAA

2.4 PIPING PLOVER

2.4.1 STATUS OF THE SPECIES

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.4.1.1 LEGAL STATUS

The Piping Plover is federally listed as 'Threatened' and additional information regarding its legal status can be found on the ECOS species profile.

2.4.1.2 RECOVERY PLANS

Available recovery plans for the Piping Plover can be found on the ECOS species profile.

2.4.1.3 LIFE HISTORY INFORMATION

Size: 18 cm (7.25 in) in length. Color: Breeding season: Pale brown above, lighter below; black band across forehead; bill orange with black tip; legs orange; white rump. Male: Complete or incomplete black band encircles the body at the breast. Female: Paler head band; incomplete breast band. Winter coloration: Bill black; all birds lack breast band and head band.

IDENTIFIED RESOURCE NEEDS

Beaches

Multiple types

Invertebrates

Type: freshwater, marine, and terrestrial invertebrates and type: small invertebrates: crabs, worms, flies, beetles, spiders, sand hoppers, clams, and ostracods

Mud and algal flats

Type: absent or sparse vegetation

Sandbar

Substrate structure and characteristics

Type: debris (wrack) - organic materials such as driftwood, seashells, or seaweed and type: sand, sand and shell, gravel

Vegetation density

Percent cover: less than 50%

2.4.1.4 CONSERVATION NEEDS

The breeding range of the Atlantic coast population includes the Atlantic coast of North America from Canada to North Carolina. The piping plover breeding season extends from April through August, with piping plovers arriving at breeding locations in mid-March and into April. In spring, adult Atlantic coast piping plovers arrive at breeding locations in proximity to the Action Area beginning in mid-March and nest from April through August. Post-breeding staging in preparation for migration extends from late July through September, rarely into October (USFWS 1996; Loring et al. 2020). Piping plover breeding habitat consists of generally undisturbed, sparsely vegetated, flat, sand dune–beach habitats such as coastal beaches, gently sloping foredunes, sandflats, and washover areas to which they are restricted (USFWS 1996, 2009). Nest sites are shallow, scraped depressions in a variety of substrates situated above the high-tide line (USFWS 1996). Piping plovers forage in the intertidal zone. Foraging habitat includes intertidal portions of ocean beaches, washover areas, mudflats, and sandflats, as well as shorelines of coastal ponds, lagoons, and saltmarshes where they feed on beetles, crustaceans, fly larvae, marine worms, and mollusks (USFWS 1996).

2.4.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.4.2.1 SPECIES PRESENCE AND USE

Piping plovers are present in Massachusetts, New Hampshire, and Maine during their breeding season and spring and fall migratory seasons which occur from late March through mid-October. A recent Very High Frequency (VFH)-tracking study documented the movement of piping plovers in Rhode Island and Massachusetts and found that most piping plovers fly directly across the mid-Atlantic from breeding areas in southern New England and all individuals tracked during the migratory departure exhibited a south–southwest trajectory (Loring et al. 2019). The study is located south of the Gulf of Maine but provides a good indicator for piping plovers offshore routes during migration. Additionally, it is possible Canadian piping plovers could migrate through the Gulf of Maine. During the spring migration, a pilot study was conducted where 10 plovers were fitted with transmitters in the Bahamas; the only two plovers that had enough data for analysis flew to Florida and South Carolina and traveled north along the Atlantic coast (see Loring et al. (2019, Append I, Figure J-1). The migration period lasted for a period of several weeks and included low visibility conditions, during which the two birds stayed close to shore and were not detected north of Montauk, New York (Loring et al. 2019). Based on available research of piping plovers offshore, they may be present within the Proposed Action Area during migration.

2.4.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

Piping plovers are present in Massachusetts, New Hampshire, and Maine during their breeding season and spring and fall migratory seasons which occur from late March through mid-October. A recent Very High Frequency (VFH)-tracking study documented the movement of piping plovers in Rhode Island and Massachusetts and found that most piping plovers fly directly across the mid-Atlantic from breeding areas in southern New England and all individuals tracked during the migratory departure exhibited a south–southwest trajectory (Loring et al. 2019).

2.4.2.3 HABITAT CONDITION (GENERAL)

Piping plover habitat within the action area is only anticipated to potentially occur during spring and fall migratory seasons which occur from late march through mid-October.

2.4.2.4 INFLUENCES

There is existing vessel activity within the research lease area. The vessel activity over the approximately 8-year span of activities associated with the Proposed Action is expected to be relatively small compared to existing vessel traffic at the ports and between the shore and the Research Lease Area.

