NYSERDA 2023 OFFSHORE WIND SOLICITATION ORECRFP23-1

Environmental Mitigation Plan

Public Version

Community Offshore Wind LLC

Lease OCS-A 0539

COMMUNITY offshore wind

local clean energy for all

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Section 8.2 – Environmental Mitigation Plan Narrative Component

8.2 Environmental Mitigation Plan

NYSERDA 2023 Offshore Wind Solicitation ORECRFP23-1

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List of acronyms and abbreviations

Abbreviation	Explanation
BOEM	Bureau of Ocean Energy Management
NOWRDC	National Offshore Wind Research and Development Consortium
E-TWG	Environmental Technical Working Group
M-TWG	Maritime Technical Working Group
F-TWG	Fisheries Technical Working Group
RWSC	Regional Wildlife Science Collaborative
ROSA	Responsible Offshore Science Alliance
WOW	Wildlife and Offshore Wind
HMS	Highly Migratory Species
ESA	Endangered Species Act
eDNA	Environmental DNA
RODA	Responsible Offshore Development Alliance
PAM	Passive Acoustic Monitoring
CRADA	Cooperative Research and Development Agreement
NEFSC	Northeast Fisheries Science Center
AMAPPS	Atlantic Marine Assessment Program for Protected Species
CRM	Collision Risk Model
EFH	Essential Fish Habitat
HAPC	Habitat Areas of Particular Concern
EMF	Electro Magnetic Force
HDD	Horizontal Directional Drill
EIS	Environmental Impact Statement
COP	Construction and Operations Plan

NYSERDA solicitation requirements

Our Environmental Mitigation Plan addresses each requirement laid out by NYSERDA in the Request for Proposal (RFP) while confirming our commitment to low environmental impact. The table below identifies each solicitation requirement.

Table 8.2-1 Solicitation requirements

Solicitation requirement	Section
Present philosophy and approach to mitigating offsetting environmental impacts.	8.2.1
Present how research, data and stakeholder feedback support decision making.	8.2.1
Describe how we will work with the State-supported E-TWG.	8.2.2
Describe how we will identify stakeholders relevant to onshore and offshore environmental issues describe	8.2.1
Describe how communication with stakeholders, incl. E-TWG and NYS agencies.	8.2.2
Describe how publication of work in scientific journals, or other scientifically rigorous products, and coordination with interested scientists and regulators	8.2.3.1
Describe how research transparency and peer reviewed publication of results	8.2.3.1
Describe approach to pre-, during- and post-construction monitoring and research.	8.2.3.1
Describe coordination to standardize monitoring and research in the region.	8.2.3.1
Describe plans to make environmental data available in accordance with Section 2.2.8.	8.2.3.1
Describe how, for large whales (particularly the North Atlantic right whale), other marine mammals, sea turtles, birds, bats, fish, sturgeon, and invertebrates, we plan to conduct scientifically sound, statistically rigorous studies to establish baseline data, assess and quantify changes and monitor for impacts during each phase	8.2.3
Describe use of collaborative monitoring models with fishing community to develop trusted baseline data.	8.2.3
Describe our approach to requests for Project data and access to Project Site and any relevant	8.2.4.2
Identify ways to enhance site accessibility for advancement of third party scientific / technological study.	8.2.4.2
Describe financial commitments to third party environmental research.	8.2.4.1
Describe what is known about the proposed site in terms of marine mammal and sea turtle assemblage, temporal and spatial use of the site, and which species we believe to be of greatest concern and why.	8.2.5.1

Describe how we will work to understand and minimize risk to marine mammals and sea turtles, with special attention to highly vulnerable and endangered species such as the North Atlantic right whale.	8.2.5
Describe proposed measures to minimize impacts of sound on marine mammals and sea turtles.	8.2.5.2
Describe how we will seek to minimize the risk of ship strikes through timing speed restrictions, use of shipping lanes and conformance with NOAA guidance to avoid vessel strike.	8.2.5.3
Describe what is known about the proposed site in terms of bird and bat assemblages, temporal, and spatial use of the site by key species and which species we believe to be of greatest concern and why.	8.2.5.2
Describe approach to evaluate risks to birds and bats generally, and those of greatest concern	8.2.6.1
Describe steps the Proposer will pursue to minimize risk to birds and bats (e.g., lighting).	8.2.6.2
Identify technological approaches to assess impacts or other research or mitigations relating to birds and bats.	8.2.6.3
Describe what is known about the proposed site in terms of fish and invertebrate assemblage, temporal and spatial variations**,** and which species we believe to be of greatest concern and why	8.2.7.1
Identify fish and invertebrate species the Proposer believes to be of greatest concern and why.	8.2.7.1
Describe how we will work to understand and minimize risks to fish and invertebrates and their habitats.	8.2.7.1
Describe steps we will pursue to minimize risk to fish, invertebrates, and their habitats.	8.2.7.2
Describe other research or measures taken to reduce risk or impact to fish, invertebrates, or their habitats.	8.2.7.3
Describe potential environmental impacts of activities associated with subsea and overland cable routes.	8.2.8
Outline any additional mitigation strategies not otherwise described herein that would improve the Plan and reduce impacts on the environment.	8.2.9
Describe how we will develop a decommissioning plan in coordination with environmental stakeholders.	8.2.10

8.2.1 Summary

The siting, construction, operations, and decommissioning of offshore wind projects have the potential to impact the marine mammal, sea turtle, birds, bats, fish, and invertebrate species and their habitats that are found within the New York Bight. Specific concerns include underwater noise from survey activities and pile driving, vessel strike, and bird and bat collisions or displacement. The New York Bight is one of the most studied regions along the Atlantic coasts; however, continued efforts will improve our understanding of potential direct, indirect, and cumulative biological impacts from offshore wind development.[1]

At Community Offshore Wind, **our ultimate environmental goal is to avoid, minimize, mitigate, restore and offset the potential environmental impacts to achieve a net positive outcome** of the project for the environment above and below the water line. To achieve this, we commit to the following objectives:

- Avoid, minimize, mitigate, restore, and offset potential environmental impacts
- Apply and advance research to study impacts and mitigation efficacy
- Use a transparent and collaborative approach

We have developed a range of proposed solutions to support these objectives, which are further detailed throughout our Environmental Mitigation Plan (Sections 8.2.2-8.2.10). We expect to commit [redacted] towards activities and programs that support our Environmental Mitigation Plan and our Fisheries Mitigation Plan. These activities revolve around three main pillars:

1. **Avoid, minimize, mitigate, restore, and offset potential environmental impacts**. To address the environmental issues that may arise from our project that affect species above and below waterline, we commit to the following:
    a. **Protect marine mammals, sea turtles, and other protected species** by minimizing disturbance and collision risk using noise abatement techniques, exclusion zones, training, and targeted and collaborative monitoring (see Section 8.2.5)
    b. **Minimize attraction and other risks to birds and bats** by reducing artificial lighting, exploring the installation of perching-related deterrents and through targeted and collaborative monitoring (see Section 8.2.6)
    c. **Strive for net-positive effects on fish, invertebrates, and their habitats** through thoughtful foundation design, nature-based solutions, strategic cable routing and burial methods, and periodic surveying of subsea and onshore cables (see Section 8.2.7-8.2.8)
    d. **Mitigate impacts from decommissioning** by developing a living decommissioning plan and leveraging the latest research, technological advances, and lessons learned (see Section 8.2.10)

1 Environmental Stratification Workgroup Report, NY E-TWG. 2020.

[redacted]

2. **Apply and advance research to study impacts and mitigation efficacy.** To further supplement and refine data and research on the potential impacts of offshore wind developments on taxa and their habitats in the New York Bight region, we expect commit to:
   - [redacted]
   - [redacted]

3. **Use a transparent and collaborative approach.** Robust stakeholder engagement is important to building an inclusive development process that targets key priorities defined by research and regulatory communities. We intend to leverage a transparent and collaborative approach to support regional research and monitoring and integrate outcomes of studies and stakeholder feedback into project planning. To achieve these goals, we commit to:
   - **Identification of key contacts within stakeholder groups** [redacted]
   - **Detailed communication and collaboration plan with key stakeholders** [redacted]

[redacted]

8.2.2 Communication and collaboration

Coordination and engagement with all stakeholders are crucial to the success of an offshore wind project as outlined in the NYSERDA's Guiding Principles for Offshore Wind Stakeholder Engagement.[3] The lack of collaboration between offshore wind developers and stakeholders can lead to projects that do not adequately account for stakeholder concerns, miss opportunities to benefit people and communities, exclude voices of disadvantaged or underrepresented groups, and do not develop and apply the best available science. This in turn could risk the viability of the project, through opposition, permitting delays, or other roadblocks. [redacted]

8.2.2.1 Identification of key contacts within stakeholder groups

We **have and will continue to build relationships through outreach and establish collaborations that result in meaningful engagement** related to our project. We have and will continue to identify key contacts within relevant stakeholder groups through four concrete actions:

- Assess existing relationships formed through previous and ongoing engagement work
- Review i) public comments on BOEM's and New York State's actions associated with offshore wind in the region, ii) scientific literature, iii) projects sponsored by NYSERDA, the New York State Department of Environmental Conservation (NYSDEC), the Bureau of Ocean Energy Management (BOEM), NOAA Fisheries, National Offshore Wind Research and Development Consortium (NOWRDC) and other agencies
- Use census data and public records to identify Environmental Justice, Underserved, and Disadvantaged communities and businesses and reach out directly to such stakeholders
- Engage with industry organizations such as American Clean Power Association and the Oceantic Network, to take advantage of their networks, outreach opportunities, and working groups

BOEM's ongoing development of a Programmatic Environmental Impact Statement for the New York Bight will also continue to draw out stakeholders. We will continue to update stakeholder lists and contacts throughout project development, construction, operations, and decommissioning.

8.2.2.2 Detailed communication and collaboration plan with key stakeholder groups

We have **developed communication procedures specific to key stakeholder groups** for correspondence throughout survey work, design, construction, operation, and decommissioning of the project. As part of this Proposal, we have also developed a Stakeholder Engagement Plan (Section 8.3) and Fisheries Mitigation Plan (Section 8.1). We will do this through three key activities:

3 Guiding Principles for Offshore Wind Stakeholder Engagement, NY E-TWG. 2021.

1. **Participate and communicate regularly with key organizations.** As an active member of the organizations, we will coordinate regularly with the Environmental Technical Working Group (E-TWG), the Fisheries Technical Working Group (F-TWG), the Maritime Transport Working Group (M-TWG), the Responsible Offshore Science Alliance (ROSA), and the Regional Wildlife Science Collaborative (RWSC). Communication will also occur via engagement with New York State agencies during each phase of the project as part of consultations and permitting.
2. **Frequently provide information to stakeholders through a variety of channels.** Our website and social media pages will continue to act as an avenue for stakeholders to engage with our company and review key information related to our development. In-person meetings, community workshops, and open houses will be used to seek face-to-face engagement, and other tools, such as print media and virtual meetings, will be used to further expand our reach.
3. **Collaborate with other developers in the New York Bight area.** We understand the importance of collaborating with other developers in the New York Bight area, particularly those with nearby lease areas. We have already engaged with other New York Bight lessees and are committed to seek opportunities for collaboration to reduce stakeholder burden.

8.2.3 Environmental monitoring and research pre-, during- and post-construction

The New York Bight is one of the most studied regions along the Atlantic Coast, in large part due to the work started by NYSERDA as part of the first Offshore Wind Master Plan initiated in 2016. While this information, along with other publicly available data sets, serves as great baseline data on the presence of wildlife in and around the New York Bight, additional research can fill data gaps on environmental impacts and the efficacy of mitigating actions.[4]

We recognize the importance of collecting data to further assess how the development of offshore wind in the region may impact species. We will support this ambition through three key activities:

- Review available data and identify data gaps
- Work with stakeholders to develop monitoring and research opportunities
- Support research that studies species of interest in our project area

8.2.3.1 Review available data and identify data gaps

To start, we will review the best available science and working group outcomes to understand data gaps and research priorities identified by experts. We will also collaborate with RWSC, ROSA, E-TWG and other groups to stay apprised of research and monitoring priorities and data standards as they evolve, including participation in the State of the Science Workshops supported by NYSERDA. We already closely follow the short-term and long-term priorities identified by NYSERDA's Environmental Technical Working Group (E-TWG) as well as the Responsible Offshore Science Alliance (ROSA) and will incorporate them into our research and monitoring plans on an evolving basis.[58] Other efforts such as the development of the RWSC Science Plan, Project WOW (Wildlife and Offshore Wind), and other work funded by NYSERDA and others

4 State of the Science Workgroups, NY E-TWG. 2020; Research Priorities 2022, RODA. 2021.

will also inform these efforts.

If it is not feasible to collect sufficient data to address identified data gaps, we will look to support the development of models, the assessment of proxy systems, or the implementations of offsets that will address potential impacts. Regional modeling efforts can be improved through the collection of data that better inform sensitive variables in modeling. Such models can allow for predictions that account for climate change and other external variables within the ecosystem. Thus, collecting data that will improve model predictive power will be valuable to better understanding the underlying drivers of change and what role offshore wind plays in the ecosystem.

8.2.3.2 Work with stakeholders to develop monitoring and research opportunities

Development of rigorous scientific inquiry-based studies with statistically robust results must and will be developed in collaboration with technical experts. Achieving statistically meaningful outcomes that reduce the level of uncertainty around impacts and the efficacy of mitigation can be difficult, particularly in remote and challenging environments like the ocean. [redacted]

We will use risk assessment (e.g., impact severity and likelihood) and scientific experts to determine when, where, and how data collection can better inform baselines, be used to quantify changes, and be applied to impact assessment for adaptive management. [redacted]

In addition to impact research, we seek to understand the efficacy of mitigation measures, develop technologies that will collect more robust data, and understand how unavoidable impacts can be offset and remediated. Further, we will prioritize a percentage of research funding to support researchers who are from under-represented groups in science or focusing research on topics that affect Environmental Justice, Underserved, and Disadvantaged communities and businesses.

[redacted]

There are several migratory species that temporarily occupy waters in our Lease Area and potential cable routes, including sea turtles and highly migratory species (HMS) of fish such as sharks, tunas, striped bass, and Atlantic sturgeon that are relatively data limited and could benefit from additional research for a variety of reasons. Some of these species are protected, ESA-listed or below target biomass levels, some may be more impacted by offshore wind development, and some are of particular commercial and/or recreational interest.

[redacted]

[redacted]

There are some data collection systems that exist for these species through other sources, but more funding can support studies that increase understanding of the impacts of climate change and offshore wind on these migratory species. [redacted]

8.2.4 Supporting other environmental research

Offshore wind sites can play an important role in supporting research by serving as a fixed platform for research opportunities and by sharing existing data to further independent research initiatives. At Community Offshore Wind, **we aim to build upon and support existing environmental research efforts** that can benefit from this type of access, especially those which target the research priorities identified by RODA[5] and the NYSERDA technical working groups.[6] Our support of independent third-party environmental research will focus on two main components:

- Regional and local research projects
- Site and data accessibility for researchers

We will leverage our involvement with RWSC, ROSA, E-TWG, and F-TWG, develop further engagement with the research arms of agencies, and participate in academic conferences to expand our direct outreach and exposure to researchers outside of the existing regional organizations.

8.2.4.1 Regional and local research projects

[redacted]

5 Research Priorities 2022, RODA. 2021.
6 State of the Science Workgroups, NY E-TWG. 2020.

[redacted]

The administration of these funds will include both contributions to established collaborative funding sources, such as RWSC and ROSA, and potentially will include some directly funded projects with a focus on providing opportunities to historically under-represented groups, such as women and minorities, and development of research that benefits Environmental Justice, Underserved, and Disadvantaged communities and businesses (more details on this funding in Sections 8.3 and 8.1).

8.2.4.2 Site and data accessibility for researchers

We share NYSERDA's strong focus on getting the maximum value from data collected during offshore wind development which means granting third-party researchers access to our sites as well as our data collections. Our plan to support site and data accessibility for researchers, including identifying ways to enhance accessibility overall, revolves around four main points:

- Timely sharing of data
- Considerations for sensitive data
- Commitment to regional coordination
- Development of a data sharing plan

Timely sharing of data. We are committed to making data available as soon as practicable in publicly available data portals and sharing data for contribution to larger studies, models, technical reports, and peer-reviewed publications. We commit to examining opportunities for regional data collection including passive acoustic monitoring (PAM), Motus receiver deployment, and surveys for protected species. To understand cumulative impacts and implement adaptive management over time, regional efforts will be necessary. We commit to engaging with regional lease holders to discuss how resources may be pooled to develop networks of sensors, autonomous systems, and other ongoing, long-term data gathering and analyses across the platforms of opportunity created by wind farms while maintaining commercial competition in the marketplace and properly handling proprietary information.

Considerations for sensitive data. It is our priority to collect data with appropriate metadata and quality controls, remove commercially sensitive information, and make data publicly available as soon as

practicable. Although some data have commercial sensitivity and cannot be shared immediately upon obtaining them, we are willing to put such data in a neutral repository where it will be kept private until such time as it can be released to the public. To promote mutual respect and trust, we are committed to keeping any sensitive information shared by Tribes or Tribal Nations during engagement activities confidential.

Commitment to regional coordination. We commit to membership and active participation with ROSA, RWSC, the E-TWG, the F-TWG and other applicable working groups to develop data collection, sharing, and management processes that standardize data and make them available as quickly as practicable for public use. This commitment includes putting funds toward data sharing and management internally and assigning an individual position to have responsibility to serve as a point of contact and allow for the timely release of data to portals and the public. We will curate its data to ensure that data can be packaged and shared upon request in a timely manner.

Development of a data sharing plan. We will develop a Data Management and Availability Plan that will detail methods related to data standards, metadata, management, quality control, packaging, and sharing to apply to the life of the project. This plan will continue to be updated as organizations like RWSC, ROSA, the E-TWG, and the F-TWG continue to develop data standards and BMPs and data repositories become available. At present there are several potential repositories for data and data products, including the Mid-Atlantic Data Portal, Marine Cadastre, and OBIS SeaMap. The data sharing plan will include a commitment to sharing scientific, economic, and cultural data with Tribes. In addition, we collaborated with NEFSC to develop a data sharing and integration plan as part of our research and development agreement (CRADA) (see Section 8.1).

8.2.5 Marine mammals and sea turtles

The siting, construction, operations, and decommissioning of an offshore wind project has the potential to impact the marine mammal and sea turtle species that are found within the New York Bight. We have **identified the variety of marine mammal and sea turtle species in our project area**. We **understand the key risks and concerns to these species**, including underwater noise resulting from surveys and pile driving activities and increased risk of vessel strike. In particular, we recognize the endangered and declining status of the North Atlantic right whale. Our approach to mitigating impacts to this species as well as to other marine mammal and sea turtle species consists of three main components:

- Minimize disturbance and collision risk with exclusion zones and training
- Reduce noise impact from geophysical survey activities and pile driving
- Support monitoring pre- and post- construction

8.2.5.1 Marine mammal and sea turtle species in the New York Bight[7]

We understand the work being conducted to track the distribution and patterns of marine mammal and

7 Zoidis et al. 2021; Zeh et al. 2021; Muirhead et al. 2018; Estabrook et al. 2021; King et al. 2021; Hayes et al. 2022; Roberts et al. 2016; Curtice et al. 2019; NYSERDA 2021b; NYSERDA 2021c; Robinson Willmott et al. 2021; Winton et al. 2018; US Navy 2018; Montello et al. 2022.

turtle species in the New York Bight. We are familiar with the agencies and organizations conducting survey work and the tools being used, as summarized with examples in the table below.