2.4.2.5 ADDITIONAL BASELINE INFORMATION

During the spring migration, a pilot study was conducted where 10 plovers were fitted with transmitters in the Bahamas; only two plovers that had enough data for analysis traveled north along the Atlantic coast. The migration period lasted for a period of several weeks, during which the two birds stayed close to shore and were not detected north of Montauk, New York (Loring et al. 2019). Based on available research of piping plovers offshore, they may be present within the Proposed Action Area during migration.

2.4.3 EFFECTS OF THE ACTION

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.4.3.1 INDIRECT INTERACTIONS

Provide a brief overview of what the applicable science has discovered regarding the species and its response to the stressors that each project activity may cause. This should include an explanation of the pathways and mechanisms that have potential to translate environmental change (impact) into response and effects to individuals.

2.4.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Collisions	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures. • use approved OSRP mitigation measures, as necessary, to prevent birds from going to affected areas including chumming, hazing, and relocating to unaffected areas. Help address information gaps on offshore movement of birds and bats Annual reporting The lessee must provide the results of avian and bat surveys and data to BOEM and FWS with its plans. Install bird deterrent devices	No	Vessel and survey noise from site assessment and site characterization activities could disturb offshore bird species, but they would likely acclimate to the noise or move away, potentially resulting in a temporary loss of habitat (BOEM 2012). Construction and maintenance vehicle activity would also not significantly increase or alter the existing levels of disturbance within onshore areas; therefore, any noise-related effects on federally listed bird species in the vicinity would be temporary and localized. Therefore, potential effects from noise may affect the piping plover but adverse impacts would be unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Aircraft traffic during site characterization activities could pose a collision threat to federally listed birds that may be in the area of aircraft use. General aviation traffic accounts for approximately two bird strikes per 100,000 flights (Dolbeer et al. 2019). Because aircraft flights associated with the Project are expected to be minimal in comparison to baseline conditions, aircraft strikes with federally listed birds are highly unlikely to occur. In addition, as previously described in this BA, the occurrence of federally listed birds in the offshore portions of the Action Area expected in very small numbers. Therefore,

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			potential effects from aircraft-related collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).
Disturbance	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures.	No	Vessel and survey noise from site assessment and site characterization activities could disturb offshore bird species, but they would likely acclimate to the noise or move away, potentially resulting in a temporary loss of habitat (BOEM 2012). Construction and maintenance vehicle activity would also not significantly increase or alter the existing levels of disturbance within onshore areas; therefore, any noise-related effects on federally listed bird species in the vicinity would be temporary and localized. Therefore, potential effects from noise may affect the piping plover but adverse impacts would be unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Aircraft traffic during site characterization activities could pose a collision threat to federally listed birds that may be in the area of aircraft use. General aviation traffic accounts for approximately two bird strikes per 100,000 flights (Dolbeer et al. 2019). Because aircraft flights associated with the Project are expected to be minimal in comparison to baseline conditions, aircraft strikes with federally listed birds are highly unlikely to occur. In

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			addition, as previously described in this BA, the occurrence of federally listed birds in the offshore portions of the Action Area expected in very small numbers. Therefore, potential effects from aircraft-related collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

2.4.4 CUMULATIVE EFFECTS

Cumulative effects were not analyzed for this project.

2.4.5 DISCUSSION AND CONCLUSION

DETERMINATION: NLAA

2.5 PLYMOUTH REDBELLY TURTLE = PLYMOUTH REDBELLY COOTER

This species has been excluded from analysis in this environmental review document.

JUSTIFICATION FOR EXCLUSION

The Proposed Action for the Project will occur offshore, there are no onshore components.

2.6 ROSEATE TERN

2.6.1 STATUS OF THE SPECIES

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.6.1.1 LEGAL STATUS

The Roseate Tern is federally listed as 'Endangered' and additional information regarding its legal status can be found on the ECOS species profile.

2.6.1.2 RECOVERY PLANS

Available recovery plans for the Roseate Tern can be found on the ECOS species profile.

2.6.1.3 LIFE HISTORY INFORMATION

The roseate tern is about 40 centimeters in length, with light-gray wings and back. Its first three or four primaries are black and so is its cap. The rest of the body is white, with a rosy tinge on the chest and belly during the breeding season. The tail is deeply forked, and the outermost streamers extend beyond the folded wings when perched. During the breeding season the basal three-fourths of the otherwise entirely black bill and legs turn orange-red.

IDENTIFIED RESOURCE NEEDS

Coastal islands

Time of year: april-september and type: active common tern breeding colony

Coastal shore

Type: flat, sandy and type: sandbar, tidal sand flat, beach, shoal

Coastal tidal zone

Type: intertidal zone, subtidal zone and type: shallow water area (<10m), submerged sandbar, submerged shoal, submerged mudflat

Common tern flock

Time of year: april-september and type: active common tern breeding colony

Fish

Species: american sand lance (ammodytes americanus) and other small schooling marine fish

Sandbar

Type: sandbar, tidal sand flat, beach, shoal

Substrate structure and characteristics

Location: coastal island breeding colony, substrate size: coarse, time of year: april-september, type: rocks, boulders, driftwood, wooden boards, revetments, nest boxes, tires, drebris, type: sand, sand and shell, and gravel

Vegetation density

Density: 80%, location: coastal island breeding colony, spatial arrangement: clumped, species: native coastal, and time of year: april - september

Vegetation structure

Multiple types

2.6.1.4 CONSERVATION NEEDS

Conservation needs for the roseate tern include predator control and provision of artificial nesting areas.

2.6.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.6.2.1 SPECIES PRESENCE AND USE

About 200 to 250 pairs of roseate terns nest on Maine coastal islands in the early spring (April-May). During nesting season, they feed primarily in near-shore habitats on sand lance. Roseate tern foraging areas are not well known but can be 10 or 15 miles or greater from nesting islands (USFWS Maine n.d.).

Given that roseate terns migrate mainly offshore during spring and fall (Nisbet et al. 2014), it is possible that some birds pass through the Potential Action Area during migration. Recent tracking work with GPS tags on roseate terns from this past summer documented roseate terns passing close or in the potential lease area (Yakola and Lyons 2023).

In conclusion, based on the behavioral and foraging ecology, and survey data, roseate tern activity is expected within the offshore Action Area. It is possible that small numbers of breeding and non-breeding terns, including 2-year-old birds and adults, may pass through the Action Area in spring, late summer, and early fall to rest on the water or travel to adjacent foraging habitat on barrier islands in Maine. Some individuals may also pass through the offshore Action Area during the spring and fall migration.

2.6.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

- Coordinate with USFWS to identify appropriate mitigation measures.
- Minimize lighting, to the extent practicable, to reduce potential attraction of birds to vessels during site assessment and site characterization activities.
- Use approved OSRP mitigation measures, as necessary, to prevent birds from going to affected areas including chumming, hazing, and relocating to unaffected areas.

2.6.2.3 HABITAT CONDITION (GENERAL)

Please see Section 2.4.2.1.

2.6.2.4 INFLUENCES

Hunting, predation, climate change

2.6.2.5 ADDITIONAL BASELINE INFORMATION

Please see Section 2.4.2.1.

2.6.3 EFFECTS OF THE ACTION

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.6.3.1 INDIRECT INTERACTIONS

As part of your project description, you identified that all anticipated stressors have been completely avoided through appropriate conservation measures. Because there are no stressors occurring, no resource needs will be exposed to or affected by changes in the environment. Therefore, no indirect interactions will occur that would result in effects to the Roseate Tern.

2.6.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Collisions	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures. Help address information gaps on offshore movement of birds and bats Annual reporting The lessee must provide the results of avian and bat surveys and data to BOEM and FWS with its plans. Install bird deterrent devices	No	Vessel and survey noise from site assessment and site characterization activities could disturb offshore bird species, but they would likely acclimate to the noise or move away, potentially resulting in a temporary loss of habitat (BOEM 2012). Any noise-related effects on federally listed bird species in the vicinity would be temporary and localized. Therefore, potential effects from noise may affect the roseate tern but adverse impacts would be unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Aircraft traffic during site characterization activities could pose a collision threat to federally listed birds that may be in the area of aircraft use. General aviation traffic accounts for approximately two bird

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			strikes per 100,000 flights (Dolbeer et al. 2019). Because aircraft flights associated with the Project are expected to be minimal in comparison to baseline conditions, aircraft strikes with federally listed birds are highly unlikely to occur. In addition, as previously described in this BA, the occurrence of federally listed birds in the offshore portions of the Action Area expected in very small numbers. Therefore, potential effects from aircraft-related collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).
Disturbance	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures.	No	Vessel and survey noise from site assessment and site characterization activities could disturb offshore bird species, but they would likely acclimate to the noise or move away, potentially resulting in a temporary loss of habitat (BOEM 2012). Any noise-related effects on federally listed bird species in the vicinity would be temporary and localized. Therefore, potential effects from noise may affect the roseate tern but adverse impacts would be unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Aircraft traffic during site characterization activities could pose a collision threat to federally listed birds that may be in the area of aircraft use. General aviation traffic accounts for approximately two bird strikes per 100,000 flights

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			(Dolbeer et al. 2019). Because aircraft flights associated with the Project are expected to be minimal in comparison to baseline conditions, aircraft strikes with federally listed birds are highly unlikely to occur. In addition, as previously described in this BA, the occurrence of federally listed birds in the offshore portions of the Action Area expected in very small numbers. Therefore, potential effects from aircraft-related collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

2.6.4 CUMULATIVE EFFECTS

Cumulative effects were not analyzed for this project.