Table 8.2-2 Summary of study and survey activities

Organization	Surveys and tools to study distribution and patterns
NYSERDA	• Digital and aerial surveys
NYSDEC	• Large whale aerial surveys
NOAA Fisheries & BOEM	• Regional vessel and aerial surveys as part of the Atlantic Marine Assessment Program for Protected Species (AMAPPS)
Wildlife Conservation Society New York Aquarium Woods Hole Oceanographic Institution	• Autonomous fixed and mobile PAM systems that send signals to satellites for acoustic monitoring
Other	• Non-systematic surveys to evaluate whale presence • Passive acoustic monitoring (PAM) to detect whales • Stationary recorders near entrance to New York Harbor • 15 bottom-mounted marine autonomous recording units

Over thirty marine mammal and sea turtle species have been known to reside in or transit through the New York Bight. Cetaceans (whales, dolphins, and porpoises) are typically grouped into three hearing categories: high- frequency, mid-frequency, and low-frequency.

High-frequency mammals. High-frequency mammals in the region include porpoises, dwarf whales and pygmy sperm whales. For high-frequency cetaceans, seasonal predicted density in New York Bight is highest in the winter and spring across the continental shelf. This pattern is driven by seasonal harbor porpoise movements, with dwarf and pygmy sperm whales typically in low densities in deep-water offshore environments year-round.

Mid-frequency mammals. Mid-frequency cetaceans in the region include toothed whales and dolphins. For mid-frequency cetaceans predicted concentrations in the New York Bight are highest along the Hudson Canyon and continental slope and Hudson Valley in winter, summer, and fall and dispersed across the continental shelf in spring.

Low-frequency mammals. Low-frequency mammals in the region include baleen whales, such as the Atlantic Right whale, and seals. For low-frequency cetaceans (excluding North Atlantic right whales), density is predicted to be the highest in the spring and summer along the Hudson Valley and continental slope, though surveys by NYSERDA found year-round presence of these species. Seals are dispersed in highest density in the northeastern corner of the New York Bight in fall, winter, and spring. The latest models updated from Roberts predicted the highest winter density of North Atlantic Right Whales in New York Bight to be in the nearshore edge of the New York Bight; summer density estimates indicate distribution along the continental shelf in summer; and spring and fall density estimates suggest distribution along the eastern edge of the New York Bight in spring and fall.

Sea turtles. Sea turtles occur in the New York Bight from late spring to fall, with the highest densities in summer and concentrated in shelf waters less than 70m in depth. Loggerhead sea turtles are the most common sea turtle found in the New York Bight, followed by Kemp's ridley and Leatherback Sea turtles. Small juvenile green sea turtles are also known to occur but are relatively rare. Leatherbacks have been observed in summer with variable spatial distributions across the New York Bight. Sea turtles do not currently nest along the shores of New York or New Jersey.

Key concerns for these species are related to underwater noise and the risk of vessel strike. Large whales tend to be at higher risk for vessel strike and baleen whales are low-frequency hearing specialists at higher risk of disturbance from low-frequency survey and pile-driving sound. Harbor porpoises may also be sensitive to pile-driving.

Species listed under the Endangered Species Act (ESA) and those recognized by New York State (endangered or Species of Greatest Conservation Need) are considered of greatest concern. In particular, we recognize the endangered and declining status of the North Atlantic right whale, and we will support technological advancements and research projects focused on reducing adverse impacts to this species and others in the region.

8.2.5.2 Minimize disturbance and collision risk with exclusion zones and training

Sizes of exclusion zones will be determined in collaboration with agencies and stakeholders and will at minimum be compliant with ESA consultation outcomes and Marine Mammal Protection Act (MMPA) permitting requirements. The following tools will be used to understand the presence and

absence of marine mammals and sea turtles in exclusion zones:

- Monitoring by Protected Species Observers and dedicated crew as appropriate
- PAM as appropriate
- Use of night vision and thermal imaging equipment for night operations
- Collaboration in sharing North Atlantic right whale sightings across the region
- Citizen science efforts for reporting on real-time animal observations
- Modern software for recording protected species observations
- New technologies such as drones and autonomous vessels

Seasonality of construction activities will take into account potential seasons of high presence or vulnerability of marine mammals and sea turtles in combination with human safety risks, logistical constraints, and other resources or human use conflicts. We expect that NOAA Fisheries may require seasonal restrictions on construction activities associated with ESA-listed species. We will also examine available sound reduction technologies, including those utilized in support of construction of some of RWE's wind farms in Europe, and support research that develops new technologies for reducing sound from survey and construction activities.

Further, to reduce the likelihood of vessel strike, we will:

- Train vessel personnel in animal identification and sighting protocols
- Follow conditions developed through ESA consultation
- Follow NOAA Fisheries recommendations for avoiding vessel strike
- Adhere to speed limits as required by law and as determined to be safe
- Utilize Protected Species Observers, as required
- Consider seasonal limitations risks in the context of marine mammals and sea turtles and risks to other resources and human uses.

8.2.5.3 Reduce noise impact from geophysical survey activities and pile driving

Sound is a major stressor for marine mammals and sea turtles. For sound-producing activities such as geophysical surveys and pile-driving, we seek to **balance minimizing disturbance from sound and minimizing potential for vessel strike**. Mitigations such as shutdown and clearance periods for marine mammals and sea turtles are anticipated as part of minimizing impacts and meeting regulatory requirements.

We will also seek to **support research that helps improve understanding of these impacts** and technologies that will achieve the logistical needs of the project while reducing the sound generated. In addition, we will work to balance seasonal mitigation measures across different taxa and human uses (e.g., fisheries) which may be seasonally present at different times of year. Additional engagement with stakeholders will be needed to find this balance and determine the appropriate seasonal activity for effective mitigation. Offset mitigation opportunities will also be examined through engagement efforts.

[redacted]

[redacted]

As required by NYSERDA, if we use pile driving or other installation methods that result in high underwater sound, we will **monitor underwater acoustics during foundation installation** in order to:

- Measure changes in sound pressure levels
- Record sound levels in the water column and vibrations in the sediment
- Detect particle motion
- Assess effectiveness of noise mitigation system during pile installation

We will provide NYSERDA, at least six months prior to Construction and Operation Plan submission, an Underwater Acoustic Monitoring Plan detailing how data will be collected and made available as soon after collection as is practicable for use by third parties. As required, the Plan will include commitments to allow raw and metadata to be publicly available no more than six months after installation completion.

8.2.5.4 Support monitoring pre- and post- construction

Pre- and post-construction study techniques and literature review to establish an ecological baseline and assess potential change post-construction will be developed in collaboration with scientific researchers, agencies, and other lease holders for a holistic, regional approach to implement methods that are comparable and statistically robust. We will rely on collaboration with RWSC, ROSA, E-TWG, F-TWG and scientific experts to inform these methodologies. We are committed to establishing pre- and post-construction survey methods that will focus on collecting the data necessary to support question-driven science. We also commit to ensuring that funds are available to analyze scientific data collected during monitoring.

Some examples of technologies under consideration by our team for assessing impacts and mitigation efficacy include Motus receivers, tagging, radar, acoustic detectors, terrestrial surveys, aerial and vessel surveys, drones with detection equipment, satellite imagery, and collection of metocean and environmental data. We acknowledge the difficulty in detecting change and connecting change to variables and to particular consequences for individuals and species. Efforts to successfully detect and quantify change will by necessity be collaborative and involve long-term commitments that require significant expert scientific input.

8.2.6 Birds and bats

The siting, construction, operations, and decommissioning of an offshore wind project has the potential to impact the species of birds and bats that are found within the New York Bight. We have **identified a variety of bird and bat species in our project area.** We **understand the specific risks**

8 Research project investigates innovative installation technique for offshore foundations, RWE.com. 2021.

and concerns facing these species, including collisions and displacement. Our approach to mitigating impacts to these species involves two main objectives:

- Minimize attraction and other risks to birds and bats
- Support monitoring pre- and post- construction

Bird and bat species in the New York Bight[9]: Most recent studies of the distribution and use patterns of birds in the New York Bight include digital aerial surveys conducted by NYSERDA and Equinor in its New York Bight Lease Area (OCS-A 0512) and regional vessel and aerial surveys conducted by NOAA Fisheries in partnership with BOEM as part of AMAPPS that have been ongoing since 2010 and have more recently targeted Wind Energy Areas and Call Areas for directed survey work.

Birds. NYSERDA identified 76 species of birds in the New York Bight based on observation of 140,372 individuals, with lowest densities overall in summer. NYSERDA also calculated flight heights for birds relative to the expected rotor swept zone of offshore wind turbines. Winship modeled the spatial distribution and relative density of 47 marine bird species along the East Coast of the US. The likely occurrence of species within the project area is highest in birds targeting the Hudson Valley Shelf and flying over to the shelf break. Stenhouse analyzed the temporal, spatial, and movement use patterns of red-throated loons, surf scoters, and northern gannets to quantify their exposure to offshore wind in the New York Bight.

Bats. There are nine bat species known to occur in New York. Bats rely on land for summer and winter roosts and often forage for insects over water. At least six of the nine species have been detected over the Atlantic Ocean. Peterson reported bats four to 47 nautical miles offshore and in rare cases up to 70 nautical miles from the mainland (east of New Jersey). The maximum distance Myotis species have been detected offshore is six nautical miles. Eastern red bats were the most frequently identified bat species in the offshore space in proximity to the project area, followed by silver-haired bat and hoary bat. These species are considered long-distance migrants.

Peterson determined that bat occurrence in offshore waters was relatively low and concentrated during migratory periods; however, migrating bats are wide ranging, and can often be observed offshore, with Peterson reporting two observations of bats in the New York Bight 110 and 130 kilometers from shore in August and September 2014. Bat activity patterns in the offshore space are known to be mostly seasonal across all species with peak activity occurring in spring, late summer, and early fall. Nightly patterns of bat activity have been correlated with warm temperatures and low wind speeds, though bats can fly at relatively high wind speeds offshore and may take advantage of tailwinds during migration.

Fatalities to bats from terrestrial wind turbines are either caused by collision with the rotor blades or by barotrauma. Baerwald found that 90% of bat fatalities at their study sites had internal hemorrhaging consistent with barotrauma. The air pressure change at the turbine blades is undetectable by bats and even a small change in pressure can cause the small lungs of bats to collapse.

Avian and bat species listed under ESA and species listed as High Priority of Conservation Need by the New York State are considered of greatest concern because of potential for population-level

9 Robinson Willmott et al. 2021; NYSERDA 2021d; Winship et al. 2018; Stenhouse et al. 2020; NYSDEC; Peterson et al. 2016; Solick and Newman 2021; Sjollema et al. 2014; Hatch et al. 2013; Baerwald and Barclay 2011; Baerwald et al. 2008

impacts from displacement or collision. Long-distance migrant bat species are also at higher risk because they are recorded over the water more often that non-migratory species.

8.2.6.1 Evaluating risks to birds and bats in the New York Bight

For birds, understanding the probability of colliding with turbines is integral for quantifying the level of potential impact of offshore wind infrastructure. To quantify this risk, collision risk models (CRMs) are used and parametrized with technical specifications of the turbines, bird densities, morphology and flight behavior of existing bird populations present on site. To obtain realistic risk estimates, the CRM is subsequently corrected to take account of behavioral responses of birds to the presence of wind farms (i.e., avoidance); however, there is considerable uncertainty over the scale of such impacts due to the relatively few offshore monitoring studies that have gathered empirical evidence. A study by Skov used a monitoring system to detect and track bird movements at the species level in and around an operational offshore wind farm.[10] The study was able to estimate highly accurate empirical avoidance rates for the northern gannet, black-legged kittiwake, herring gull, greater black-backed gull, and lesser black-backed gull to better inform CRM.

8.2.6.2 Minimize attraction and other risks to birds and bats

Wind turbines can attract birds and other flight species due to the artificial lighting and opportunity for perching, increasing the chance of collision. To avoid and minimize attraction-related impacts to these animals, **artificial lighting on offshore wind projects will be reduced** to the extent practicable while adhering to respective regulatory requirements. We will examine the latest studies on bird and bat collisions with wind turbines to understand the best lighting accommodations to minimize the risk to birds and bats (e.g., colored lights, blinking lights). Monitoring shall be conducted to determine if there is **a need for perching-related deterrents to reduce attraction** and minimize potential perching and loafing opportunities for birds. Acoustic or other monitoring will be conducted to characterize potential bird and bat patterns and to evaluate the need for adaptive mitigation measures.

8.2.6.3 Support monitoring pre- and post- construction

Pre- and post-construction study techniques and literature review to establish an ecological baseline and assess potential change post-construction will be developed in collaboration with scientific researchers, agencies, and other lease holders for a holistic, regional approach to implement methods that are comparable and statistically robust. We will rely on collaboration with RWSC, ROSA, E-TWG, F-TWG and scientific experts to inform these methodologies. We are committed to establishing pre- and post-construction survey methods focused on collecting the data necessary to support question-driven science. We also commit to ensuring that funds are available to analyze scientific data collected during monitoring.

Some examples of technologies our team is considering for assessing impacts and mitigation efficacy include Motus receivers, tagging, radar, acoustic detectors, terrestrial surveys, aerial and vessel surveys, drones with detection equipment, satellite imagery, and collection of metocean and environmental data. We acknowledge the difficulty in detecting change and connecting change to

10 Skov et al. 2018

variables and to particular consequences for individuals and species. Efforts to successfully detect and quantify change will by necessity be collaborative and involve long-term commitments that require significant expert scientific input.

8.2.7 Fish, invertebrates, and their habitats

We acknowledge that the siting, construction, operations, and decommissioning of an offshore wind project has the potential to impact fish, invertebrates, and their habitats within the New York Bight. We have **identified a variety of fish and invertebrate species in our project area**, and **we understand the risks facing them and their habitats**. Specific concerns for fish, invertebrates and their habitats are disturbances due to the introduction of human-made structures on and around the seabed. Our approach to mitigation impacts to fish and invertebrates focuses around two main objectives:

- Optimize for environmental considerations in design choices
- Support monitoring pre- and post- construction, and through operation

8.2.7.1 Fish, invertebrates, and their habitats in the New York Bight[11]

In order to develop effective solutions to mitigate negative impacts to fish, invertebrates, and their habitats, we have done a thorough review of existing data to determine the presence of these species in and around our project area.

Fish and invertebrates. Over 300 species of fish and invertebrates move across the estuary, coastal, and offshore space in the region. Due to the value of some fisheries, management-related research provides substantive baseline information on species, for example Atlantic Sea scallop, longfin squid, American lobster, ocean quahog clam, and surf clam. Fisheries are managed through the fisheries management councils within nine Fishery Management Plans. Stock assessment reports for commercially fished species are available online.

Habitats. Essential Fish Habitat (EFH) has been designated for every federally managed fish stock identified on the East Coast. The New York Bight has designated offshore EFH for 52 species, and 17 of these species have EFH for every life stage. There are five Habitat Areas of Particular Concern (HAPC) within the New York Bight: three are coastal and could impact cabling to shore, and two are further offshore than the wind lease areas. EFH and HAPC information is provided in Fisheries Management Plans and on the NOAA EFH Mapper. The most current available seagrass maps from the Long Island Sound Study, Peconic Estuary Program, and the South Shore Estuary Reserve have been integrated to create one map for New York seagrass habitat. New York State's Seagrass Protection Act protects seagrass habitats, which have been declining in New York Bight waters[12]. Wetlands are also protected under New York State law.[13]

Species listed under ESA and species listed as High Priority of Conservation Need by New York State are considered of greatest concern because of potential for population-level impacts. NOAA Fisheries also designates Species of Concern, and those species may have elevated risk because of

11 NYSDEC 2017; Stock Assessment Review Index (SARI) Search, NOAA Fisheries; Essential Fish Habitat Mapper, NOAA Fisheries; NYSDEC Statewide Seagrass Benthic Habitat Data, 2021.
12 https://www.dec.ny.gov/lands/110813.html
13 https://www.dec.ny.gov/docs/wildlife_pdf/wetart24a.pdf

that status. Further, major commercial fish species are a concern because of the relationship of these species to fisheries and food security.

8.2.7.2 Optimize for environmental considerations in design choices

Potential impacts to fish and invertebrates and their habitats include damage to the seabed, localized increases in sound and turbidity, electromagnetic fields (EMF), scour, vessel strike, and contaminant release. To minimize these risks to fish, invertebrates, and their habitats, **we will optimize for environmental considerations in our design choices** to the extent practicable. [redacted] We are also actively studying other forms of mitigation for cable crossings, including frond mattresses and other mattresses with nature inclusive design elements. We have committed additional resources to support habitat improvement research and technology. [redacted]

Additional details and mitigation activities related to our commitment to reducing impacts to fish, invertebrates, and their habitats can also be found in the Fisheries Mitigation Plan (Section 8.1).

8.2.7.3 Support monitoring pre- and post- construction

Pre- and post-construction study techniques and literature review to establish an ecological baseline and assess potential change post-construction will be developed in collaboration with scientific researchers and agencies to implement methods that are comparable and statistically robust. We are **committed to establishing pre- and post- construction survey methods that will focus on collecting the data necessary to support question-driven science**. [redacted]

We are developing our monitoring program in collaboration with the Northeast Fisheries Science Center (NEFSC) under a recently executed cooperative research and development agreement (CRADA) further described in Section 8.1. [redacted]

[redacted]

8.2.8 Considerations for subsea and onshore cables

We recognize the challenges in developing the routing and installation of subsea and onshore cables in a manner that avoids or minimizes impacts to the marine and terrestrial environment, and various ocean and onshore stakeholders. We are committed to avoiding and minimizing these impacts to the extent practicable. We have **identified the impacts of both subsea and onshore cables** in order to develop effective solutions. Our approach to subsea and onshore cables involves three main components:

- Early and often stakeholder engagement
- Strategic cable routing and burial methods
- Periodic surveying of subsea and overland cables

8.2.8.1 Identification of cable-related impacts

Both subsea and onshore cables have potential impacts to marine and coastal taxa as described in the taxa-focused sections above, including temporary disturbance associated with pre- and post-installation surveys, cable installation, cable maintenance activities, and cable removal or decommissioning in place.

Subsea cables. Stressors associated with subsea cables include the potential release of contaminants and turbidity associated with bottom disturbance; sound associated with surveys, installation, maintenance, decommissioning, and associated vessels; and potential EMF, heat, and vibration that can result from transfer of electricity through cables. If unburied or insufficiently buried, cables can pose a risk to fisheries, mariners, and anchoring activities on the bottom. Finally, monitoring subsea cables can be disturbing to wildlife and ocean users through underwater sound and additional vessel traffic.

Onshore cables. Stressors associated with onshore cables include potential habitat fragmentation, sound, emissions, ground disturbance, short-term increases in traffic or effects to traffic flow, and potential EMF, heat, and vibration that can result from transmission of electricity through cables. Sensitive habitats in coastal regions, such as wetlands and beaches, have the potential to be disturbed, and habitats that support wildlife, including state and federally listed endangered species, may also be disturbed.

8.2.8.2 Early and often stakeholder engagement

We will **engage early and often during the development process to determine the best subsea**

and onshore cable route alternatives that work from both a technical and stakeholder perspective. The proposed route for the onshore cables will navigate through various residential, commercial, and industrial neighborhoods, potentially impacting residents. Local stakeholder engagement in the form of notices in local papers, local public meetings, and clearly described activities and timing on our website and social media accounts with the opportunity to receive feedback online will help engage residents and community members and assist in planning onshore cable routes and associated activities, such as survey work.

We **commit to engagement with local governments to work toward compliance with local ordinances** and to reach a larger constituency of stakeholders at the local level starting during planning and early development phases. Mitigation and monitoring measures will continue to be added to the Environmental Mitigation Plan as stakeholder engagement processes and the regulatory environmental review process continues through development of the design and implementation of the project. Article VII and federal permitting will play a large role in assessing and mitigating impacts and developing long-term monitoring of onshore transmission cables, and we understand the substantive public engagement necessary to meet the needs of this permitting, including engagement with communities in alternative cable route areas.

8.2.8.3 Strategic cable routing and burial methods

We have a comprehensive understanding of how responsible cable management can reduce impacts to surrounding ecosystems, habitats, and communities. [redacted]

[redacted]

[redacted]

[redacted]

8.2.8.4 Periodic surveying of subsea and overland cables

We will work with New York State to **develop a regular, periodic survey approach to verify the integrity of subsea cables** and stability of their locations and burial depth or otherwise report on any shifts in subsea cable locations, as buried subsea cables can move, particularly with heavy storms or other such disturbances. Although no problems are anticipated, we commit to addressing any problem with subsea cables becoming exposed as quickly as practicable.

New autonomous technologies are being developed, such as Woods Hole Oceanographic Institute's REMUS 600 Autonomous Underwater Vessel, to minimize disturbance during subsea cable monitoring and maintenance. We **commit to supporting research on technologies that will help to improve the ability to effectively monitor subsea cables while minimizing disturbance** to wildlife, habitats, and ocean users. The specifics of this support will be developed through collaborations with local fisheries, the RWSC, ROSA, and academic partners.

8.2.9 Additional considerations

In addition to the other elements of our Environmental Mitigation Plan, we are focused on two additional objectives:

- Support collaborative research on potential mitigation strategies
- Actively enhance habitats and communities in and around the Lease Area

8.2.9.1 Support collaborative research on potential mitigation strategies

We commit to supporting collaborative research on potential mitigation strategies and BMPs with other developers, agencies, and stakeholders. We seek to develop strong collaborations with

agencies, researchers, non-government organizations, Environmental Justice, Underserved, and Disadvantaged Communities and Businesses, Tribes/Tribal Nations, fisheries, and other stakeholders to support research and mitigation that addresses priorities, focuses on question-driven science, fills both fine-scale and broad-scale data gaps, and delivers robust actionable outcomes.

The NYSERDA State of the Science Workshop 2022 provided a substantive list of potential collaborators for environmental research and monitoring, and we are **also committed to advancing technologies that will improve mitigation and monitoring and minimize impacts of offshore wind on the environment**. Our overarching strategy for refining the Environmental Mitigation Plan is to leverage ongoing work and the frameworks of scientific and stakeholder engagement developed by NYSERDA, RWSC, ROSA, the E-TWG, the F-TWG, and others.

[redacted]

[redacted]

8.2.10 Project decommissioning

While decommissioning may be over 40 years away, we take a holistic approach to the development of the project and recognize that is never too early to start planning for this phase. We aim for net positive biodiversity outcomes above and below the water line and believe that decommissioning of the project will also play an important role in achieving this goal. Our approach to project decommissioning focuses on two main objectives:

- Develop a living decommissioning plan
- Leverage the latest research, technological advances, and lessons learned

8.2.10.1 Develop a living Decommissioning Plan

We believe that developing a living Decommissioning Plan early with updates through the life cycle of the project will improve decommissioning outcomes and reduce impacts. To streamline decommissioning, concepts will be integrated into the project infrastructure design. For example, lifting trunnions or pad eyes used to install the substructures, jacket, and topsides deck for the offshore substations will be designed to be left on the relevant structures and maintained with the facilities certified lifting equipment register. Other provisions that can be made during the initial design of the facilities will be to allow permanently allocated "hard points" for winch bases that would be used for the initial pull in of the cables as these will also be used for the final lowering and wet parking, as applicable, at the end of field life.

We will **identify applicable federal, state, and local regulations associated with decommissioning activities** and continue to update this information over the lifetime of the project as regulatory requirements change. The initial Decommissioning Plan will be based on current regulations and outcomes of stakeholder engagement, the COP process, and EIS that will likely complement the COP process.

We plan to **conduct a survey prior to decommissioning to identify the state of marine resources and habitats**, as it is expected that marine life will adapt to, and potentially develop a dependence on, infrastructure during operations of the wind farm. This survey would be conducted in accordance with requirements at the time and in collaboration with expert contractors. The findings of this survey will allow us to refine the project Decommissioning Plan to clearly address impacts on marine wildlife and fisheries in their current state before decommissioning is slated to begin.

8.2.10.2 Leverage the latest research, technological advances, and lessons learned

The **mitigation measures for decommissioning will be developed in collaboration with stakeholders and regulators** using the best available science closer to the time of decommissioning. Ongoing collaborations with RWSC, ROSA, and others will be used to support science around minimizing impacts of decommissioning, developing mitigation, and monitoring, and

determining the best decommissioning measures to minimize the disturbance to wildlife, habitats, and fisheries in the short- and long-term.

Ongoing academic and other research collaborations will provide more information about potential decommissioning impacts, opportunities to reuse and recycle materials, and ways to mitigate environmental effects of decommissioning activities. This **research and related innovations will inform the Decommissioning Plan**. [redacted]

We have also already identified potential opportunities to recycle certain equipment. For example, RWE is already using recyclable blades on the Kaskasi wind farm in Germany.[14] We are committed to evaluating and identifying best practices to recycle parts and will examine the potential for recycling and reusing as part of evaluating equipment for use in the wind farm. Parts that cannot be recycled and must be removed will be disposed of in a safe and environmentally responsible manner as determined in collaboration with regulators and stakeholders at that time. Opportunity for future upgrades to physical structures rather than disassembly or replacement will also be considered as technology advances.

14 A description of the recyclable blades used in the Kaskasi Project can be found at https://www.siemensgamesa.com/en-int/newsroom/2022/07/080122-siemens- gamesa-press-release-recycle-wind-blade-offshore-kaskasi-germany

Section 8.2 – Environmental Mitigation Plan Standard Component

NYSERDA 2022 OFFSHORE WIND SOLICITATION ORECRFP23-1

Environmental Mitigation Plan

Public Version

Community Offshore Wind LLC

Lease OCS-A0539

COMMUNITY offshore wind

local clean energy for all

nationalgrid | RWE

Environmental Mitigation Plan
for
Community Offshore Wind

Version 1.0

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

with

New York State Energy Research and Development Authority

Albany, NY

Prepared by

Community Offshore Wind, LLC

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January 2024

Record of revision

Revision date	Description of changes	Revision on pages
25 January 2024	Initial plan submission	All (first version of document)

Key personnel and contact information

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List of acronyms and abbreviations

AMAPPS	Atlantic Marine Assessment Program for Protected Species
BMP	Best Management Practice
BOEM	Bureau of Ocean Energy Management
CFR	Code of Federal Regulations
Community Offshore Wind	Community Offshore Wind LLC
COP	Construction and Operations Plan
EFH	Essential Fish Habitat
EMP	Environmental Mitigation Plan
EMF	Electromagnetic Fields
ESA	Endangered Species Act
E-TWG	Environmental Technical Working Group
FR	Federal Register
F-TWG	Fisheries Technical Working Groups
HAPC	Habitat Areas of Particular Concern
MAFMC	Mid-Atlantic Fishery Management Council
Motus	Motus Wildlife Tracking System
MMPA	Marine Mammal Protection Act
NEFMC	New England Fishery Management Council
NGOs	Non-government organizations
NMFS	National Marine Fisheries Service (NOAA Fisheries)
NOAA	National Oceanic and Atmospheric Administration
NOWRDC	National Offshore Wind Research and Development Consortium
NRHA	Northeast Regional Marine Fish Habitat Assessment
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSERDA	New York State Research and Development Authority
ORECRFP23-1	Offshore Wind Renewable Energy Certificate Request for Proposals 2023-1
PAM	Passive Acoustic Monitoring
PEIS	Programmatic Environmental Impact Statement
PSO	Protected Species Observer
ROSA	Responsible Offshore Science Alliance
RWSC	Regional Wildlife Science Collaborative
SAV	Submerged Aquatic Vegetation
SHPO	Office of Parks, Recreation and Historic Preservation State Historic Preservation Office
THPO	Tribal Historic Preservation Office
US	United States of America
USFWS	US Fish and Wildlife Service

1 Summary

1.1 Overall philosophy and principles

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

- Community Offshore Wind, LLC (Community Offshore Wind) is committed to delivering sustainable energy safely, reliably, and efficiently to the communities we serve. It is important that everyone enjoys the benefits of the clean energy transition – no one should be left behind. It is Community Offshore Wind's goal to build strong sustainable communities for the future.
- Community Offshore Wind believes that offshore wind projects should:
    - Achieve net positive biodiversity outcomes above and below the water line
    - Advance and apply science to planning, construction, operations, and decommissioning of projects
    - Provide relevant data to the public to the maximum extent practicable as quickly as practicable
    - Collaborate with researchers, regulators, and other stakeholders to address concerns and support adaptive management
    - Engage in meaningful dialogue with stakeholders with reciprocal learning and sharing
    - Collaborate with Environmental Justice and Disadvantaged and Underserved communities and businesses to accrue maximum benefit to them and avoid disproportionate adverse impacts to these stakeholders
    - Minimize and mitigate potential environmental impacts while maintaining low costs to ratepayers and strong opportunities for local workforce development
    - Help address climate change through responsible offshore wind development with net positive outcomes for the environment
    - Be transparent and accountable
    - Be actively engaged in communities beyond offshore wind development, seeking ways to contribute to sustainability, environmental stewardship, and socioeconomic and environmental equity
- Community Offshore Wind will use the best available science, stakeholder feedback, and lessons learned from other applicable offshore wind offshore windfarms in considering site characterization, site design, construction, operations, and decommissioning. This synthesis will allow Community Offshore Wind to achieve our goals by applying the following objectives:
    - Avoid, minimize, mitigate, restore, and offset potential environmental impacts from the proposed Project
    - Apply and advance research to study impacts of mitigation efficacy
    - Use a transparent and collaborative approach

1.2 Overall approach to incorporating data and stakeholder feedback

This section should describe how Community Offshore Wind will use research, data, and stakeholder feedback to update the EMP and support decision-making throughout the life cycle of the project (preconstruction, surveys, site design, construction, operations, and decommissioning).

- Community Offshore Wind has begun and will continue *to seek consultation and coordinate with relevant stakeholders.*
- *Community Offshore Wind shall review existing research and data and seek input from stakeholders regarding data gaps to inform decisions made throughout the Project life cycle*. This assessment will start with literature review and engagement with the New York State Energy Research and Development Authority (NYSERDA) Environmental Technical Working Group (E-TWG), NYSERDA Fisheries Technical Working Group (F-TWG), Responsible Offshore Science Alliance (ROSA), Regional Wildlife Science Collaborative (RWSC), NYSERDA, New York State Department of Environmental Conservation (NYSDEC), New York State Department of State (NYSDOS), and academic institutions/research groups.
- *Community Offshore Wind shall review and seek input from stakeholders on proposed and conducted survey rationales and methodologies as well as design, construction and operation, and decommissioning plans for the Project.*
- *To the extent that the timeline allows, pre- and post-construction monitoring will be designed to improve the understanding of impacts of offshore wind energy development and operations on wildlife.*
- Consistent stakeholder engagement throughout the Project life cycle will support inclusive decision making; build support for offshore wind; avoid, minimize, and mitigate potential impacts and conflicts; and meet the critical goals of the New York Climate Leadership and Community Protection Act.
- Community Offshore Wind agrees with the philosophies and recommendations expressed in NYSERDA's Guiding Principles for Offshore Wind Stakeholder Engagement, developed by the E-TWG[1] and have integrated the plan into stakeholder outreach and the Environmental Mitigation Plan (EMP).
- As will be the case for other offshore wind Projects that service New York State, Community Offshore Wind's Project will follow federal, state, and local requirements. Community Offshore Wind is committed to working with stakeholders to achieve community benefits and net positive environmental outcomes. This commitment will require community engagement exceeding the minimum requirements and is based on an "early and often" approach.
- Bureau of Ocean Energy Management's (BOEM's) ongoing development of a Programmatic Environmental Impact Statement (PEIS) will also be a resource to inform data gaps, identify priority impact issues, and add to lists of stakeholders with interest in wind development in New York Bight.
- Community Offshore Wind is committed to exploring coordination across lease holders to improve shared understanding and regional management of environmental resources.
- Community Offshore Wind is interested in finding strategies for the Project to become a platform of opportunity for long-term environmental research and will engage stakeholders in development of long-term study planning.

[1] Guidelines are accessible at https://www.nyetwg.com/_files/ugd/4b9f26_2686bf0d90064a11a781a4e71c3b43c2.pdf

- Engagement with the research and regulator communities will also support development of priority research questions and survey and monitoring methodologies that will result in statistically robust outcomes that directly address questions and integrate well into operations.

1.3 Existing guidance and best practices that will be followed

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

- There are a variety of guidance and best practices documents that Community Offshore Wind will take into consideration and use to develop Project-specific best management practices (BMPs). Table 1-1 provides an initial list of such documents and will be updated to include additional guidance documents as they are identified and made available.

Table 1-1 List of applicable guidance and best practices documents

Document name	Publication date	Author	Hyperlink	Environmental aspect
Guiding Principles for Offshore Wind: Stakeholder Engagement	2021	NYSERDA E-TWG	https://www.nyetwg.com/_files/ugd/4b9f26_2686bf0d90064a11a781a4e71c3b43c2.pdf	Guidelines for stakeholder engagement
Wildlife Data Standardization and Sharing: Environmental Data Transparency for New York State Offshore Wind Energy	2021	NYSERDA E-TWG	https://www.nyetwg.com/_files/ugd/78f0c4_89c7c20eee6b489883a432cc6f40ec4a.pdf	Data standardization and sharing recommendations
Summary of Discussions from the Bird and Bat Specialist Committee of the Environmental Technical Working Group Version 1.0	2020	NYSERDA E-TWG	https://www.nyetwg.com/_files/ugd/28f011_892425e964404236ae5fdc8d56554a77.pdf?index=true	BMPs related to minimizing impacts of offshore wind on birds and bats
Summary of Discussions from the Marine Mammal Specialist Committee of the Environmental Technical Working Group Version 1.0	2020	NYSERDA E-TWG	https://www.nyetwg.com/_files/ugd/28f011_cb8106518194470d8c6205fb0e16ab7c.pdf?index=true	BMPs related to minimizing impacts of offshore wind on marine mammals
Summary of Discussions from Specialist Committees of the Environmental Technical Working Group on the Topic of Regional Research and Monitoring Version 1.0	2020	NYSERDA E-TWG	https://www.nyetwg.com/_files/ugd/28f011_5c6fb167f0814aaba1e9e3a79249c0bf.pdf?index=true	Recommendations on regional research and monitoring

Document name	Publication date	Author	Hyperlink	Environmental aspect
New York State Research and Development Authority Mitigation and Monitoring Tool	2020	NYSERDA	https://www.nyftwg.com/mmp-tool/	Consolidated list of mitigation and monitoring measures to address wildlife and fisheries impacts from offshore wind
Data Management & Storage Best Practices for Long-Term and Archival Passive Acoustic Monitoring (PAM) Data	2022	RWSC	https://rwsc.org/wp-content/uploads/2022/12/RWSC-PAM-Data-Management-Storage-Best-Practices.pdf	Data standardization and sharing recommendations for PAM
Atlantic Offshore Wind Environmental Research Recommendations	2023	RWSC, NYSERDA, SEER, US DoD	https://tethys.pnnl.gov/atlantic-offshore-wind-environmental-research-recommendations	Data gaps and research needs
Letter of Concurrence from NOAA Fisheries to BOEM for Endangered Species Act (ESA) Compliance for Site Characterization and Assessment Activities	2021	NOAA Fisheries	https://www.boem.gov/sites/default/files/documents/renewable-energy/offshore wind-surveys-NLAA-programmatic.pdf	Project Design Criteria and BMPs based on ESA consultation for Site Characterization and Assessment activities
BOEM Project Design Criteria and Best Management Practices for Protected Species Associated with Offshore Wind Data Collection	2021	BOEM	https://www.boem.gov/sites/default/files/documents//PDCs%20and%20BMPs%20for%20Atlantic%20Data%20Collection%2011222021.pdf	Project Design Criteria and BMPs based on ESA consultation for Site Characterization and Assessment activities
Summary Report: Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species	2018	BOEM	https://www.boem.gov/sites/default/files/renewable-energy-program/Final-Summary-Report-for-BMP-Workshop-BOEM-2018-015-%281%29.pdf	Marine protected species potential impacts and mitigation and monitoring for Atlantic offshore wind development
Offshore Wind Best Management Practices Workshop	2014	Mid-Atlantic Fishery Management Council (MAFMC)	https://www.boem.gov/sites/default/files/renewable-energy-program/MAFMC-Offshore-Wind-Workshop.pdf	Feedback and recommendations on BMPs from BOEM's Draft Report on Best Management Practices and

Document name	Publication date	Author	Hyperlink	Environmental aspect
				Mitigation Measures (2013)
Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/ Grantees and Commercial Fishers on the Atlantic Outer Continental Shelf Report on Best Management Practices and Mitigation Measures	2013	BOEM	https://www.boem.gov/sites/default/files/renewable-energy-program/BOEM-BMP-Rpt_12Nov2013.pdf	Guidance for mitigating conflicts with commercial fisheries (BOEM is currently updating)
Identifying Information Needs and Approaches to Assessing Potential Impacts of Offshore Wind Farm Development on Fisheries Resources in the Northeast Region	2015	BOEM	https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Studies/Renewable-Energy/OCS-Study-BOEM-2015-037.pdf	Provides information on environmental impacts, suggested mitigation, suggested research protocols, priority research topics, and best management protocols for fisheries in the Mid-Atlantic relative to offshore wind development
Offshore Wind Project Monitoring Framework and Guidelines	2021	ROSA	https://4d715fff-7bce-4957-b10b-aead478f74f6.filesusr.com/ugd/99421e_b8932042e6e140ee84c5f8531c2530ab.pdf	Fisheries research approaches, data sharing and access, review process and standards (ongoing work on data standards and sharing and non-extractive sampling measures)
Report and Recommendations on Fisheries Resource Data Production, Storage, and Accessibility	2022	ROSA	https://www.rosascience.org/wp-content/uploads/2022/11/ROSA_Fisheries_Data_Report_Final-Recommendations_FINAL.pdf	Data standards for fisheries research

Document name	Publication date	Author	Hyperlink	Environmental aspect
Criteria for Prioritization of Offshore Wind Related Environmental and Fisheries Research	2022	NYSERDA and ROSA	https://www.rosascience.org/wp-content/uploads/2022/12/Joint-Prioritization-Criteria-Meeting-Summary_13-July13-2022.pdf	Initial criteria for research prioritization
Stakeholder Workshop: Guidance Document for Deploying Automated Radio Telemetry Stations on Offshore Wind Turbines and Buoys	2021	US Fish and Wildlife Service USFWS) and Biodiversity Research Institute	https://briwildlife.org/wp-content/uploads/2021/09/NYSERDA-offshore-wind-automated-radio-telemetry-Guidance-document-workshop-report-2021-final.pdf	As Motus Wildlife Tracking System (Motus) guidelines are finalized by USFWS, Community Offshore Wind will apply these guidelines for deployment, calibration, and data collection and sharing
Mid-Atlantic Regional Ocean Action Plan	2016	Mid-Atlantic Regional Planning Body	https://www.boem.gov/sites/default/files/environmental-stewardship/Mid-Atlantic-Regional-Planning-Body/Mid-Atlantic-Regional- Ocean-Action-Plan.pdf	Includes Best Practices for use of data; coordination among agencies and stakeholders; data sources; a framework for identification of ecologically rich areas; Tribal uses; actions to promote a healthy ocean ecosystem
30 Code of Federal Regulations (CFR) 585	2011	BOEM	https://www.law.cornell.edu/cfr/text/30/part-585#:~:text=OUTER%20CONTINENTAL%20SHELF-,30%20CFR%20Part%20585%20%2D%20RENEWABLE%20ENERGY%20AND%20ALTERNATE%20USES%20OF,ON%20THE%20OUTER%20CONTINENTAL%20SHELF	Regulations pertaining to Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf
Lease OCS-A 0539 Stipulations	2022	BOEM	https://www.boem.gov/sites/default/files/docu	Executed Lease Agreement between