2.6.5 DISCUSSION AND CONCLUSION

DETERMINATION: NLAA

2.7 RUFA RED KNOT

2.7.1 STATUS OF THE SPECIES

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.7.1.1 LEGAL STATUS

The Rufa Red Knot is federally listed as 'Threatened' and additional information regarding its legal status can be found on the ECOS species profile.

2.7.1.2 RECOVERY PLANS

Available recovery plans for the Rufa Red Knot can be found on the ECOS species profile.

2.7.1.3 LIFE HISTORY INFORMATION

Length: 25-28 cm. Adults in spring: Above finely mottled with grays, black and light ochre, running into stripes on crown; throat, breast and sides of head cinnamon-brown; dark gray line through eye; abdomen and undertail coverts white; uppertail coverts white, barred with black. Adults in winter: Pale ashy gray above, from crown to rump, with feathers on back narrowly edged with white; underparts white, the breast lightly streaked and speckled, and the flanks narrowly barred with gray. Adults in autumn: Underparts of some individuals show traces of the "red" of spring.

IDENTIFIED RESOURCE NEEDS

Beaches

Type: barrier island beaches and type: sandy beaches

Coastal shore

Type: flat, sandy and type: sandbar, tidal sand flat, beach, shoal

Horseshoe crabs

Mass: 30,000 horseshoe crab eggs/per day/per red knot

Invertebrates

Type: freshwater, marine, and terrestrial invertebrates

Mollusks

Small islands

Type: marsh islands

Vegetation

2.7.1.4 CONSERVATION NEEDS

Stressors to habitat and impact to food availability has been attributed to population decline.

2.7.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.7.2.1 SPECIES PRESENCE AND USE

The *rufa* red knot is known to pass through coastal habitats along Maine, New Hampshire, and Massachusetts during the spring and fall migration, with a greater number of individuals passing through during the fall (BOEM 2013). A telemetry study by Loring et al. (2018) found that red knots that migrated during early fall departed from the Atlantic coast in a southeast direction, likely heading to long-distance wintering destinations in South America. In addition, *rufa* red knots that migrated during late fall traveled southwest across the Mid-Atlantic Bight, likely heading to short distance wintering destinations in the southeastern United States and Caribbean. Interestingly, *rufa* red knots migrated through federal waters of the Atlantic Outer Continental Shelf during evenings with fair weather and a tailwind blowing in their direction of travel.

Only a small portion of *rufa* population uses the Atlantic coast during the southward migration. Most of the knots (254 out of 388) that were tagged at stop over sites in James Bay and Mingan Islands Canada headed directly south over open ocean (Loring et al. 2018). In spring, the vast majority of *rufa* red knots fly directly overland from stopover areas in Delaware Bay to breeding areas in Hudson Bay Canada. The results from Loring et al. (2018) overall indicate that most individuals followed a coastal migratory route and probability to exposure in the Research Lease Area is low. Very little, if any, *rufa* red knot activity is expected over the Research Lease Area, with relatively few flying through the Potential Action Area during the spring and fall migration.

2.7.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

- Coordinate with USFWS to identify appropriate mitigation measures.
- Minimize lighting, to the extent practicable, to reduce potential attraction of birds to vessels during site assessment and site characterization activities.
- Use approved OSRP mitigation measures, as necessary, to prevent birds from going to affected areas including chumming, hazing, and relocating to unaffected areas.

2.7.2.3 HABITAT CONDITION (GENERAL)

Please see Section 2.5.2.1.

2.7.2.4 INFLUENCES

n/a

2.7.2.5 ADDITIONAL BASELINE INFORMATION

Please see Section 2.5.2.1.

2.7.3 EFFECTS OF THE ACTION

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.7.3.1 INDIRECT INTERACTIONS

As part of your project description, you identified that all anticipated stressors have been completely avoided through appropriate conservation measures. Because there are no stressors occurring, no resource needs will be exposed to or affected by changes in the environment. Therefore, no indirect interactions will occur that would result in effects to the Rufa Red Knot.