Document name	Publication date	Author	Hyperlink	Environmental aspect
			ments/renewable-energy/state-activities/Lease%20OCS-A%200539_0.pdf	BOEM and Community Offshore Wind; Lease specific conditions in Addendum C
BOEM Decision Memorandum, New York Bight Final Sale Notice	2021	BOEM	https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/ATLW-8-NY-Bight-Final-Lease-Sale-Decision-Memorandum.pdf	Description of Lease stipulations and consultation processes and outcomes
National Oceanic and Atmospheric Administration (NOAA) and BOEM Minimum Recommendations for Use of Passive Acoustic Monitoring	2021	BOEM and NOAA	https://www.frontiersin.org/articles/10.3389/fmars.2021.760840/full	Approaches to passive acoustic monitoring for scientific data collection
Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0)	2018	NOAA	https://media.fisheries.noaa.gov/dam-migration/tech_memo_acoustic_guidance_(20)_(pdf)_508.pdf	Guidance for assessing effects of sound on marine mammal hearing
Interim recommendation for sound source level and propagation analysis for high resolution geophysical sources	2020	NOAA	https://www.researchgate.net/publication/341822965_INTERIM_RECOMMENDATION_FOR_SOUND_SOURCE_LEVEL_AND_PROPAGATION_ANALYSIS_FOR_HIGH_RESOLUTION_GEOPHYSICAL_HRG_SOURCES	Recommendations for assessing the sound source levels of high resolution geophysical sound sources and sound propagation for Marine Mammal Protection Act (MMPA) permitting
Information Guidelines for a Renewable Energy Construction and Operations Plan (COP) - Version 4.0	2020	BOEM	https://www.boem.gov/sites/default/files/documents/about-boem/COP%20Guidelines.pdf	Guidelines for information and studies associated with development of a COP
Guidelines for Information Requirements for a Renewable Energy Site Assessment Plan	2019	BOEM	https://www.boem.gov/sites/default/files/renewable-energy-program/BOEM-	Guidelines for information and studies associated with development of

Document name	Publication date	Author	Hyperlink	Environmental aspect
			Renewable-SAP-Guidelines.pdf	a Site Assessment Plan
Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf of the United States	2021	BOEM	https://www.boem.gov/sites/default/files/documents/environment/environmental-studies/BOEM-2021-032.pdf	Method for assessing potential seascape, landscape, and visual impacts for offshore wind projects
Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585	2020	BOEM	https://www.boem.gov/sites/default/files/documents/about-boem/Archaeology%20and%20Historic%20Property%20Guidelines.pdf	Guidelines for information and assessment of archaeological and historic properties
Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585	2019	BOEM	https://www.boem.gov/sites/default/files/renewable-energy-program/Regulatory-Information/BOEM-Renewable-Benthic-Habitat-Guidelines.pdf	Guidelines for collecting benthic habitat data to inform consultations and avoid impacts
Essential Fish Habitat (EFH) Assessment for Consultations - Guidelines for completing an EFH assessment	2022	NOAA	https://media.fisheries.noaa.gov/2022-01/03-201-11_GUIDE%20to%20EFH%20CONSULTATIONS_final%20for%20signature%20%281%29_0.pdf	Description of EFH consultation needs
Guidance for Carrying Out ESA Section 7 Consultations with NOAA Fisheries Greater Atlantic Regional Fisheries Office	2023	NOAA	https://www.fisheries.noaa.gov/s3/2023-07/GARFO-ESA-Section-7-Technical-Guidance-07122023-508.pdf	Description of ESA consultation needs
Updated Recommendations for Mapping Fish Habitat	2021	NOAA	https://media.fisheries.noaa.gov/2021-03/March292021_NMFS_Habitat_Mapping_Recommendations.pdf?null	Complementary guidance to BOEM's Guidelines for Providing Benthic Habitat Surveys
Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585	2020	BOEM	https://www.boem.gov/sites/default/files/documents/about-boem/GG-Guidelines.pdf	Guidelines for providing data from geophysical and geotechnical surveys

Document name	Publication date	Author	Hyperlink	Environmental aspect
NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy – Northeast U.S. Region[2]	2022	NOAA and BOEM	https://media.fisheries.noaa.gov/2022-03/NOAA%20Fisheries-and-BOEM-Federal-Survey-Mitigation_Strategy_DRAFT_508.pdf	Mitigation strategy for minimizing impacts to NOAA Fisheries management surveys
Guidelines for Submission of Spatial Data for Atlantic Offshore Renewable Energy Development Site Characterization Surveys	2013	BOEM	https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/Regulatory_Information/Spatial_Data_Guidelines.pdf	Guidelines for survey data
Guidelines for Providing Avian Survey Information for Renewable Energy Development on the Outer Continental Shelf Pursuant to 30 CFR Part 585	2020	BOEM	https://www.boem.gov/sites/default/files/documents/newsroom/Avian%20Survey%20Guidelines.pdf	Guidelines for conducting and reporting on avian surveys
Guidelines for Providing Information on Fisheries for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585	2019	BOEM	https://www.boem.gov/sites/default/files/renewable-energy-program/Regulatory-Information/BOEM-Fishery-Guidelines.pdf	Guidelines for fisheries research and data
Draft Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on Outer Continental Shelf Pursuant to 30 CFR Part 585	2022	BOEM	https://www.boem.gov/sites/default/files/documents/renewable-energy/DRAFT%20Fisheries%20Mitigation%20Guidance%2006232022_0.pdf	Update to guidelines for mitigation fisheries impacts[2]
Guidelines for Providing Information on Marine Mammals and Sea Turtles for Renewable Energy Development on the Atlantic Outer Continental	2019	BOEM	https://www.boem.gov/sites/default/files/renewable-energy-program/Regulatory-Information/BOEM-Marine-Mammals-and-	Guidelines for conducting research and reporting on marine mammal and sea turtle surveys

[2] Community Offshore Wind will follow progress on BOEM's update of fisheries mitigation guidelines and update the EMP as new guidelines become available.

Document name	Publication date	Author	Hyperlink	Environmental aspect
Shelf Pursuant to 30 CFR Part 585			Sea-Turtles-Guidelines.pdf	
Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development	2021	BOEM	https://www.boem.gov/sites/default/files/documents/renewable-energy/2021-Lighting-and-Marking-Guidelines.pdf#:~:text=All%20turbines%20above%20499%20ft,minimize%20visual%20impacts%20from%20lighting.	Guidelines for lighting and marking structures that include recommendations to avoid undue harm or damage to natural resources, environments, and archaeological resources
Draft BOEM and NOAA Fisheries North Atlantic Right Whale and Offshore Wind Strategy	2022	BOEM and NOAA	https://www.boem.gov/sites/default/files/documents/environment/BOEM_NMFS_DRAFT_NARW_OSW_Strategy.pdf	Strategies for minimizing impacts and monitoring right whales
Final Information Needed for Issuance of a Notice of Intent (NOI) Under the National Environmental Policy Act (NEPA) for a Construction and Operations Plan (COP)	2023	BOEM	https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/BOEM%20NOI%20Checklist.pdf	Checklist of information required in COP to move forward to NOI under NEPA
Nationwide Recommendations for Impact Pile Driving Sound Exposure Modeling and Sound Field Measurement for Offshore Wind Construction and Operations Plans	2023	BOEM	https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/FINAL%20Nationwide%20Recommendations%20for%20Impact%20Pile%20Driving%20Sound%20Exposure%20Modeling%20and%20Sound%20Field%20Measurement%20%28Acoustic%20Modeling%20Guidance%29.pdf	Guidelines for modeling exposure of animals to impact pile driving sound
Draft RWSC Science Plan	2023	RWSC	https://rwsc.org/wp-content/uploads/2023/06/RWSC-Draft-Science-Plan-June-30-2023.pdf	Recommendations for data collection, research, and coordination for assessing impacts of offshore wind on sea turtles, habitats and ecosystems, marine mammals, birds, bats, and fish

2 Communications and collaboration approach

2.1 Overview and communications plan objectives

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

- *Community Offshore Wind will seek methods and processes to allow for a two-way flow of information between key stakeholders and developers, specifically highlighting how we use this feedback to inform their decision making.*
- *Community Offshore Wind will provide updates to environmental stakeholders in an appropriate manner that will be easily accessed and widely distributed.*
- Community Offshore Wind will integrate and expand the required Native American Tribes, Fisheries, and Agency Communication Plans and has developed a Stakeholder Engagement Plan (see response to Appendix E of Offshore Wind Renewable Energy Certificate Request for Proposals 2023-1 [ORECRFP23-1]) that demonstrates Community Offshore Wind's commitment to working collaboratively with all stakeholders and reporting engagement activities and progress during regular updates to NYSERDA.
- Community Offshore Wind will set up a communication procedure to ensure correspondence occurs throughout survey work, design, construction, operation, and decommissioning of the Project. There will be regular communication with the E-TWG, F-TWG, M-TWG, ROSA, and RWSC, to name a few collaborative groups, as well as via engagement with New York State agencies during each phase of the Project.
- Community Offshore Wind's website and social media pages will continue to provide information and be an avenue for stakeholders to engage with Community Offshore Wind, while in-person meetings, community workshops, and open houses will be used to seek face-to-face engagement, with other tools, such as print media, to be used for those who may be unable to or prefer to engage online.
- Community Offshore Wind will develop communication approaches that are specific to and appropriate for each stakeholder group, including response turnaround time, language, and differing priorities.
- Community Offshore Wind will work to identify barriers to participation and address them and will acknowledge the contributions and expertise of stakeholders.
- Community Offshore Wind will develop metrics to measure success of stakeholder engagement practices.
- Community Offshore Wind will develop and coordinate internal review processes to ensure consistent messaging is communicated to various stakeholder groups and information from stakeholders is shared with internal decision-makers in a timely and clear fashion.
- Community Offshore Wind will work with offshore wind developers, NYSERDA, BOEM, and others who are engaging with stakeholders regularly to minimize stakeholder fatigue, consolidate engagement as feasible and appropriate, and leverage existing fora for communications (such as webinar platforms and existing websites and programs, for example, NYSERDA's Offshore Wind Youth Action Program).
- Community Offshore Wind will ensure Tribes/Tribal Nations are partners and the Project reflects the needs and interests of Indigenous citizens and territories.

- Community Offshore Wind will ensure Disadvantaged, Underserved, and Environmental Justice communities, minority- and women-owned businesses, and service-disabled veteran-owned businesses are partners who benefit from the Community Offshore Wind Project.
- Community Offshore Wind commits to providing appropriate and reasonable translation services for information, Americans with Disabilities Act compliant outreach and engagement materials, and engagement using a variety of media and in-person and virtual platforms to ensure broad reach and accessibility. In-person meetings will consider the ability of individuals to attend as times, days, and locations are chosen. Services like language interpretation and childcare will be considered in the context of the type of engagement and the stakeholders involved.

2.2 Communication officers/positions, responsibilities, and contact information

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

- Table 2-1 provides a list of Community Offshore Wind communication officers, roles, names, and contact information should stakeholders wish to contact Community Offshore Wind personnel directly with any questions, issues, or concerns throughout the life of the Project. Community Offshore Wind will continue to update this list as part of EMP updates.
- Stakeholders may also find additional information such as Project updates and contact information for team members at https://communityoffshorewind.com/.

Table 2-1 List of Community Offshore Wind communications officers

Name/title	Role/responsibilities	Contact information
Douglas Perkins President and Project Director	Oversees overall development of the project	[redacted]
Patrick Johnson Vice President and Deputy Project Director	Oversees overall development of the project	[redacted]
Joel Southall Manager of Environmental Affairs & Sustainability	Primary point of contact for the Environmental Mitigation Plan E-TWG Representative (primary)	[redacted]
Daniel Sieger Head of Development	Oversees the development of the project, including environmental affairs	[redacted]
Katherine Miller Federal Permitting Manager	Secondary point of contact for the Environmental Mitigation Plan E-TWG Representative (Secondary)	[redacted]
Rick Robins Marine Affairs Manager	Primary point of contact for marine affairs and commercial/recreational fisheries, F-TWG Representative M-TWG Representative	[redacted]
Natalie Terhaar Community Engagement Manager	Primary point of contact for community engagement activities	[redacted]

2.3 Identification of stakeholders and tribes/tribal nations

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

- Stakeholder identification has started with the development of the Tribes/Tribal Nations, Agency, and Fisheries Communication Plans and community outreach.
- Community Offshore Wind has also developed a Stakeholder Engagement Plan (see response to ORECRFP23-1 Appendix E) that includes the approach to engagement and metrics for measuring success of engagement for stakeholders interested in all aspects of the Project, including the EMP and environmental impacts.
- Stakeholder identification was initially based on the existing connections and knowledge of relevant stakeholders from the Community Offshore Wind team. Further identification of stakeholders focused on the use of publicly available information, such as public comments on federal and state actions, fisheries data online and requested from NOAA Fisheries, ongoing engagement between BOEM and the public on PEIS development, engagement associated with permitting and state and federal requirements, engagement by Community Offshore Wind's fisheries liaisons, census data that can help identify Environmental Justice and Disadvantaged communities and businesses, and engagement with organizations such as RWSC, ROSA, the E-TWG, and the F-TWG, including the RWSC database on scientific research and researchers. The stakeholder contact list will continue to be developed and updated as the Project development progresses.

[redacted]

2.4 Participation in stakeholder and technical working groups

2.4.1 Communication with environmental–technical working group (E-TWG)

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

- *Community Offshore Wind shall have dedicated Project-specific technical resources to the E-TWG*. Community Offshore Wind has assigned Joel Southall as the primary member for E-TWG attendance and communication, with Katherine Miller as the secondary (back-up) member.
- Community Offshore Wind will also provide other team members to attend workshops and meetings as appropriate to provide expertise and technical resources of interest to the E-TWG and its working groups, as well as jobs and supply chain and other potential technical working groups to ensure industry coordination.
- *To the extent practicable, Community Offshore Wind will work with the E-TWG and will attend E-TWG*

meetings and workshops. Community Offshore Wind is committed to being an active member of the E-TWG and attending meetings and workshops to the extent practicable.

- *Community Offshore Wind shall identify specific individuals to serve at least one-year terms in the role of primary and secondary core members*. The individuals noted above are committed to at least one-year terms, and if for any reason one becomes unavailable (e.g., maternity leave), Community Offshore Wind will assign another person if it is necessary to ensure there are always two people with direct responsibility to engagement with the E-TWG.
- Community Offshore Wind also commits to attending and participating as appropriate in the NYSERDA State of the Science Workshops, which are an important part of collaboration and communication for the E-TWG and the research community. Community Offshore Wind was pleased to attend the State of the Science workshop in Tarrytown, New York, in July 2022 and looks forward to attending the State of the Science workshop on Long Island, New York, in July 2024.

2.4.2 Communication with New York State agencies

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

- Community Offshore Wind commits to continue consultation with New York State agencies as outlined in Section 2.2.5 of the ORECRFP23-1.
- Early and periodic informal consultations will be conducted to narrow issues and streamline the formal processes of consultation and permitting.
- The specific consultation process described in Section 2.2.5 of the ORECRFP23-1 will be followed to achieve parallel processes to BOEM and transparency for and understanding of the Project.
- Community Offshore Wind has developed an Agency Communications Plan, as required in Lease OCS-A 0539, which outlines strategies for agency communication and has been submitted to BOEM and applicable federal and state agencies. This Plan includes various New York State agencies, including NYSDOS, NYSDEC, New York State Department of Public Service, New York State Office of Parks, Recreation, and Historic Preservation (SHPO), and New York State Department of Transportation. A summary of the proposed engagement with each agency throughout the stages of Project development is provided within the Agency Communications Plan, which is available for review on our website: communityoffshorewind.com

2.4.3 Communication with other stakeholders and working Groups

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

- Community Offshore Wind will couple efforts to support communication with stakeholder groups of our recent provisional award in NYSERDA's Third Solicitation (ORECRFP22-1) within the plan being proposed for ORECRFP23-1, where appropriate, to minimize stakeholder fatigue.
- *Community Offshore Wind shall continue to collaborate with other regulatory agencies and stakeholder groups and consider memberships and participation in such collaborative efforts (e.g., E-TWG, F-TWG, ROSA, RWSE, etc.).*
- *If awarded an Agreement, Community Offshore Wind commits to continue to reasonably participate in the*

Environmental, Commercial and Recreational Fishing, Maritime, and Jobs and Supply Chain Technical Working Groups, as well as any other NYSERDA TWGs formed in the future covering other topics relevant to the Project. This includes participation in meetings and engaging with the relevant stakeholder groups within the working groups regarding the Community Offshore Wind Project.

- As described in Section 2.2.11 of the ORECRFP23-1, Community Offshore Wind commits to continuing to be an active Advisory Council Member of ROSA and an active Caucus Member of RWSC in good financial standing.
- Community Offshore Wind will continue to be engaged in the development of the RWSC science plan and the prioritization criteria for research funding being considered collaboratively among RWSC, ROSA, the E-TWG, and the F-TWG.
- Community Offshore Wind is committed to engaging in research and data collection, management, and sharing in collaboration with stakeholders and working groups in various organizations, with an expectation that much of the regional effort will be consolidated via the RWSC, ROSA, the E-TWG, and the F-TWG.
- Community Offshore Wind will continue to participate in working groups and subcommittees associated with RWSC, ROSA, the E-TWG, and the F-TWG. *Community Offshore Wind will also participate with NYSERDA in multi-state or regional coordination or collaboration efforts by request.*
- Community Offshore Wind will continue to evaluate participation in working groups as the EMP develops and will commit resources to attending and presenting as practicable at industry conferences, events, and webinars.

2.4.4 Communication and collaboration with other developers

This should describe any relevant participation and collaboration with other developers in the offshore space, with a focus on communication and collaboration with adjacent leaseholders. This may include but is not limited to shared research efforts, coordination of survey methods, or standardization of navigational and safety protocols.

- *Community Offshore Wind shall seek to maximize the impact of research efforts such as data collection, methodology, analysis, and dissemination by collaborating with other developers, particularly those in adjacent lease areas, taking on similar initiatives.*
- Community Offshore Wind understands the importance of collaborating with other developers in the New York Bight area, particularly those with lease areas in the vicinity of the Community Offshore Wind Lease OCS-A 0539 (the Lease Area). Community Offshore Wind has and will continue to engage with other New York Bight lessees and is committed to continually seek opportunities for collaboration to reduce stakeholder burden.

[redacted]

[redacted].

2.5 Communication methods and tools by phase

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

- Community Offshore Wind has developed a Stakeholder Engagement Plan (see response to Appendix E of ORECRFP23-1). Community Offshore Wind has also developed three communication plans as part of Lease OCS-A 0539: a Native American Tribes, Fisheries, and Agency Communication Plans. These plans identify proposed communication strategies to the respective stakeholders for each phase of the Project, which are captured in Table 2-2. Content in Table 2-2 is not an exhaustive list of stakeholders or tools but represents the baseline of our EMP communications approach that can and will be expanded as more stakeholders and tools are identified.
- Community Offshore Wind has developed positions that have a dedicated responsibility to stakeholder engagement and communications across the organization (see Stakeholder Engagement Plan for additional information). Community Offshore Wind will keep NYSERDA, and other New York State agencies apprised of any changes in points of contact regarding stakeholder outreach and communications.
- Approaches and tools will be updated as stakeholders express their preferred methods of communication and as mechanisms to better reach Environmental Justice and Disadvantaged communities and historically under-represented stakeholders, such as minority-owned businesses, are developed. Community Offshore Wind will follow-up with stakeholder groups who do not respond initially to ensure information communicated was received and appropriate opportunity for engagement was made available.
- Community Offshore Wind believes in reciprocal learning, a two-way communication strategy in which Community Offshore Wind and stakeholders will learn from each other through dialogue that will be both in-person and remote and made as convenient as practicable for stakeholders. For example, local public meetings may be held on a few different days and times to accommodate different work schedules, and opportunities for virtual participation will be developed as practicable to allow for the greatest level of participation.

Table 2-2 Communication methods and tools for tribes/tribal nations and stakeholders by phase

Proposed outreach method/tool	Phase*			
	1	2	3	4
Tribes/tribal nations				
[redacted]	X	X	X	X

[redacted]	X			
[redacted]	X	X		
[redacted]	X	X	X	X
[redacted]	X	X	X	X
Non-government organizations				
[redacted]	X			
[redacted]	X			
[redacted]	X	X	X	X
[redacted]	X	X	X	X
[redacted]	X	X	X	X
Fisheries				
[redacted]	X			
[redacted]	X	X	X	X
[redacted]	X	X	X	X
[redacted]	X	X	X	
[redacted]	X	X	X	X

[redacted]h	X	X	X	X
[redacted]	X	X	X	X
Agencies				
[redacted]	X	X	X	X
[redacted]	X	X	X	X
Affected communities/environmental justice/disadvantaged communities				
[redacted]	X			
[redacted]	X	X	X	X
[redacted]	X			
[redacted]	X	X	X	X
[redacted]	X	X	X	X
[redacted]	X	X	X	X
[redacted]	X	X	X	X
Other stakeholders				
[redacted]	X	X	X	X

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

3 Supporting other research

3.1 Support of collaborative research

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

- Community Offshore Wind commits to being an active member of regional science organizations. Community Offshore Wind commits to membership and active participation in the RWSC, ROSA, the E-TWG, the F-TWG and continued engagement with other industry organizations and their working groups, such as the Oceantic Network and American Cleanpower Association. Community Offshore Wind will continue to be active members of the National Offshore Wind Research and Development Consortium (NOWRDC), which affords an opportunity to both fund and provide technical advisory support to offshore wind research projects.
- Community Offshore Wind commits to examining opportunities for regional data collection, such as PAM, Motus receiver deployment, and surveys for protected species.
- [redacted] For a more complete description of both the environmental and fisheries mitigation initiatives see Table 8.11 in Section 8.1
- Community Offshore Wind commits to supporting a workshop for regional lease holders to engage in a discussion of how resources may be pooled to develop networks of sensors, autonomous systems, and other ongoing, long-term data gathering and analyses across the platforms of opportunity created by wind farms while maintaining commercial competition in the marketplace and properly handling proprietary information.
- The administration of funds for research will include both contributions to established collaborative funding sources, such as RWSC and ROSA, and potentially will include some directly funded projects with a focus on providing opportunities to historically under-represented groups, such as women and minorities, and development of research that benefits Environmental Justice, Underrepresented, and Disadvantaged communities and businesses.
- A rubric for evaluating research support that can contribute to regional collaboratives will be developed in collaboration with scientific experts, and the plans and priorities developed by collaboratives will be taken into consideration, including priorities developed through the Synthesis of Environmental Effects Research program[3] and NYSERDA and ROSA's collaboration on research prioritization criteria.[4]

[3] See https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Booklet.pdf
[4] See https://www.rosascience.org/wp-content/uploads/2022/12/Joint-Prioritization-Criteria-Meeting-Summary_13-July13-2022.pdf

3.2 Handling/processing requests

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

- The Data Management and Availability Plan will follow the guidelines in the Wildlife Data Standardization and Sharing: Environmental Data Transparency for New York State Offshore Wind Development (NYSERDA 2021a).
- Community Offshore Wind is committed to making data that are not commercially sensitive available as soon as practicable in publicly available data portals and sharing data for contribution to larger studies, models, technical reports, and peer-reviewed publications.
- Community Offshore Wind will assign an individual position with the responsibility for quality control, formatting of data, and removing commercially sensitive information from data to ensure Community Offshore Wind has resources and accountability for data sharing.
- Data will be packaged with metadata following protocols in guidance, such as those in NYSERDA 2021a and provided by ROSA for fisheries data management and protocols required by data portal managers.

3.3 Data availability

This section should describe how data will be made available in accordance with Section 2.2.8 of the RFP.

- Community Offshore Wind agrees to make publicly available, as practicable, any information or data and supporting metadata that are not commercially sensitive developed in furtherance of the Project and relate to environmental characteristics, or use by wildlife, of any offshore, nearshore or onshore areas, as well as any data sponsored or developed by Community Offshore Wind relating to the potential impacts of the construction, operation, or decommissioning of the Project on the environment and wildlife.
- Community Offshore Wind will work with collaborators to ensure underlying data, not just data products, are made available for download and are easily accessible in public data portals. Community Offshore Wind shares NYSERDA's strong focus on getting the maximum value from data collected during offshore wind development and ensuring that data can provide insights into cumulative impacts and inform adaptive management.
- *Community Offshore Wind will prepare a Data Management and Availability Plan which will be submitted to NYSERDA within 90 days of contract execution and will detail how data will be made available as soon as practicable.*
- Community Offshore Wind commits to working with scientific partners to ensure they have the appropriate ability to publish new science without tying up important datasets that can inform other studies focused on different questions.

- Community Offshore Wind will prioritize publication and will provide funding as part of research projects that ensures the resources available to develop peer-reviewed publications to make outcomes of studies broadly available and vetted within the scientific community.
- *Community Offshore Wind will not unreasonably withhold site accessibility for the advancement of third-party scientific and technological study and will work with New York State and other stakeholders to assess the most appropriate means of third-party scientific monitoring plan development and implementation, including addressing potential health and safety requirements.* Further, Community Offshore Wind will commit to coordinating with researchers to facilitate their efforts near our activities and infrastructure.
- *Community Offshore Wind will put funds toward data sharing and management internally and assigning an individual position the responsibility to serve as a point of contact and ensure timely release of data to portals and the public. Community Offshore Wind will curate its data to ensure that data can be packaged and shared upon request in a timely manner.*

3.4 Proposed restrictions

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

- *Community Offshore Wind will seek to explain why identified data types are considered commercially sensitive.*

[redacted]

- To promote mutual respect and trust, Community Offshore Wind is committed to keeping any sensitive information shared by Tribes/Tribal Nations during engagement activities confidential.
- Commercially sensitive data pertaining to fisheries may also be withheld or aggregated as appropriate.

3.5 Financial commitment for third party research

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

[redacted]

- Community Offshore Wind will continue to be engaged on the research prioritization criteria being developed collaboratively across ROSA, RWSC, and NYSERDA and with the ROSA and RWSC science plans for application to funding priorities over the lifetime of the Project.

3.6 Proposed or existing commitments/collaborations

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

- Community Offshore Wind is aware of a wide variety of ongoing research projects and research prioritization efforts, as noted throughout the EMP. The NYSERDA State of the Science Workshop in 2022 highlighted the significant body of research and large number of institutions and individuals engaged.
- Community Offshore Wind will leverage its engagement with RWSC, ROSA, the E-TWG, and the F-TWG, develop more engagement with the research arms of agencies (e.g., the NOAA Fisheries' Northeast Fisheries Science Center, BOEM Environmental Studies Program, and USFWS district offices), and engage with academic conferences for more direct engagement with researchers outside of the existing regional organizations A recently completed Cooperative Research and Development Agreement (CRADA) between Community Offshore Wind and the Northeast Fisheries Science Center has, in addition to work focused on fisheries research under the agreement, focused a significant portion of work on broader environmental and biological monitoring efforts.
- Community Offshore Wind's research support will be spread across large-scale regional projects and more local, specific questions.
- In addition to impact research, Community Offshore Wind seeks to understand the efficacy of mitigation measures, develop technologies that will collect more robust and more types of data, and understand how unavoidable impacts can be offset and remediated.
- Community Offshore Wind will prioritize a percentage of its research funding to support researchers who are from under-represented groups in science and/or focusing research on a topic that affects Environmental Justice, Underserved, and Disadvantaged communities and businesses.
- Community Offshore Wind has signed Memorandum of Understandings (MOUs) with AMSEAS, to further discuss potential future opportunities for collaboration and support.

4 Proposed mitigation of impacts to marine mammals and sea turtles

4.1 Baseline characterization

4.1.1 Available information

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

4.1.1.1 Marine mammals

- Over thirty marine mammal species have been known to reside in or transit through the New York Bight, including baleen whales, toothed whales (e.g., dolphins), and seals (Hayes et al. 2022), though not all these species commonly occur in the New York Bight.
- Most recent studies of the distribution and use patterns of marine mammals in the New York Bight include digital aerial surveys conducted by NYSERDA from 2016-2019 (Robinson Willmott et al. 2021; NYSERDA 2021b), large whale aerial surveys conducted by NYSDEC 2017-2020 (Zoidis et al. 2021), and regional vessel and aerial surveys conducted by NMFS in partnership with BOEM as part of the Atlantic Marine Assessment Program for Protected Species (AMAPPS)[5] that have been ongoing since 2010 and have more recently targeted Wind Energy Areas and Call Areas for directed survey work.
- Non-systematic surveys are also being used to evaluate whale presence and distribution in the New York Bight (King et al. 2021). In addition, PAM efforts to detect whales in the New York Bight have been conducted, with some still ongoing, including stationary acoustic recorders near the entrance to New York Harbor and extending from Long Island to the continental shelf edge (Muirhead et al. 2018), 15 bottom-mounted marine autonomous recording units extending outward from New York/New Jersey Harbor to the shelf break adjacent to two major shipping lanes (Estabrook et al. 2021), and autonomous fixed and mobile PAM systems deployed by Wildlife Conservation Society' New York Aquarium and Woods Hole Oceanographic Institution that send signals to satellites for near-real-time acoustic monitoring[6] (Zeh et al. 2021).
- Seasonal and spatial patterns of cetacean (whale, porpoise, and dolphin) distribution in the US Exclusive Economic Zone of the East Coast are captured in monthly density estimates based on ~25 years of survey data consolidated into models showing 5 X 5-kilometer grid squares for each species or guild (e.g., Mesoplodon beaked whales are combined as a guild because of few observations; Roberts et al. 2016; Curtice et al. 2019). The current versions of these models incorporate AMAPPS survey data and data collected by Zoidis et al. (2021). Because North Atlantic right whales are endangered and declining, additional survey efforts have been ongoing beyond the other surveys described above and continue to be incorporated into North Atlantic right whale population estimates (Pettis et al. 2021) and density models.[7] The density models predict higher use of New England waters than waters in New York Bight. Roberts et al. also map PAM detections in their latest data products.

[5] AMAPPS reports can be found at https://www.fisheries.noaa.gov/new-england-mid-atlantic/population-assessments/atlantic-marine- assessment-program-protected. Data from AMAPPS surveys are published on OBIS SeaMap (Halpin et al. 2009)

[6] Autonomous Real-time Marine Mammal Detections from a fixed buoy shown at http://dcs.whoi.edu/nyb0616/nyb0616.shtml

[7] Supplemental information provided by Roberts et al. with 2022 North Atlantic right whale density models indicates 13,428 sightings from 2003-2020 are included. These include surveys focused specifically on North Atlantic right whales, such as surveys by University of North

- In addition, Curtice et al. (2019) provides estimated at-sea seal densities[8]. The most common seals are gray and harbor seals, though harp and hooded seals also occur in the New York Bight (Hayes et al. 2022). Seals tend to migrate north of New York Bight during the warmer months and down into the New York Bight during the winter. Most rookeries are north of the New York Bight, but a possible gray seal rookery has been documented at Little Gull Island, Long Island as part of ongoing studies by the Coastal Research and Education Society of Long Island (Kopelman 2022a). These studies have identified 30 seal haul-out sites on Long Island with catalogs of individual seals observed at these sites over 16 years (Kopelman 2022b).
- Because of considerations around pile-driving sound, marine mammal impacts may be considered in the context of hearing capabilities. Cetaceans (whales, dolphins, and porpoises) are typically grouped into three hearing categories: high-frequency (porpoises and dwarf and pygmy sperm whales), mid-frequency (toothed whales and dolphins), and low-frequency (baleen whales; NOAA 2018). Seals are considered low-frequency specialists (NOAA 2018). For high-frequency cetaceans, seasonal predicted density in New York Bight is highest in the winter and spring across the continental shelf (Roberts et al. 2016[9]; Curtice et al. 2019; NYSERDA 2021b). This pattern is driven by seasonal harbor porpoise movements, with dwarf and pygmy sperm whales typically in low densities in deepwater offshore environments year-round. For mid-frequency cetaceans predicted concentrations in the New York Bight are highest along the Hudson Canyon and continental slope and Hudson Valley in winter, summer, and fall and dispersed across the continental shelf in spring (Roberts et al. 2016; Curtice et al. 2019; NYSERDA 2021b). For low-frequency cetaceans (excluding North Atlantic right whales), density is predicted to be the highest in the spring and summer along the Hudson valley and continental slope (Roberts et al. 2016; Curtice et al. 2019; Muirhead et al. 2018), though surveys by NYSERDA (2021b) found year-round presence of these species. Seals are dispersed in highest density in the northeastern corner of the New York Bight in fall, winter, and spring (Roberts et al. 2016).
- Because North Atlantic right whales are endangered and declining, this species is discussed separately here. The latest models updated from Roberts et al (2016) dated May 27, 2023, predicted the highest winter density of North Atlantic Right Whales in the New York Bight to be in the nearshore edge of the New York Bight; summer density estimates indicate distribution along the continental shelf in summer; and spring and fall density estimates suggest distribution along the eastern edge of the New York Bight in spring and fall. NYSERDA (2021b), which is not incorporated into Roberts et al. density estimates, reported presence of North Atlantic right whales in winter and spring surveys.
- PAM studies in the New York Bight region have also yielded information relative to the seasonality and habitat use of marine mammal species in this region. For instance, PAM efforts within the New York harbor have indicated that species such as harbor porpoises were observed year-round while bottlenose dolphins, humpback whales and minke whales were detected seasonally (Rosenbaum et al. 2021). Rosenbaum et al. (2021)'s results indicate that these species can occupy environments with relatively loud background noise.

Carolina Wilmington from 2005-2008, by Wildlife Trust/Sea to Shore Alliance/ from 2003-2020, by New England Aquarium from 2003-2010, by Fish and Wildlife Research Institute from 2003-2020, and by NOAA Fisheries Northeast Fisheries Science Center North Atlantic Right Whale Sighting Surveys program 2003-2020. Additional information for other species from more recent surveys than included in Roberts et al. 2016 (e.g. Roberts et al. 2023, species-specific models developed in 2022) has been used to inform many of the products produced by the scientific community that Community Offshore Wind relied upon in writing this EMP and also informs Community Offshore Wind's long term strategy.

[8] The most recent version of seal densities at https://seamap.env.duke.edu/models/Duke/EC/ is dated May 27, 2023.

[9] Newest models released in May June 2023 associated with Roberts et al. 2016, Roberts et al. 2023 and Curtice et al. 2019 are available at https://seamap.env.duke.edu/models/Duke/EC/

4.1.1.2 Sea turtles

- Sea turtles occur in the New York Bight from late spring to fall, with the highest densities in summer and concentrated in shelf waters less than 70 m (230 feet) in depth (NYSERDA 2021c).
- Loggerhead sea turtles are the most common sea turtle found in the New York Bight, followed by Kemp's ridley and Leatherback Sea turtles (Robinson et al. 2021; NYSERDA 2021c; Winton et al. 2018; US Navy 2018).
- Small juvenile green sea turtles are also known to occur but are relatively rare (Montello et al. 2022). Leatherbacks have been observed in summer with variable spatial distributions across the New York Bight (NYSERDA 2021c). Sea turtles do not currently nest along the shores of New York or New Jersey[10].

4.1.2 Data being collected

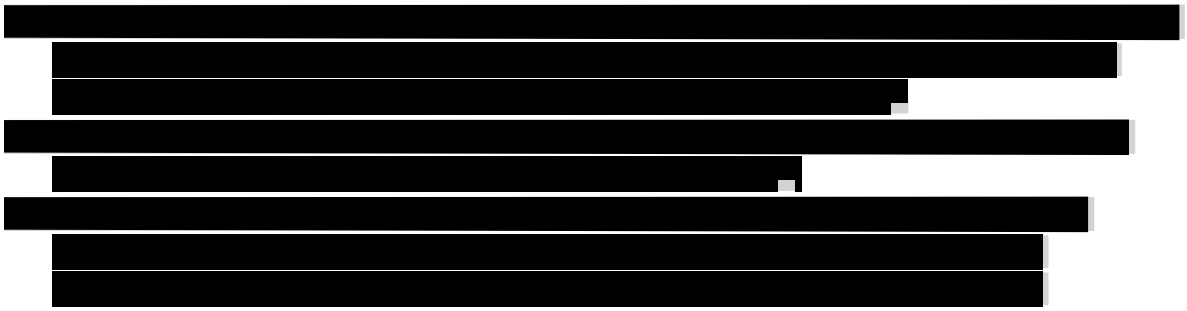
Describe data collected, or will be collected, to support baseline characterization.

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

[redacted]

[10] Though sea turtles do not have regular nesting sites in New York or New Jersey, the National Park Service documented 96 Kemp's Ridley hatchlings on West Beach on the Rockaway Peninsula located within the Gateway National Recreation Area in 2018 (https://www.nps.gov/gate/learn/news/rarest-sea-turtle-nests-on-queens-beach.htm)
[11] Marine Mammal Viewers is available at https://apps-nefsc.fisheries.noaa.gov/AMAPPSviewer/
[12] https://marinecadastre.gov/
[13] https://seamap.env.duke.edu/
[14] https://www.seaturtlestatus.org/
[15] https://portal.midatlanticocean.org/

[16] http://nymarinerescue.org/what-we-do/?doing_wp_cron=1660025663.7258679866790771484375#tracking
[17] https://www.movebank.org/cms/movebank-main



4.2 Species at risk

Describe which species Community Offshore Wind believes to be of greatest concern and why.

- Community Offshore Wind has identified marine mammal and sea turtle species that may be more at risk than others, as summarized in Table 4-1.
- Main species with elevated risk include state and federally listed ESA species and species listed as High Priority of Greatest Conservation Need by the NYSDEC. In addition, harbor porpoise may have some elevated vulnerability to displacement from construction sound based on studies in Europe indicating aversion to pile driving (e.g., Benhemma-Le Gall et al. 2021).

Table 4-1 Marine mammal and sea turtle species at risk

Common name	Scientific name	ESA status	Likely occurrence in the New York Bight	Seasonal trends	Justification
Marine mammals					
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[18] Book of abstracts from the NYSERDA State of the Science 2022 is accessible at https://www.nyetwg.com/_files/ugd/78f0c4_08bd4bb3a52045c6b75d76804b76bb50.pdf

[19] https://www.fisheries.noaa.gov/new-england-mid-atlantic/science-data/artificial-intelligence-detecting-marine-animals-satellites

Common name	Scientific name	ESA status	Likely occurrence in the New York Bight	Seasonal trends	Justification
[redacted]					
Sea turtles					
[redacted]					

Common name	Scientific name	ESA status	Likely occurrence in the New York Bight	Seasonal trends	Justification
[redacted]					
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Sources: NYSERDA 2022a, b; Muirhead et al. 2018; Rosenbaum et al. 2021

Definitions: Very likely – occurring consistently in New York Bight in moderate to large numbers, Likely – occurring regularly, inhabitants at least seasonally and have been documented within the New York Bight & Not likely – occurring in low numbers or on an irregular basis or limited records

4.3 Potential impacts and mitigation measures by phase

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

- Community Offshore Wind is committed to mitigating impacts to marine mammals and sea turtles and expects that research will continue to result in better understanding of priorities, more effective mitigation measures, and more accurate means to detect and mitigate in real-time.
- Community Offshore Wind's strategy around mitigation is, to the extent practicable given current knowledge of Project details and specific technologies and methods available for construction, maintenance, decommissioning, mitigation, and monitoring, to develop and continually update this plan over time.