2.7.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Collisions	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures.	No	Vessel and survey noise from site assessment and site characterization activities could disturb offshore bird species, but they would likely acclimate to the noise or move away, potentially resulting in a temporary loss of habitat (BOEM 2012). Any noise-related effects on federally listed bird species in the vicinity would be temporary and localized. Therefore, potential effects from noise may affect the rufa red knot but adverse impacts would be unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Aircraft traffic during site characterization activities could pose a collision threat to federally listed birds that may be in the area of aircraft use. General aviation traffic accounts for approximately two bird strikes per 100,000 flights (Dolbeer et al. 2019). Because aircraft flights associated with the Project are expected to be minimal in comparison to

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			baseline conditions, aircraft strikes with federally listed birds are highly unlikely to occur. In addition, as previously described in this BA, the occurrence of federally listed birds in the offshore portions of the Action Area expected in very small numbers. Therefore, potential effects from aircraft-related collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).
Disturbance	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures. • use approved OSRP mitigation measures, as necessary, to prevent birds from going to affected areas including chumming, hazing, and relocating to unaffected areas. Help address information gaps on offshore movement of birds and bats Annual reporting The lessee must provide the results of avian and bat surveys and data to BOEM and FWS with its plans. Install bird deterrent devices	No	Vessel and survey noise from site assessment and site characterization activities could disturb offshore bird species, but they would likely acclimate to the noise or move away, potentially resulting in a temporary loss of habitat (BOEM 2012). Any noise-related effects on federally listed bird species in the vicinity would be temporary and localized. Therefore, potential effects from noise may affect the rufa red knot but adverse impacts would be unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Aircraft traffic during site characterization activities could pose a collision threat to federally listed birds that may be in the area of aircraft use. General aviation traffic accounts for approximately two bird strikes per 100,000 flights (Dolbeer et al. 2019). Because aircraft flights associated with the Project are expected to be minimal in comparison to baseline conditions,

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			aircraft strikes with federally listed birds are highly unlikely to occur. In addition, as previously described in this BA, the occurrence of federally listed birds in the offshore portions of the Action Area expected in very small numbers. Therefore, potential effects from aircraft-related collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

2.7.4 CUMULATIVE EFFECTS

Cumulative impacts were not analyzed for this project.

2.7.5 DISCUSSION AND CONCLUSION

DETERMINATION: NLAA

2.8 TRICOLORED BAT

2.8.1 STATUS OF THE SPECIES

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.8.1.1 LEGAL STATUS

The Tricolored Bat is federally listed as 'Proposed Endangered' and additional information regarding its legal status can be found on the ECOS species profile.

2.8.1.2 RECOVERY PLANS

Available recovery plans for the Tricolored Bat can be found on the ECOS species profile.

2.8.1.3 LIFE HISTORY INFORMATION

The tricolored bat is a small insectivorous bat that is distinguished by its unique tricolored fur and often appears yellowish to nearly orange. The once common species is wide ranging across the eastern and central United States and portions of southern Canada, Mexico and Central America. During the winter, tricolored bats are often found in caves and abandoned mines, although in the southern United States, where caves are sparse, tricolored bats are often found roosting in road-associated culverts where they exhibit shorter torpor bouts and forage during warm nights. During the spring, summer, and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves of live or recently dead deciduous hardwood trees, but may also be found in Spanish moss, pine trees, and occasionally human structures. Tricolored bats face extinction due primarily to the rangewide impacts of white-nose syndrome, a deadly disease affecting cave-dwelling bats across the continent. White-nose syndrome has caused estimated declines of more than 90 percent in affected tricolored bat colonies across the majority of the species range. To address the growing threat of white-nose syndrome to the tricolored bat and other bats across North America, the U.S. Fish and Wildlife Service is leading the White-nose Syndrome National Response Team, a coordinated effort of more than 150 non-governmental organizations, institutions, Tribes, and state and federal agencies. Together we are conducting critical white-nose syndrome research and developing management strategies to minimize impacts of the disease and recover affected bat populations. For more information on white-nose syndrome, please see: https://www.whitenosesyndrome.org/ For more information on tricolored bats, please see: https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus

IDENTIFIED RESOURCE NEEDS

Travel corridors

Location: between forest patches and type: riparian corridors, wooded paths, hedgerows, fence rows