- Community Offshore Wind will work to balance seasonal mitigation measures across different taxa and human uses (e.g., fisheries) which may be seasonally present at different times of year. Additional engagement with stakeholders will be needed to find this balance and determine the appropriate seasonal activity for effective mitigation. Any clearance and exclusion zones will be determined in collaboration with agencies and stakeholders.
- Offset mitigation opportunities will also be examined through engagement efforts.
- Community Offshore Wind is committed to establishing pre- and post-construction survey methods that will focus on collecting the data necessary to support question-driven science. Community Offshore Wind also commits to ensuring that funds are available to analyze scientific data collected during monitoring.

Table 4-2 Potential impacts to marine mammals and sea turtles, and mitigation measures by phase

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Underwater noise impacts from geophysical survey equipment	• *Exclusion, clearance, and monitoring zones shall be maintained around noise-generating activities to help measure and mitigate potential noise-related effects on marine mammals*; NOAA Fisheries has established a minimum monitoring zone of 500 m *for North Atlantic right whales, and both ESA consultation and MMPA permitting further establish other clearance, exclusion, and monitoring zones that will be applied to surveys; in the long-term, zones may be adapted based on best available science and technology and NOAA FIsheries' future requirements* • *Monitoring during noise-generating activities shall be done through an integrated monitoring approach, including the use of PAM, NOAA FIsheries-approved protected species observers (PSOs), or other proven technologies, as appropriate for the sound source, to the extent practicable and in compliance with federal regulation* • *Noise generating geophysical survey work with equipment determined by NOAA Fisheries to potentially harass marine mammals or sea turtles shall not commence after dark or at other times of low visibility unless an alternative monitoring plan that does not rely on solely on visual observation has been determined to be effective or approved by NOAA Fisheries, to the extent compatible with practicability and worker safety or NOAA Fisheries has otherwise determined the technology or other mitigation measures should result in no harassment under MMPA and ESA*	X	X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Underwater noise impacts from construction and installation activities	• *Community Offshore Wind will seek to use noise attenuation technologies to reduce sound from pile driving of foundations (if such installation methods are used)* • *Monitoring during noise-generating activities shall be done through an integrated monitoring approach, including the use of PAM, NMFS-approved PSOs, and other proven technologies, as appropriate, to the extent practicable* • *Community Offshore Wind will not commence impact pile driving for foundation installation* (if such installation methods are used) *during poor visibility conditions such as darkness, fog, and heavy rain, unless an alternative mitigation monitoring plan that does not rely solely on visual observation has been determined to be effective or approved by NMFS, to the extent compatible with practicability and worker safety* • NMFS will establish a minimum monitoring zone for North Atlantic right whales that will likely be greater than for other species, and both ESA		X		
Underwater noise impacts from decommissioning and infrastructure removal activities	• Mitigation measures are likely to be similar to those used during construction activities, including pile installation; however, mitigation technologies will likely have advanced by this Phase. Community Offshore Wind will seek to include the best available science and technology in this and all phases of the project.				X

Vessel strikes on marine mammals and sea turtles	• Community Offshore Wind will ensure that *all vessel personnel are trained regarding animal identification and protocols when sightings occur* • Community Offshore Wind *will provide reference materials on board all Project vessels for identification of marine mammals and sea turtles* • Community Offshore Wind will follow conditions developed through ESA consultation • Community Offshore Wind will follow NOAA Fisheries recommendations for avoiding vessel strike • Community Offshore Wind will adhere to speed limits as required by law and as considered in collaboration with NOAA Fisheries, BOEM, New York State, and stakeholders and as determined to be safe • Community Offshore Wind will consider seasonal limitations in the context of risk to marine mammals and sea turtles and risks to other resources and human uses	X	X	X	X
Electromagnetic Fields (EMF), resulting in potential disturbance to marine mammals/sea turtles and/or their prey resource	• Community Offshore Wind *will use proper shielding and a proper burial depth to reduce EMF impacts.* • Community Offshore Wind *will conduct EMF modeling and assessments to identify potential mitigation requirements.*	X	X	X	
Displacement of individuals	• Community Offshore Wind expects that, given the footprint of the turbines in relation to the total available habitat, this impact should be relatively minor and mitigation is not likely to be required		X		
Collision with turbine infrastructure	• Community Offshore Wind does not anticipate marine mammal or sea turtle collisions with the turbines. Given the spacing between the turbines, it is expected that marine mammals and sea turtles will be able to move freely through the area and that the turbines would not create a barrier or		X	X	

		restrict movement, and mitigation is likely not required.			
Attraction to turbines due to artificial lighting	•	Community Offshore Wind will, where practicable, ensure lighting will be shielded or otherwise positioned to not illuminate the water and potentially attract marine mammals and sea turtles.	X	X	X

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

4.4 Monitor for potential impacts during each phase

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

- *Community Offshore Wind shall seek to collaborate with other regulatory agencies and stakeholder groups to identify research needs and opportunities.*
- Community Offshore Wind aims to integrate research and monitoring efforts in collaboration and has and will continue to engage on the development of regional networks of PAM systems, autonomous vessels, and other large-scale, collaborative monitoring.
- As required by ORECRFP23-1, if Community Offshore Wind uses pile driving (which is anticipated) or other installation methods that result in high underwater sound, Community Offshore Wind will monitor underwater acoustics during foundation installation in order to: 1) measure changes in sound pressure levels; 2) record sound levels in the water column and vibrations in the sediment; 3) detect particle motion; and 4) assess the effectiveness of a noise mitigation system to reduce underwater noise generated during pile installation applying the most current BOEM guidance.
- Community Offshore Wind has identified potential monitoring methods for marine mammals and sea turtles for each phase of the Project in Table 4-2.

Table 4-3 Monitoring methods for potential impacts to marine mammals and sea turtles

Data to be collected	Potential monitoring methods	Potential collaboration opportunities	Phase*			
			1	2	3	4
Baseline presence/ abundance/movement	PSOs, PAM, autonomous vessels with detection equipment, drones with detection equipment, satellite imagery	Wildlife Conservation Society, Cornell, Scripps, Woods Hole Oceanographic Institute; other developers, RWSC, E-TWG	X			X
During/Post-Construction presence/ abundance/ movement	PSOs, tagging, aerial and vessel surveys, PAM, autonomous vessels with detection equipment, drones with detection equipment, satellite imagery, metocean and environmental data (important for understanding drivers of variability and change)	AMAPPS/NOAA Fisheries, NYSDEC, Wildlife Conservation Society, Cornell, Scripps, Woods Hole Oceanographic Institute, Rutgers, other developers, RWSC, E-TWG		X	X	
Baseline Behavior	PAM, PSOs	NOAA Fisheries, Cornell, Wildlife Conservation Society, other developers, RWSC, E-TWG		X		X
During/Post-Construction Behavior	PAM, PSOs, tagging, behavioral response studies; metocean and environmental data (important for understanding drivers of variability and change	NOAA Fisheries, Cornell, Wildlife Conservation Society, other developers, RWSC, E-TWG, Navy		X	X	
Population-level impacts	Expert elicitation; Population Consequences of Disturbance models	NOAA Fisheries, BOEM, E-TWG, RWSC, other developers		X		
Efficacy of Mitigation Measures	Collect data using techniques above when mitigation is applied and compare against baselines	NOAA Fisheries, BOEM, E-TWG, RWSC, other developers	X	X	X	X

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

4.4.1 Pre/post monitoring to assess and quantify changes

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

- *Community Offshore Wind will ideally target specific questions and focal taxa based on site specific fisheries risk assessment, or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species.*
- *Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively analyze risk prior to construction and evaluate impacts during construction and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis.*
- *Outside expertise will, if practicable, be consulted during study design and data analysis processes.*
- Community Offshore Wind will support and engage in studies to detect changes in distribution, habitat use, movements, behavior, and other important aspects of marine mammal and sea turtle life history throughout each phase of the Project.
- Change will be assessed and quantified to the extent practicable on different temporal and spatial scales and effort will be made to tie changes back to population- and ecosystem-level consequences.
- Community Offshore Wind will rely on RWSC, ROSA, the E-TWG, the F-TWG and scientific experts to inform methodologies that will integrate into regional studies and achieve statistically robust outcomes with accounting for variability and context-dependent changes (e.g., changes in underlying dynamic habitat variables may affect distribution).
- Community Offshore Wind acknowledges the difficulty in detecting change and connecting change to particular variables and to particular consequences for individuals and species while controlling for the impacts of other stressors (e.g., climate change, other anthropogenic impacts from various ocean uses). Efforts to successfully detect and quantify change will by necessity be collaborative and long-term commitments that require significant expert scientific input.

4.4.2 Address data gaps

Describe how data gaps will be addressed.

- *Community Offshore Winds will work with stakeholders, including regulatory agencies and local groups, in the design phase of the Project to identify data gaps to be addressed through surveys or permitting applications.*
- Community Offshore Wind will prioritize funding research to address gaps in collaboration with agencies, RWSC, the E-TWG, other developers, and other stakeholders to maximize data value and create public and transparent studies. Research priorities to address data gaps have been assessed in a variety of workshops, and a research plan is under development by RWSC.

4.5 Strategies for developing alternate protocols

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

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

- Community Offshore Wind will engage with New York State agencies, federal agencies, scientists, and other stakeholders regularly (as described in the Stakeholder Engagement Plan in response to Appendix E of the ORECRFP23-1). Part of this engagement will be to assess when mitigation strategies do not appear to be sufficient. Community Offshore Wind will make scientific data publicly available as quickly as practicable to allow for such assessments and follow the advice of scientific experts.
- Community Offshore Wind is willing to commit to working with NOAA Fisheries and other collaborators to consider how to make use of offset and restoration mitigation for marine mammals and sea turtles in the context of ESA and MMPA.
- ESA recovery plans identify major threats to ESA-listed species and can serve as a guide to where funding and research to benefit listed species would be best applied. New York State Wildlife Action Plans can also inform threats and potential offset mitigation.

5 Proposed mitigation of impacts to birds and bats

5.1 Baseline characterization

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

5.1.1 Available information

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

5.1.1.1 Birds

- Most recent studies of the distribution and use patterns of birds in the New York Bight include digital aerial surveys conducted by NYSERDA from 2016-2019 (Robinson Willmott et al. 2021; NYSERDA 2021d), Equinor in its New York Bight Lease Area (OCS-A-0512), and regional vessel and aerial surveys conducted by NOAA Fisheries in partnership with BOEM as part of AMAPPS that have been ongoing since 2010 and have more recently targeted Wind Energy Areas and Call Areas for directed survey work. NYSERDA (2021d) identified 76 species of birds in the New York Bight based on observation of 140,372 individuals, with lowest densities overall in summer. NYSERDA (2021d) also calculated flight heights for birds relative to the expected rotor swept zone of offshore wind turbines.
- Winship et al. (2018) modelled the spatial distribution and relative density of 47 marine bird species along the east coast of the US. Overall, distributions of brown pelican, double-crested cormorant, horned grebe, loons, red-breasted merganser, sea ducks, and several gull and tern species were relatively coastal with highest relative density in the nearshore. Black-capped petrel, bridled tern, northern fulmar, shearwaters, sooty tern, and species of storm-petrel had highest densities farther offshore. Auks and puffins typically have offshore distribution, except during the summer breeding season (June to August) when they are more restricted to nearshore environments close to breeding colonies.
- The likely occurrence of species within the Project area is highest in birds targeting the Hudson Valley Shelf and flying over to the shelf break. Stenhouse et al. (2020) analyzed the temporal, spatial, and movement use patterns of red-throated loons, surf scoters, and northern gannets to quantify their exposure to offshore wind in the New York Bight. The results indicated that northern gannets had the greatest level of occurrence, being present during both migration periods and winter months. Surf scoter and red-throated loon occurrence were greatest during migration with habitat use in winter was concentrated in shallow protected waters closer to shore.
- Very High Frequency tracking data have been collected by Loring et al. (2019) for common terns, roseate terns, and piping plovers. These data suggest that common and roseate terns make long distance, post-breeding dispersal movements, potentially traversing the Project area, from mid-July to late September. Outside of this period, roseate terns were typically found in shallower waters, presumably foraging in sandlance habitat near inlets, shoals and the nearshore. Conversely, common terns have a wider diversity in diet and may forage further offshore. The review also found that the flight height of terns differed when foraging compared to migrating, with greater flight heights observed during the latter (Loring et al., 2019). For the piping plover, the data suggest that during migration, individuals favored direct flight paths across the offshore area, rather than following the coastline, particularly during periods of south-southwest winds, potentially flying over the New York Bight offshore wind lease areas.

5.1.1.2 Bats

- Peterson et al. (2016) determined that bat occurrence in offshore waters was relatively low and concentrated during migratory periods; however, migrating bats are wide ranging, and can often be observed offshore (Hatch et al. 2013), with Peterson et al. (2016) reporting two observations of bats in the New York Bight 110 and 130 kilometers from shore in August and September 2014.
- There are nine bat species known to occur in New York (NYSDEC n.d.). These include the eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tri-colored bat, big brown bat, silver-haired bat, eastern red bat, and hoary bat. Bats rely on land for summer and winter roosts and often forage for insects over water. At least six of the nine species (all except eastern small-footed myotis, Indiana bat, and northern long-eared bat) have been detected over the Atlantic Ocean (Peterson et al. 2016; Solick and Newman 2021). Peterson et al. (2016) reported bats four to 47 nautical miles offshore and in rare cases up to 70 nautical miles from the mainland (east of New Jersey). The maximum distance *Myotis* species have been detected offshore is six nautical miles (Sjollema et al. 2014).
- Peterson et al. (2016) found bat species composition as expected between the Gulf of Maine and Delaware to North Carolina study areas. The Community Offshore Wind Project will be located between the regions where bat detection equipment was deployed, but it is reasonable to assume bat composition within it would be similar to Peterson et al. (2016) findings. Eastern red bats were the most frequently identified bat species in the offshore space in proximity to the Project area, followed by silver-haired bat and hoary bat (Sjollema et al. 2014; Peterson et al. 2016). These species are considered long-distance migrants.
- Peterson et al. (2016) reported that bat activity was generally highest at coastal detection sites and on islands where detectors were near forest edges; however, high bat activity does not always correlate with true abundance because a small number of bats could inflate detector recordings with multiple passes by the same individual(s) (Solick et al. 2020). Bat activity patterns in the offshore space are known to be mostly seasonal across all species with peak activity occurring in spring, late summer, and early fall (Peterson et al. 2016). Nightly patterns of bat activity have been correlated with warm temperatures and low wind speeds (Baerwald and Barclay 2011), though bats can fly at relatively high wind speeds offshore and may take advantage of tailwinds during migration (Peterson et al. 2016; Solick and Newman 2021).

5.1.2 Data being collected

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

5.1.2.1 Birds

- AMAPPS began in 2010 and has been collecting broadscale aerial survey data to assess the abundance, distribution, ecology, and behavior of protected species, including seabirds, throughout the US Atlantic. In addition to continuation of collection of broadscale data, the AMAPPS program has evolved to include collection of data at finer spatial scales, including tagging studies and currently including studies to aimed at improving aerial survey data in identification of marine species using automation through machine learning.
- In addition to systematic surveys, collaborative data are being collected through the Motus network. Motus uses automated radio telemetry and coordinated arrays of receiver stations that monitor the same frequency to detect tagged animals over broad spatial scales. Tagged animals are detected on their local

array, as well as any other station in the network. At this time, there are eight stations located in offshore waters between Massachusetts and Delaware, with numerous other locations along the shoreline.

- BOEM lease stipulations require that lease holders in the New York Bight deploy Motus receivers on meteorological and environmental buoys, so additional data will likely be collected via these receivers over the next several years
- To better understand avoidance rates of birds in response to offshore wind turbines, Spoor AI has developed a new technology to collect more accurate birdlife data on wind farms (North American Wind Power 2022). Spoor AI is testing this technology at an Ørsted offshore wind farm in Europe to commercialize operational monitoring strategies.
- Additional data via terrestrial site surveys for bird nesting areas and other important habitats will be undertaken in the process of siting and designing infrastructure.
- There is an ongoing study, Wildlife and Offshore Wind, that is assessing the potential impacts of offshore wind on wildlife, including birds, in the New York Bight and the East Coast more broadly. This study is funded by the Department of Energy, led by Duke University, and supported by many collaborators including research institutions local to the New York Bight.

5.1.2.2 Bats

- Equinor installed passive bat detectors on survey vessels between May and December 2018 and provided a report on findings as part of the Empire Wind Construction and Operations Plan. Eastern red bat, silver-haired bat, and big brown bat were detected in Lease Area OCS-A 0512 in the New York Bight. During the fall, most bat passes occurred between midnight and 3 am. In the summer, most bat passes occurred between 2 am and 5 am.
- Tetra Tech, Inc. (2021) also used a single bat detector to survey the Kitty Hawk offshore wind Project Lease Area, a 49,536-hectare area south of the New York Bight, 44 kilometers offshore of North Carolina, and within the Mid-Atlantic Bight. The bat detector was mounted at the top of a 50 meter (m) roving offshore research vessel and was active for 77 nights between May and November 2020. They reported 0.03 (substantially less than one) bat pass per detector-night in this offshore space. Although this may represent low instances of wayward bats, their results should be interpreted with caution as one detector may bias coverage and have limited inference over such a large area.
- The Coastal Virginia Offshore Wind Project also collected bat detections from roving vessels from April 2020 to May 2021, as described in their Construction and Operations Plan. Recordings during detector-nights resulted in an overall mean activity rate of 1.07 bat passes/night. Species detected were long-distance migratory tree bats, including eastern red bat/Seminole bat, hoary bat, and silver-haired bat
- Additional data via terrestrial site surveys for bat hibernacula and other important habitats will be undertaken in the process of siting and designing infrastructure.
- Presently, Ocean Wind, LLC (2022) is proposing to survey bat activity using ultrasonic detectors for two years post-construction at the BOEM Renewable Energy Lease Area OCS-A 0498. The detectors will be active beginning in the early spring or late winter (March) and removed in late fall or early winter (December) of each year or as determined in cooperation with BOEM, USFWS, and other relevant regulatory agencies.
- White-nose syndrome is a fungus that attacks hibernating bats, causing bats to become active and burn fat they need to survive the winter and has killed millions of bats in North America. Research on white-nose syndrome and its impact on bat populations is ongoing. In some cases, the USFWS prohibits

incidental take (including disturbance) of the endangered northern long-eared bat within the expanding white-nose syndrome zone (81 FR 1900). The zone includes all counties affected by white-nose syndrome and an additional 150-mile onshore buffer, excluding the offshore space (81 FR 1900), though updates to the zone can be provided by local USFWS field offices for specific areas.

5.2 Species at risk

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

- Community Offshore Wind has identified bird and bat species that may be more at risk than others, as summarized in Table 5-1.
- Main species with elevated risk include state and federally listed ESA species and species listed as High Priority of Greatest Conservation Need by the NYSDEC. In addition, BOEM has assessed collision and displacement vulnerability of some types of birds (Adams et al. 2017; Gordon and Nations 2016), which can help inform species at risk.

Table 5-1 Bird and bat species at risk

Common name	Scientific name	ESA status	Likely occurrence in New York Bight	Seasonal trends	Justification
Birds					
Common Tern	*Sterna hirundo*	Not federally listed; listed as threatened by NY State	Likely to occur in Lease Area	Fall and spring migration from nesting areas along shorelines	Observed in Lease Area waters during post-breeding dispersal (mid-July through late September). Onshore cable-connection sites need to assess habitat potential.
Roseate Tern	*Sterna douglallii*	Endangered; NY State High Priority of Conservation Need	Forages in coastal waters and sometimes well offshore; likely to occur in Lease Area	Migrates from east –coast nesting sites to Caribbean and South America	Offshore foraging and open-water migration patterns indicate potential for Project conflicts. Potential for onshore nesting habitats to be affected need to be evaluated when siting cable-infrastructure sites. USFWS IPaC map tool should be used to assess likely onshore occurrences.
Rufa Red Knot	*Calidris canutus rufa*	Threatened; NY State High Priority of	Second migration wave occurs in November offshore; very	Migrates from northern nesting sites to southern area (SE coast,	Migration in November likely to intersect Project Area. Potential for onshore nesting habitats to be affected need to be

Common name	Scientific name	ESA status	Likely occurrence in New York Bight	Seasonal trends	Justification
		Conservation Need	likely to intersect Lease Area	Caribbean, South America).	evaluated when siting cable-infrastructure sites. Potential for onshore nesting habitats to be affected need to be evaluated when siting cable-infrastructure sites. USFWS IPaC map tool should be used to assess likely onshore occurrences.
Piping Plover	*Charadrius melodus*	Threatened; NY State endangered; NY State High Priority of Conservation Need	Nests on dry sandy beaches, dunes; likely to occur in Lease Area during fall migration	Migrates to southern US and Bahamas in fall	Potential for plovers to occur in Lease Area during fall (July-August) migration. Potential for onshore nesting habitats to be affected need to be evaluated when siting cable-infrastructure sites. USFWS IPaC map tool should be used to assess likely onshore occurrences.
Eastern Black Rail	*Laterallus jamaicensis jamaicensis*	Threatened; NY State High Priority of Conservation Need	Not likely to occur in Lease Area	Restricted to tidal marshes, salicornia flats on coast.	Unlikely to move offshore to Lease Area. Potential for onshore nesting habitats to be affected need to be evaluated when siting cable-infrastructure sites. USFWS IPaC map tool should be used to assess likely onshore occurrences.
Bats					
Eastern Red Bat*	*Lasiurus borealis*	Least Concern	Likely to occur in Lease Area	Forest inhabitant and tree roosting but known to range far offshore during foraging and possibly during migration; has been	Documented offshore during foraging and migration. Sites for onshore connections—cable infrastructure should be evaluated for roosting, foraging habitat.

Common name	Scientific name	ESA status	Likely occurrence in New York Bight	Seasonal trends	Justification
				observed over 300 km offshore.	
Hoary Bat*	*Lasiurus cinereus*	Least Concern	Likely to occur in Lease Area	Forest inhabitant and tree roosting but known to range far offshore during foraging and possibly during migration; has been observed over 80 km offshore.	Far-ranging species. Sites for onshore connections—cable infrastructure should be evaluated for roosting, foraging habitat.
Silver-haired Bat*	*Lasionycteris noctivagans*	Least Concern	Likely to occur in Lease Area	Forest inhabitant and tree roosting but known to range far offshore during foraging and possibly during migration; has been observed over 200 km offshore.	Known to migrate long distances. Sites for onshore connections—cable infrastructure should be evaluated for roosting, foraging habitat.
Little Brown Bat	*Myotis lucifugus*	Under review for ESA listing as Threatened; NY State High Priority of Conservation Need	Not likely to occur in the Lease Area	Wide range of day, night, and hibernation roosts, generally in forested areas near water; unidentified *Myotis* species have been documented 137 km offshore from the mainland; can be found on large islands with suitable habitat up to 8 km offshore.	Restricted to terrestrial areas. Sites for onshore connections—cable infrastructure should be evaluated for roosting, foraging habitat.
Northern Long-eared Bat	*Myotis septentrionalis*	Proposed listing as Endangered, March 2022; NY State	Not likely to occur in Lease Area	Moves from forest habitats during summer to caves and abandoned mines	Restricted to terrestrial areas. Sites for onshore connections—cable infrastructure should be evaluated for roosting,

Common name	Scientific name	ESA status	Likely occurrence in New York Bight	Seasonal trends	Justification
		High Priority of Conservation Need		to hibernate; can be found on large islands with suitable habitat up to 8 km offshore.	foraging habitat. In addition, USFWS IPaC map tool should be applied to identify habitat and known occurrences as part of onshore siting procedures.
Tri-coloured Bat	*Perimyotis subflavus*	Under ESA review for listing, February 2022; NY State High Priority of Conservation Need	Likely to occur in the Lease Area	Inhabits open forested areas with large trees, hibernates in caves, mines, building cavities; can be found on large islands with suitable habitat up to 8 km offshore.	Restricted to terrestrial sites, but individuals have recently been observed to be far-ranging, including over open water. Sites for onshore connections—cable infrastructure should be evaluated for roosting, foraging habitat.
Indiana Bat	*Myotis sodalis*	Endangered; NY State High Priority of Conservation Need	Not likely to occur in the Lease Area	Require forests for foraging and roosting; hibernate in caves and move to hibernacula in spring; has not been observed in coastal environments.	Restricted to terrestrial sites, migration restricted to roost-hibernaculum-maternity sites. Sites for onshore connections—cable infrastructure should be evaluated for roosting, foraging habitat. In addition, USFWS IPaC map tool should be applied to identify habitat and known occurrences as part of onshore siting procedures.
Eastern Small-footed Bat	*Myotis leibii*	Special Concern in New York; listing considered Not Warranted federally; Endangered globally	Not likely to occur in the Lease Area	Infrequent to rarely encountered during winter surveys and most observations are from only two mines in the Adirondack region; hibernate in caves or mines in winter; roosts in rocks, cliff	Restricted to terrestrial sites; summer roosting near foraging areas so does not travel far from roosts at night. Sites for onshore connections—cable infrastructure should be evaluated for roosting, foraging habitat.

Common name	Scientific name	ESA status	Likely occurrence in New York Bight	Seasonal trends	Justification
				faces, talus slopes, and concrete bridges in the summer; observed in coastal environments but close to land.	

**Indicates long-distance migrant bat species*

Sources: USFWS ecos.fws.gov/ecp/species listings; BOEM cooperative studies; NYSDEC

Definitions: Very likely – occurring consistently in New York Bight in moderate to large numbers , Likely – occurring regularly, inhabitants at least seasonally and have been documented within the New York Bight & Not likely – occurring in low numbers or on an irregular basis or limited records

5.3 Potential impacts/risks and mitigation measures by project stage

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

- Community Offshore Wind is committed to mitigating impacts to birds and bats and expects that research will continue to result in better understanding of real impacts and research priorities, more effective mitigation measures, and more accurate means to detect and mitigate in real-time.
- Community Offshore Wind's strategy around mitigation is to the extent practicable given current knowledge of Project details and specific technologies and methods available for construction, maintenance, decommissioning, mitigation, and monitoring to develop and continually update this plan over time.
- Offset mitigation opportunities will also be examined through engagement efforts.
- Community Offshore Wind continues to develop pre- and post-construction survey methods that will focus on collecting the data necessary to support question-driven science. Community Offshore Wind also commits to ensuring that funds are available to analyze scientific data collected during monitoring.

Table 5-2 Potential impacts to birds and bats and mitigation measures by phase

Potential impacts	Proposed mitigation measures	Phase*			
		1	2	3	4
Collision risk to marine birds and bats	• *To avoid and minimize attraction- and disorientation-related impacts to birds and bats, artificial lighting on offshore wind projects shall be reduced to the extent practicable while maintaining human safety and compliance with Federal Aviation Administration, US*		X	X	

	Coast Guard, BOEM, and other regulations in accordance with Section 2.2.9 of the ORECRFP23-1 regarding Aircraft Detection Lighting Systems or NYSERDA approved alternatives • *Monitoring shall be conducted to determine if there is a need for perching-related deterrents to reduce attraction and minimize potential perching and loafing opportunities for birds* • *Physical deterrents to perching (e.g., such as spikes and netting or other best available technology) shall be implemented if there is demonstrated risk at the site (e.g., perching and roosting on infrastructure is a common occurrence) and to the extent that they do not represent a human safety hazard* • Acoustic or other monitoring shall be conducted to characterize potential bird and bat patterns and to evaluate the need for adaptive mitigation measures			
Habitat impacts, including breeding and nesting areas	• *Siting and construction of nearshore and onshore Project components for offshore wind farms (including but not limited to nearshore export cable routes, landfall sites, onshore cable routes, and onshore substations) will be conducted in such a way as to avoid or minimize the loss or alteration of bird and bat habitat, as well as avoid or minimize disturbance and direct and indirect effects to bird and bat populations and their prey. Specifically, onshore infrastructure (i.e., landfall site, cable routes, substations) and development activities will 1) maximize the use of previously developed or disturbed areas, and 2) avoid unique or protected habitats, as well as habitat for key species, where feasible.* • To avoid and minimize attraction- and disorientation-related impacts to birds and bats, artificial lighting on terrestrial infrastructure shall be reduced to the extent practicable while maintaining safety of personnel, and USFWS recommended colors or types of lights will be used in accordance with any other regulatory requirements or restrictions on lighting • Physical deterrents to perching (e.g., such as spikes and netting or other best available technology) shall be implemented if there is demonstrated risk at the site (e.g., perching and roosting on infrastructure is a common occurrence) and to the extent that they do not represent a human safety hazard	X	X	X

Vessel lighting attraction/avoidance	• Where this doesn't contradict engineering or navigation standards, spectral output of selected lights will be selected based on sensitivity of species present	X	X	X	X
Underwater noise from piling and vessels	• Use of noise attenuation technologies to reduce sound from pile driving of foundations (if such methods are used)	X	X		X
Displacement of prey species	• Use noise attenuation technologies to reduce sound from pile driving of foundations (if such methods are used)	X	X		X
Disturbing bat roosts and hibernacula	• Pre-construction habitat survey to look for roosts and hibernacula • Pre-construction survey to determine if setbacks and/or offsets are needed	X			

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

5.4 Monitor for impacts during each phase

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

- There are a variety of organizations, agencies, and academic institutions with whom collaborations can be formed, and Community Offshore Wind seeks to develop its monitoring in a manner compatible with local and regional assessment.
- Community Offshore Wind aims to integrate research and monitoring efforts in collaboration and will commit to engaging on the development of regional networks Motus receivers, support Motus tagging, and engage in other large-scale, collaborative monitoring.
- Community Offshore Wind has identified potential monitoring methods of birds and bats for each phase of the Project in Table 5-2.

Table 5-3 Monitoring methods for potential Impacts to birds and bats

Data to be collected	Proposed monitoring methods	Potential collaboration opportunities	Phase*			
			1	2	3	4
Baseline presence/abundance /movement	Motus receivers, tagging, radar, acoustic detectors, terrestrial surveys	Motus network, AMAPPS, USFWS, Normandeau Associates, DHI Group, Biodiversity Research Institute, other developers	X			
During/Post-Construction presence/	Motus receivers, tagging, radar, acoustic detectors, terrestrial surveys, aerial and vessel surveys, drones with detection equipment,	Motus network, AMAPPS, USFWS, Normandeau Associates, DHI Group, Biodiversity Research Institute, other developers		X	X	X

Data to be collected	Proposed monitoring methods	Potential collaboration opportunities	Phase*			
			1	2	3	4
abundance/movement	satellite imagery, metocean and environmental data (important for understanding drivers of variability and change)					
Bird flight height and speed	Surveys, radar	USFWS, DHI Group, Biodiversity Research Institute, BOEM, other developers			X	
Opportunistic vessel observations	PSOs	NOAA Fisheries	X	X	X	X
Bat activity	Ultrasonic bat detectors at nacelle height on a subset of turbines if practicable, combined with radar/thermal imaging (presence, temporal patterns, and weather)	USFWS, other developers	X		X	
Collisions with infrastructure	To validate collision risk modelling using a combination of radar and/or vibration detection sensors, with results verified by a subset of cameras	Spoor AI, turbine manufacturers, other developers, USFWS, NYSDEC			X	
Bird and Bat Mortality	Incidental observations	Other developers, other ocean users	X	X	X	X
Species identification	Thermal technology to distinguish bats	Darras et al. (2022)	X	X	X	X
Population-level impacts	Expert elicitation; Population Consequences of Disturbance models	USFWS, NYSDEC, BOEM, E-TWG, RWSC, other developers			X	
Efficacy of Mitigation Measures	Collect data using techniques above when mitigation is applied and compare against baselines	USFWS, NYSDEC, BOEM, E-TWG, RWSC, other developers	X	X	X	X

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

5.4.1 Pre/post monitoring to assess and quantify changes

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

- *Pre- and post-construction monitoring shall be designed in such a way that it improves understanding of the impacts of offshore wind energy development on birds and bats, including identifying specific questions and taxa on which to focus monitoring efforts for the proposed project, or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species.*

- *Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively analyze risk prior to construction and evaluate impacts during construction and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis.*
- *Outside expertise will, if practicable, be consulted during study design and data analysis processes.*
- Community Offshore Wind will support and engage in studies to detect changes in distribution, habitat use, movements, behavior, and other important aspects of bird and bat life history throughout each phase of the Project.
- Change will be assessed and quantified to the extent practicable on different temporal and spatial scales and effort will be made to tie changes back to population- and ecosystem-level consequences. Community Offshore Wind will rely on the RWSC, ROSA, the E-TWG, NYSDEC, and scientific experts to inform methodologies that will integrate into regional studies and achieve statistically robust outcomes with accounting for variability and context-dependent changes (e.g., changes in underlying dynamic habitat variables may affect distribution).
- Community Offshore Wind acknowledges the difficulty in detecting change and connecting change to particular variables and to particular consequences for individuals and species while controlling for the impacts of other stressors (e.g., climate change, other anthropogenic impacts from various ocean uses). Efforts to successfully detect and quantify change will by necessity be collaborative and long-term commitments that require significant expert scientific input.

5.4.2 Address data gaps

Describe how data gaps will be addressed.

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

- *The developer shall work with stakeholders, including regulatory agencies and local groups, in the design phase of the Project to identify data gaps to be addressed through surveys or permitting applications.*
- Community Offshore Wind will prioritize funding research to address gaps in collaboration with agencies, RWSC, the E-TWG, other developers, and other stakeholders to maximize data value and create public and transparent studies. Research priorities to address data gaps have been assessed in a variety of workshops, including the RWSC Science Plan.

5.5 Strategies for developing alternate protocols

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

- *As necessary, Community Offshore Wind will explore this further in consultation with the E-TWG, regulatory agencies and relevant stakeholders.*
- Community Offshore Wind will engage with New York State agencies, federal agencies, scientists, and other stakeholders regularly (as described in the Stakeholder Engagement Plan in response to Appendix E of the ORECRFP23-1). Part of this engagement will be to assess when mitigation strategies do not appear to be sufficient. Community Offshore Wind will make scientific data publicly available as quickly as practicable to allow for such assessments and follow the advice of scientific experts.

- In the event direct mitigation is not sufficient, additional direct measures, based on the data and expert advice will be considered, and frameworks for developing offset mitigation for birds and bats will be applied (e.g., Shaffer et al. 2019).
- USFWS has developed conservation banks[20] to protect lands with natural resource value for species that are endangered, threatened, and candidates for listing or otherwise at risk. USFWS also has an in-lieu fee mitigation program for Indiana bats[21].
- Habitat restoration of bird nesting or over-wintering sites and bat roosting areas and hibernacula could be implemented if recommended by scientists and regulators.
- White-nose syndrome is a significant threat to bats. Community Offshore Wind could contribute to studies and efforts to address this threat. Invasive species eradication programs can also contribute to bird and bat conservation.
- ESA recovery plans identify major threats to ESA-listed species and can serve as a guide to where funding and research to benefit listed species would be best applied. New York State Wildlife Action Plans can also inform threats and potential offset mitigation.

[20] https://www.fws.gov/service/conservation-banking
[21] https://www.conservationfund.org/projects/range-wide-indiana-bat-in-lieu-fee-program

6 Proposed mitigation of impacts to fish, invertebrates, and their habitats

6.1 Baseline characterization

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

6.1.1 Available information

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

6.1.1.1 Habitats

- The New York Bight lies entirely on the continental shelf in depths mostly shallower than 100 m (328 feet), with the offshore warm water Gulf Stream current running northward along the continental slope. Seafloor substrate mapping indicates in the area where the New York Bight wind leases are located, including Community Offshore Wind's Lease Area, the bottom is mainly sand with broken shell, rippled sand waves-geoform, and extensive distribution of the common sand dollar and annelids (Battista et al. 2019). There is a high likelihood of hard bottom habitats nearshore in the New York Bight, on the sides of the Hudson Shelf Valley, and on the slopes of submarine canyons near the continental slope (Battista et al. 2019). In addition to long-term studies by US Geological Survey[22], NYSERDA has supported several benthic studies in the New York Bight that address habitat assessment and has made reports and data available to the public[23].
- In addition to studies by NYSERDA noted above, characterization of the benthic habitat in the region provides a modelled baseline of habitat composition and topography (Anderson et al., 2010; Stokesbury 2016). The New York Bight has multiple topographical features (e.g., estuaries, canyons) which experience seasonal variations based on currents, freshwater from rivers, and storms, making the ecology of the area dynamic. Fishing for benthic species such as lobster, crab, and shellfish is prominent throughout the New York Bight region. The seabed has historically been impacted by various fishing methods, including trawling, dredging, and trapping (Bachman 2020). Fish habitat use in the New York Bight has been assessed in some studies (e.g., Steves et al. 2000).
- EFH has been designated for every federally managed fish stock identified on the East Coast. The New York Bight has designated offshore EFH for 52 species, and 17 of these species have EFH for every life stage. There are five HAPC within the New York Bight, three are coastal and could impact cabling to shore, and two are further offshore than the wind lease areas. Submerged aquatic vegetation (SAV) is identified as a HAPC for summer flounder throughout the area but is unlikely to occur in the Lease Area due to depth. SAV will likely occur in cable routes in coastal waters. EFH and HAPC information is provided in Fisheries Management Plans[24] and on the NOAA EFH Mapper[25]. The most current available seagrass maps

[22] https://www.usgs.gov/centers/whcmsc/science/us-geological-survey-studies-new-york-bight
[23] https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Programs/Offshore-Wind/19-19-Geotechnical-and-Geophysical-Desktop-Study-to-Support-Offshore-Wind-Energy-Development.pdf; https://www.nyserda.ny.gov/-/media/Project/Nyserda/files/Programs/offshore-wind/21-09-Hudson-North-Subarea-B-Geophysical-Interpretive-Report-redacted-acc.pdf&usg=AOvVaw0hpY7VXZ8a8aEOl03UnoA2; GIS data can be accessed at: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Programs/Offshore-Wind/GG-Desktop-Study-Data.zip
[24] https://www.mafmc.org/fishery-management-plans
[25] https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper

from the Long Island Sound Study, Peconic Estuary Program, and the South Shore Estuary Reserve have been integrated to create one map for New York seagrass habitat[26].