2.8.1.4 CONSERVATION NEEDS

Tricolored bats are insectivores, feeding on a variety of insects including moths, beetles, wasps, ants and flies. They commonly feed over waterways and forest edges. At early evening hours, tricolor bats will feed at treetop level or above. Foraging height lowers closer to ground level later in the evening and into the night. (USFWS 2021c). Their foraging area may be up to 5 miles from their roosting site (NHESP 2015). Tricolored bats spend the winter months at hibernacula sites before dispersing to summer roosting habitat in forests. During the summer tricolored bats primarily roost among live foliage and dead leaf clusters. Tricolored bats have also been known to roost in Spanish moss (Tillandsia usneoides), Usnea trichodea lichen, and squirrel nests. Hardwood trees, especially oak trees (Quercus spp.) are most frequently selected for roosting, but roosting has also been observed in conifer trees such as the eastern red cedar (Juniperus virginiana) (Thames 2020). Summer roosting locations are generally chosen in older (> 50 years) growth forests that have a hardwood component. Male Tricolor bats will roost singly, while females will roost in small maternal colonies averaging seven individual bats (Perry and Thill 2007b). Although primarily occurring in forests, roosting may also take place in anthropogenic structures such as barns, beneath porch roofs, bridges, and concrete bunkers (USFWS 2021c). Tricolored bats exhibit high site fidelity, returning year after year to the same summer roosting locations and winter hibernacula. Winter hibernacula and summer roosting locations may be separated by great distances. Typical migrations to hibernacula in Massachusetts may be up to 137 km (NHESP 2015d), although the longest spring migration observed was 151 miles (243 kilometers) from a cave in southern Tennessee to a roost in Georgia (Samoray et al. 2019). During the winter, tricolored bats hibernate in caves and mines; although, in the southern United States, where caves are sparse, tricolored bats often hibernate in road-associated culverts, as well as sometimes in tree cavities and abandoned water wells. Tricolored bats are the first species to enter hibernation in the fall and the last to leave the hibernacula in the spring. Breeding occurs in the fall when the bats swarm around the entrances of their winter hibernacula. Females typically give birth to two young in June or July the following summer. Young bats will begin flying at less than 3 weeks of age (NHESP 2015d).

2.8.2 ENVIRONMENTAL BASELINE

*The environmental baseline describes the species' health **within the action area only** at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.8.2.1 SPECIES PRESENCE AND USE

As is the case with the northern long-eared bat, the tricolored bat is not expected to be found offshore or on the OCS (Pelletier et al. 2013; ESS Group, Inc. 2014; Hatch et al. 2013; Sjollema et al. 2014; Smith and McWilliams 2016; Dowling et al. 2017). An acoustic survey of bat activity on islands and offshore sites in the Gulf of Maine, mid-Atlantic coast, and Great Lakes regions from 2012 to 2014 found tricolored bats to be the least encountered bat species (accounting for only <1% of all passes at 38% of the sites in the Gulf of Maine; Stantec 2016, Table 3-3). During the offshore construction of the Block Island Wind Farm, bats were monitored with acoustic detectors on boats; no tricolored bats were detected among the 1,546 bat passes. Preliminary results of the first year of post-construction monitoring at Block Island Wind Farm indicated low number of tricolored bat calls (33 out of 1,086 calls) (Stantec 2018). Tricolored bats have been observed in areas along the coast, and occupying islands some distance from the mainland. Acoustic studies on Martha's Vineyard provide evidence of tricolored bats flying along the coast, and potentially crossing open water to reach the mainland (Pelletier et al. 2013). However, as these bats are not latitudinal migrators, these flights would be limited to nearshore waters, and restricted to migrations to and from hibernacula. Tricolored bats are not anticipated to be encountered in the Research Lease Area.

2.8.2.2 SPECIES CONSERVATION NEEDS WITHIN THE ACTION AREA

As is the case with the northern long-eared bat, the tricolored bat is not expected to be found offshore or on the OCS (Pelletier et al. 2013; ESS Group, Inc. 2014; Hatch et al. 2013; Sjollema et al. 2014; Smith and McWilliams 2016; Dowling et al. 2017).

2.8.2.3 HABITAT CONDITION (GENERAL)

As previously stated, there are no records of tricolored bats on the OCS, and the acailable of bat survey data suggests there is little evidence of use of the offshore environment (Pelletier et al. 2013; ESS Group, Inc. 2014; Hatch et al. 2013; Sjollema et al. 2014; Smith and McWilliams 2016; Dowling et al. 2017).

2.8.2.4 INFLUENCES

As previously stated, there are no records of tri-colored bats on the OCS.

2.8.2.5 ADDITIONAL BASELINE INFORMATION

Not applicable.

2.8.3 EFFECTS OF THE ACTION

This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.8.3.1 INDIRECT INTERACTIONS

Provide a brief overview of what the applicable science has discovered regarding the species and its response to the stressors that each project activity may cause. This should include an explanation of the pathways and mechanisms that have potential to translate environmental change (impact) into response and effects to individuals.

2.8.3.2 DIRECT INTERACTIONS

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Collisions	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures. Help address information gaps on offshore movement of birds and bats Annual reporting The lessee must provide the results of avian and bat surveys and data to BOEM and FWS with its plans.	No	The species' exposure to vessels during site characterization and assessment activities is expected to be insignificant if exposure were to occur at all. Therefore, because few, if any, tri-colored bats are expected to be in the Action Area and because bats are agile flyers, collisions are considered unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).
Disturbance	• ensure that lighting will be minimized to reduce potential attraction of birds and bats to vessels and aircraft during site assessment and site characterization activities to the extent practicable. • coordinate with USFWS to identify appropriate mitigation measures. Help address information gaps on offshore movement of birds and bats Annual reporting The lessee must provide the results of avian and bat	No	Anthropogenic noise associated with vessels and aircrafts during site characterization and assessment activities has the potential to result in impacts on bats in the Action Area. BOEM anticipates impacts from noise would be temporary and highly localized, and that the low potential presence of tri-colored bat in the offshore Action Area would result in minimal, if any, exposure to these potential impacts.

DIRECT INTERACTION	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
	surveys and data to BOEM and FWS with its plans.		

2.8.4 CUMULATIVE EFFECTS

Cumulative effects were not analyzed for this project.

2.8.5 DISCUSSION AND CONCLUSION

DETERMINATION: NLAA

3 CRITICAL HABITAT EFFECTS ANALYSIS

3.1 ATLANTIC SALMON CRITICAL HABITAT

This critical habitat has been excluded from analysis in this environmental review document.

JUSTIFICATION FOR EXCLUSION

The Action Area is outside of this critical habitat and it is not expected that vessels will transit upriver and enter designated Atlantic salmon critical habitat. Additionally, no activities that would disturb any of the identified PBFs would occur within or adjacent to any rivers with designated Atlantic salmon critical habitat. Therefore, the potential for adverse effects from the Proposed Action is discountable.

4 SUMMARY DISCUSSION AND CONCLUSION

4.1 SUMMARY DISCUSSION

Bats:

The species' exposure to vessels during site characterization and assessment activities is expected to be insignificant if exposure were to occur at all. Therefore, because few, if any, northern long-eared bats and tricolored bats are expected to be in the offshore Action Area and because bats are agile flyers, collisions are considered unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Anthropogenic noise associated with vessels and aircrafts during site characterization and assessment activities has the potential to result in impacts on bats in the Action Area. BOEM anticipates impacts from noise would be temporary and highly localized, and that the low potential presence of northern long-eared bat and tricolored bat in the Action Area would result in minimal, if any, exposure to these potential impacts. Therefore, because few, if any, northern long-eared bats or tricolored bats are expected to occur in the offshore Action Area, BMPs and appropriate mitigation measures would be implemented. Under these measures, potential effects from noise are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

Birds: Vessel and survey noise from site assessment and site characterization activities could disturb offshore bird species, but they would likely acclimate to the noise or move away, potentially resulting in a temporary loss of habitat (BOEM 2012). Any noise-related effects on federally listed bird species in the vicinity would be temporary and localized. Therefore, potential effects from noise may affect the roseate tern, piping plover, and *rufa* red knot, but adverse impacts would be unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*). Aircraft traffic during site characterization activities could pose a collision threat to federally listed birds that may be in the area of aircraft use. General aviation traffic accounts for approximately two bird strikes per 100,000 flights (Dolbeer et al. 2019). Because aircraft flights associated with the Project are expected to be minimal in comparison to baseline conditions, aircraft strikes with federally listed birds are highly unlikely to occur. In addition, as previously described in this BA, the occurrence of federally listed birds in the offshore portions of the Action Area expected in very small numbers. Therefore, potential effects from aircraft-related collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

Monarch Butterfly:

IPFs from the site characterization and assessment of the proposed Project will not impact monarch butterflies. Monarch butterflies have been documented offshore on oil platforms in the Gulf of Mexico, 72 miles south of the Louisiana coastline potentially utilizing the structures as a safe haven to cross from Louisiana to northeastern Mexico each fall (Ross 1998). Although monarchs are far-ranging fliers, they are easily blown off course, likely by storms, into offshore waters. Therefore, because the occurrence of monarch butterflies in the offshore portions of the Action Area is anticipated to be very rare, potential collisions are extremely unlikely to occur (*discountable*) and the size of any impact, were it to occur, would be too small to be measured or evaluated (*insignificant*).

4.2 CONCLUSION

Bats (Northern Long-Eared Bat and Tricolored Bat):

Few, if any, northern long-eared bats or tricolored bats are expected in the Action Areas, and the potential effects related to noise are extremely unlikely to occur (discountable) and the size of any impact, were it to occur, would be too small to be measured or evaluated (insignificant). For these reasons, BOEM anticipates that the Proposed Action is not likely to adversely affect the northern long-eared bat or the tricolored bat.

Birds (Piping Plover, Rufa Red Knot, and Roseate Tern):

The occurrence of piping plover, rufa red knot, and roseate tern in the Action Area is possible but expected in very small numbers; therefore, exposure to the IPFs in the offshore environment would be minimal. Furthermore, any noise, accidental releases, and traffic (aircraft), would be temporary and localized. Therefore, potential effects from the IPFs are extremely unlikely to occur (discountable) and the size of any impact, were it to occur, would be too small to be measured or evaluated (insignificant). For these reasons, BOEM anticipates that the Proposed Action is not likely to adversely affect the piping plover, the rufa red knot, or the roseate tern.

Monarch Butterfly:

The potential effects from the IPFs are extremely unlikely to occur (discountable) and the size of any impact, were it to occur, would be too small to be measured or evaluated (insignificant). Therefore, if USFWS were to list the monarch butterfly as threatened or endangered in the future, BOEM anticipates the Proposed Action is not likely to adversely affect the species.

References

Bureau of Ocean Energy Management (BOEM). 2013. *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts Revised Environmental Assessment*. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS EIS/EIA BOEM 2014-603.

Duijns, S., A. M. Anderson, Y. Aubry, A. Dey, S. A. Fleming, C. M. Francis, C. Friis, C. Gratto-Trevor, D. J. Hamilton, R. Holberton, S. Koch, A. E. McKellar, D. Mizrahi, C. A. Morrissey, S. G. Neima, D. Newstead, L. Niles, E. Nol, J. Paquet, J. Rausch, L. Tudor, Y. Turcote, and P. A. Smith. 2019. Long-distance migratory shorebirds travel faster towards their breeding grounds, but fly faster post-breeding. *Scientific Reports* 9(1):1–13. https://doi.org/10.1038/s41598-019-45862-0.

Loring, P., J. McLaren, P. Smith, L. Niles, S. Koch, H. Goyert, and H. Bai. 2018. *Tracking Movements of Threatened Migratory Rufa Red Knots in U.S. Atlantic Outer Continental Shelf Waters*. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2018-046. https://espis.boem.gov/Final%20Reports/BOEM_2018-046.pdf.

Loring, P. H., P. W. C. Paton, J. D. McLaren, H. Bai, R. Janaswamy, H. F. Goyert, C. R. Griffin, and P. R. Sievert. 2019. *Tracking Offshore Occurrence of Common Terns, Endangered roseate terns, and Threatened piping plovers with VHF Arrays*. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2019-017. https://espis.boem.gov/finalreports/BOEM_2019-017.pdf.

Loring, P. H., A. K. Lenske, J. D. McLaren, M. Aikens, A. M. Anderson, Y. Aubrey, E. Dalton, A. Dey, C. Friis, D. Hamilton, B. Holberton, D. Kriensky, D. Mizrahi, L. Niles, K. L. Parkins, J. Paquet, F. Sanders, A. Smith, Y. Turcote, A. Vitz, and P. A. Smith. 2020. *Tracking Movements of Migratory Shorebirds in the U.S. Atlantic Outer Continental Shelf Region*. Sterling (VA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2021-008. 104 pp. https://www.boem.gov/sites/default/files/documents/renewable-energy/studies/Tracking-Migratory-Shorebirds-Atlantic-OCS.pdf.

Nisbet, I. C. T., M. Gochfeld, and J. Burger. 2014. Roseate tern (Sterna dougallii). *The Birds of North America Online*. doi:10.2173/bna.370.

Ross, G. 1998. Monarchs Offshore in the Gulf of Mexico. *Holarctic Lepidoptera* 5(2):52.

U.S. Fish and Wildlife (USFWS) Maine Field Office. No date. Roseate Tern (*Sterna dougalii)* Fact Sheet. https://www.fws.gov/sites/default/files/documents/Roseate%20tern_fact%20sheet.pdf. Accessed: October 2023.