- New York State's Seagrass Protection Act protects seagrass habitats, which have been declining in New York Bight waters[27]. Wetlands are also protected under New York State law.[28]

6.1.1.2 Fish and invertebrates

- Over 300 species of fish move among the estuarine, coastal, and offshore space in the region (NYSDEC 2017). The New York Bight shelf edge near the Hudson Canyon holds multiple deep-sea coral species, which are home to many fish and invertebrate species (Hourigan et al. 2007), and NYSDEC has developed species assessments for a variety of fish that occur in the New York Bight. There are also studies that assess fish distributions in the New York Bight (e.g., Steves et al. 2000; Wuenschel et al. 2009). BOEM published a study that includes a review of fish, fisheries, and sand features in the New York Bight (Grothues et al. 2021). NYSERDA's digital aerial surveys from 2016-2019 recorded fish and fish shoals visible at and near the surface during the surveys (NYSERDA 2021e, f). Equinor also collected data via aerial digital surveys in the Empire Wind Lease Area OCS-A 0512 that could help inform fish presence.[29]
- The Lease Area is home to numerous commercially and recreationally important species of fishes and invertebrates, many of which are managed, as well as non-commercial species, such as sand dollars and sea stars. Due to the value of some fisheries, management-related research provides substantive baseline information on species, for example Atlantic Sea scallop, longfin squid, American lobster, ocean quahog clam, and surf clam.
- Aside from commercially and recreationally fished species, multiple annual surveys occur in the New York Bight to assess fish and invertebrate abundance and collect biological samples. The Connecticut Long Island Sound Trawl Survey has been operating since at least 2010[30]. The New Jersey Ocean Stock Assessment has been conducted since 1989[31]. And, the Northeast Area Monitoring and Assessment Program has been conducted since 2006[32]. The Northeast Regional Marine Fish Habitat Assessment (NRHA) and its data portal NRHA Data Explorer[33] allow users to visualize and explore fish habitat data collected from these and other sources. The Northeast Fisheries Science Center (NEFSC) Bottom Trawl Survey has been conducted every fall[34] and spring[35] since 1963 and 1969, respectively, and is the primary fisheries survey occurring offshore and within the Lease Area. The NEFSC Sea Scallop Survey has occurred annually since 1980[36], while the NEFSC Atlantic Surf Clam and Ocean Quahog survey has been ongoing since 1982[37], with a subset of the survey conducted annually. The NEFSC Ecosystem Monitoring (EcoMon) Survey is conducted concurrently with the spring and fall Bottom Trawl surveys and four other times throughout the year, collecting ichthyoplankton, zooplankton, and hydrographic data to inform regional

[26] https://www.arcgis.com/home/webmap/viewer.html?webmap=12ba9d56b75d497a84a36f94180bb5ef&extent=-74.6987,39.852,-71.315,41.7603
[27] https://www.dec.ny.gov/lands/110813.html
[28] https://www.dec.ny.gov/docs/wildlife_pdf/wetart24a.pdf
[29] The ReMOTE website includes reports on both the NYSERDA and Equinor studies https://remote.normandeau.com/remote_about.php
[30] https://portal.ct.gov/DEEP/Fishing/Fisheries-Management/Long-Island-Sound-Trawl-Survey
[31] https://dep.nj.gov/njfw/fishing/marine/ocean-stock-assessment-program/
[32] http://www.neamap.net/
[33] https://www.mafmc.org/newsfeed/nrha-data-explorer
34 (https://www.fisheries.noaa.gov/inport/item/22560)
35 (https://www.fisheries.noaa.gov/inport/item/22561)
36 (https://www.fisheries.noaa.gov/inport/item/22564)
37 (https://www.fisheries.noaa.gov/inport/item/22565)

ecosystem assessments[38]. Several other resource surveys are conducted cooperatively with commercial fishermen in the region and may vary in frequency, as well as geographically.

- The Block Island Wind Farm was the first wind farm offshore of the East Coast of Rhode Island and thus provided an opportunity to explore a variety of assessment methods to monitor ecological changes due to the wind farm activities. Several studies have been published and provided new insights. For example, Wilber et al. (2022a) looked at changes in diet composition through gut content analysis during the different phases of the Project over seven years in flounder, gadids, and black sea bass collected near the Block Island Wind Farm, as well as at control sites.
- Changes to climate including increased temperatures may result in shifts in species occurrences and migrations, including prominent fisheries species (Campana et al. 2020). These types of changes are already occurring and predicted to continue, so spatial trends observed today may be very different from those that will be seen in the coming decades (Farr et al. 2021). Shifts from south to north toward areas that were once too cold for temperate species are expected, along with changes in depth ranges for some species and changes to the timing of spawning and larval development (Walsh et al., 2015).

6.1.2 Data being collected

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

- Projects are underway in a coordinated effort to gain a greater understanding of the ecological dynamics in the region through new technologies for assessments and monitoring, as well as the identification of standardized methods that could be adopted moving forward.
    - The RWSC keeps a living database[39] of ongoing projects and partners.
    - Embedded in that database is a link to BOEM's Environmental Studies list of ongoing projects. While only a subset of BOEM's studies is focused specifically on the New York Bight lease areas, many will be applicable to the region.
    - The NYSERDA State of the Science Workshop in 2022 featured ongoing studies using acoustic surveys by Stony Brook University and studies of forage fish occurrence and temporal changes in Wind Energy Areas on the US East Coast by NOAA Fisheries. The NOAA Fisheries' Northeast Fisheries Science Center has ongoing fish and fisheries research projects[40].
    - Rutgers is working on development of autonomous platforms, such as underwater gliders, to augment/replace current vessel-based efforts for fish and fisheries studies, including pelagic and trawl fish surveys[41]. Rutgers is also using buoys to obtain physical conditions and animal migratory data. This method of monitoring can capture rare and highly migratory species that are less likely to be detected by traditional means.
    - Monmouth University and the New England Aquarium are collaborating on the use of acoustic telemetry to track the movements of commercially and recreationally important fish species in

38 https://www.fisheries.noaa.gov/inport/item/9285)
39 https://rwscorg.sharepoint.com/:x:/s/RWSESteeringCommittee/EWFbV6G0zoBAkR-QpLO4b-cBHlseZ9dD4R4NKW8UJrtLIQ?rtime=SduYuwaI2kg
40 https://www.fisheries.noaa.gov/about/northeast-fisheries-science-center
41 NYSERDA 2022 State of the Science Abstract Book is accessible at https://www.nyetwg.com/_files/ugd/78f0c4_08bd4bb3a52045c6b75d76804b76bb50.pdf

offshore wind leases. The project will provide baseline data on species of interest and is intended to be part of a broader telemetry network along the coast[42].

- A Department of Energy funded effort on the East Coast including the New York Bight to assess changes in fish and invertebrate populations and habitats in response to the development of offshore wind led by the Coonamessett Farm Foundation and supported by regional research institutions and organizations.

- A new technology being assessed for monitoring species is applying environmental DNA tools in an ecosystem-based context in a BOEM and NOAA partnership project. Water samples are being collected along the entire Atlantic coast region. Other methods used by a suite of organizations in the RWSC database include aerial surveys, shipboard surveys, tagging, gliders, stable isotope analyses, and PAM.

6.2 Species at risk

Describe which species Community Offshore Wind believes to be of greatest concern and why.

- Community Offshore Wind has identified fish and invertebrate species that may be more at risk than others. A summary of ESA-listed species and Species of Conservation Concern are included in Table 6-1(first table); the ESA-listed species with greatest presence in the Lease Area and Export Cable Routes is the Atlantic sturgeon. Major commercial and recreational fishery target species are also considered elevated risk for concern around potential fisheries impacts. These species are summarized in Table 6-2 (second table).
- Main species with elevated risk include state and federally listed ESA species and species listed as High Priority of Greatest Conservation Need by the NYSDEC.

Table 6-1 ESA-listed and species of conservation concern

Common name	Scientific name	ESA status	Likely occurrence in the lease area	Seasonal trends	Justification
Atlantic Sturgeon	*Acipenser oxyrhynchus oxyrhynchus*	Endangered – NYB DPS; NY State High Priority of Conservation Need	Likely overlap with Lease Area and cable routes nearest to shore	Present in all seasons	Endangered and NHRA Explorer shows high likelihood of presence in likely nearshore cable routes
Scalloped hammerhead shark	*Sphyrna lewini*	Threatened;	Not likely in Lease Area or along cable routes	Unknown	Threatened but distribution primarily south of NYB
Giant Manta Ray	*Manta birostris*	Threatened	Not likely in Lease Area, or along cable routes	Unknown	Threatened; distribution primarily offshore
Oceanic Whitetip Sharks	*Carcharhinus longimanus*	Threatened	Not likely in Lease Area, or along cable routes	Unknown	Threatened; distribution Primarily offshore

42 https://www.nj.gov/dep/newsrel/2022/22_0922.htm

Common name	Scientific name	ESA status	Likely occurrence in the lease area	Seasonal trends	Justification
Thorny skate	*Amblyraja radiata*	Species of Concern; NY State High Priority of Conservation Need	Not likely in Lease Area, or along cable routes	Unknown	Species of Concern but no/Low predicted abundance in Lease Areas by NRHA Data Explorer
Alewife	*Alosa pseudoharengus*	Species of Concern	Likely in Lease Area and along cable routes	Highest abundance in spring, but present year around	Species of Concern and predicted to have moderate to high abundance by NRHA Data Explorer
Blueback herring	*Alosa aestivalis*	Species of Concern	Likely in Lease Area and along cable routes	Highest abundance in spring, but present year around	Species of Concern and predicted to have moderate to high abundance by NRHA Data Explorer

Sources: NHRA Data Explorer, MAFMC, NOAA

Definitions: Very likely – occurring consistently in New York Bight in moderate to large numbers, Likely – occurring regularly, inhabitants at least seasonally and have been documented within the New York Bight & Not likely – occurring in low numbers or on an irregular basis or limited records

Table 6-2 Commercially and recreationally important fish and invertebrate species

Common name	Scientific name	Commer-cial	Recrea-tional	For-age	Likely occurrence in the lease area	Seasonal trends	Justi-fication
Atlantic Mackerel	*Scomber scombrus*	X	X	X	Not likely in Lease Area, but seasonal abundance higher along nearshore cable routes	Regional abundance highest in Spring, Summer	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but major fishery resource
American Lobster	*Homarus americanus*	X			Not likely in Lease Area, but seasonal abundance higher along nearshore cable routes	Present in all seasons	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but major fishery resource
Black Sea Bass	*Centropristis striata*	X	X		Not likely in Lease Area, but seasonal abundance higher along nearshore cable routes	Regional abundance highest in Summer, Fall; anecdotal presence in southeaste rn Lease Area late fall, winter	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but major fishery resource; Anticipated to increase post-construction (habitat association)
Atlantic Bluefish	*Pomatomus saltatrix*	X	X		Not likely in Lease Area, but seasonal abundance higher along nearshore cable routes	Regional abundance highest in Summer, Fall	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but major fishery resource
Butterfish	*Peprilus triacanthus*	X		X	Not likely in Lease Area, but seasonal abundance higher along	Regional abundance highest in Summer	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but

Common name	Scientific name	Commer-cial	Recrea-tional	For-age	Likely occurrence in the lease area	Seasonal trends	Justi-fication
					nearshore cable routes		major fishery resource
Shortfin Squid	*Illex illecebrosus*	X		X	Not likely in Lease Area, but seasonal abundance higher along nearshore cable routes	Regional abundance highest in Summer	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but major fishery resource
Scup	*Stenotomus chrysops*	X	X		Seasonal spawning migrations possible within Lease Area and along cable routes	Regional abundance highest in Spring, Summer; anecdotal presence in southeaste rn Lease Area late fall, winter	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but major fishery resource
Spiny Dogfish	*Squalus acanthias*	X	X		Likely in Lease Area, but seasonal abundance higher along nearshore cable routes	Regional abundance highest in Summer to late Fall	No/Low predicted abundance in Lease Areas by NRHA Data Explorer but major fishery resource
Golden Tilefish	*Lopholatilus chamaeleon ticeps*	X	X		Not likely, occurs primarily around outer continental shelf and slopes	Present in all seasons	Spatial distribution not available in NRHA Data Explorer but major fishery resource
Blueline Tilefish	*Caulolotilus microps*	X	X		Not likely, occurs primarily around outer continental shelf and slopes	Present in all seasons	Spatial distribution not available in NRHA Data Explorer but important

Common name	Scientific name	Commer-cial	Recrea-tional	For-age	Likely occurrence in the lease area	Seasonal trends	Justi-fication
							fishery resource
Atlantic Sea Scallop	*Placopecten magellanicus*	X			Likely in Lease Area and along cable routes	Present year around	Predicted to have moderate to high abundance by NRHA Data Explorer and major fishery resource; sessile
Northern quahog clam	*Mercenaria spp.*	X			Likely in Lease Area and along cable routes	Present year around	Observations from fishing industry about high chances of overlap and major fishery resource; sessile
Atlantic Surf clams	*Spisula solidissima*	X			Likely along cable routes, high likelihood in Lease Area	Present year around	Predicted to have low to moderate abundance by NRHA Data Explorer and major fishery resource; sessile
Longfin squid	*Loligo paeleii*	X		X	Likely in Lease Area and along cable routes	Present year around, highest during Fall	Predicted to have moderate to high abundance by NRHA Data Explorer and major fishery resource
Summer flounder	*Paralichthys dentatus*	X	X		Likely along cable routes, moderate likelihood in Lease Area	Highest abundance in Lease Areas in early fall, Low relative abundance year around	Predicted to have moderate to high abundance by NHRA Explorer; SAV habitat is likely in nearshore estuaries; major fisheries resource

Sources: NHRA Data Explorer, MAFMC, NOAA

Definitions: Very likely – occurring consistently in New York Bight in moderate to large numbers, Likely – occurring regularly, inhabitants at least seasonally and have been documented within the New York Bight and Not likely – occurring in low numbers or on an irregular basis or limited records

6.3 Potential impacts/risks and mitigation measures by project stage

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

- Community Offshore Wind is committed to mitigating impacts to fish, invertebrates, and their habitats and expects that research will continue to result in better understanding of priorities, more effective mitigation measures, and more accurate means to detect and mitigate in real-time.
- Community Offshore Wind's strategy around mitigation is, to the extent practicable given current knowledge of Project details and specific technologies and methods available for construction, maintenance, decommissioning, mitigation, and monitoring, to develop and continually update this plan over time.
- Offset mitigation opportunities will also be examined through engagement efforts.
- Community Offshore Wind is committed to establishing pre- and post-construction survey methods that will focus on collecting the data necessary to support question-driven science. Community Offshore Wind also commits to ensuring that funds are available to analyze scientific data collected during monitoring.

Table 6-3 Potential impacts to fish, invertebrates, and their habitats, and mitigation measures by phase

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Micro-siting conflicts with habitats and fishery resources from anchor scarring	• Community Offshore Wind will *seek input from regulatory authorities, the fishing industry, and maritime industry to locate foundations and cable routes in the least impactful manner that is practicable.*	X			

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Temporary alteration of the seabed and localized increases in noise and turbidity	• Community Offshore Wind will *seek to use noise attenuation technologies to reduce sound from pile driving of foundations (if such methods are used)*	X	X	X	X
Long-term changes to seabed and habitat	• Community Offshore Wind will, *to the extent practicable, avoid sensitive benthic habitats*	X	X	X	X
EMF Impacts	• Community Offshore Wind will *use proper burial and shielding to reduce EMF* • Community Offshore Wind will *conduct EMF modeling and assessments to identify potential mitigation requirements.*		X	X	
Cable burial	• Community Offshore Wind will *bury export and interarray cables to an appropriate minimal depth to reduce exposure risk; if depth cannot be reached, protective materials will be added over the cable.* • Community Offshore Wind will *conduct routine surveys or inspections of subsea cables and shall conduct a survey or inspection to ensure and correct for cable exposure following hurricane or other major events causing disturbance to the seabed*		X	X	
Turbine Scour Protection	• Community Offshore Wind will *seek collaboration with state and federal regulatory authorities and key stakeholders to assess the use of ecological enhancements for turbine scour protection to provide offsets from potential adverse impacts*		X	X	
Interruption of spawning for ESA species	• Community Offshore Wind will follow requirements for seasonal activities developed through ESA consultation and engagement with scientists, federal and state agencies, fisheries, and other stakeholders	X	X		X
Vessel collision	• Community Offshore Wind will follow vessel collision avoidance vigilance and speed limits developed through ESA consultation and additional engagement with scientists, federal and state agencies, and other stakeholders	X	X	X	X
Sediment suspension and contaminant release	• Community Offshore Wind will engage with the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, NYSDEC, and scientific experts and be compliant with and monitor to meet	X	X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	standards set for turbidity and contaminant release from sediments				
Reliance on structures	• Develop decommissioning process that addresses dependence of fish and invertebrates on existing infrastructure to the extent practicable				X

6.4 Monitor for impacts during each phase

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

- An increasingly large number of organizations, agencies, and academic institutions are collaborators with whom Community Offshore Wind has and will continue to work with to develop a monitoring plan in a way that is compatible with and supportive of local and regional assessments.
- Community Offshore Wind aims to integrate research and monitoring efforts in collaboration and will commit to engaging on the development of a regional receiver network, support fish tagging, and engage in other large-scale, collaborative monitoring.
- Community Offshore Wind has identified monitoring methods for fish, invertebrates, and their habitats for each phase of the Project in Table 6-4.

Table 6-4 Monitoring Methods for Potential Impacts to Fish, Invertebrates, and Their Habitats

Data to be Collected	Proposed Monitoring Methods	Potential Collaboration Opportunities	Phase*			
			1	2	3	4
Baseline presence/ abundance/movement	Tagging, trawl surveys, acoustic surveys, PAM, autonomous vessels with detection equipment	Rutgers, Monmouth University, Stony Brook, Northeast Fisheries Science Center, MAFMC, New England Fishery Management Council (NEFMC), ROSA, RWSC	X			X
During/Post-Construction presence/ abundance/movement	Tagging, trawl surveys, acoustic surveys, PAM, autonomous vessels with detection equipment, metocean and environmental data (important for understanding drivers of variability and change)	Rutgers, Monmouth University, Stony Brook, Northeast Fisheries Science Center, MAFMC, NEFMC, ROSA, RWSC		X	X	
Benthic recovery	Benthic faunal surveys, acoustic surveys, video/photos, pre-/post-construction comparisons	Innspire, Fugro, Gardline, Northeast Fisheries Science Center, Normandeau Associates, ROSA, RWSC	X		X	

Data to be Collected	Proposed Monitoring Methods	Potential Collaboration Opportunities	Phase*			
			1	2	3	4
Reef effects	Faunal surveys, trawls, video/photos, pre-post-construction comparisons	Innspire, Fugro, Gardline, Northeast Fisheries Science Center, Normandeau Associates, ROSA, RWSC	X		X	X
Encrustation rates and new substrates	Sampling growth on infrastructure over time, identifying taxa, benthic surveys	Innspire, Fugro, Gardline, Northeast Fisheries Science Center, Normandeau Associates, ROSA, RWSC	X		X	
Baseline Behavior	PAM, underwater video	Rutgers, Monmouth University, Stony Brook, Northeast Fisheries Science Center, MAFMC, ROSA, RWSC	X			X
During/Post-Construction Behavior	PAM, underwater video, tagging, metocean and environmental data (important for understanding drivers of variability and change	Rutgers, Monmouth University, Stony Brook, Northeast Fisheries Science Center, MAFMC, ROSA, RWSC		X	X	
Population-level impacts	Expert elicitation, Population Consequences of Disturbance models	NOAA Fisheries, BOEM, E-TWG, RWSC, ROSA, other developers			X	
Efficacy of Mitigation Measures	Collect data using techniques above when mitigation is applied and compare against baselines	NOAA Fisheries, BOEM, E-TWG, RWSC, ROSA, other developers	X	X	X	X

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

6.4.1 Pre/post monitoring to assess and quantify changes

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

- *Ideally, specific questions and focal taxa shall be chosen for the Project either based on site specific fisheries risk assessment, or in relation to broader regional efforts to assess variation between sites and understand cumulative impacts for sensitive species.*
- *Monitoring will, to the extent practicable, use appropriate study designs and methodologies to effectively analyze risk prior to construction and evaluate impacts during construction and operation by testing hypotheses and helping to assure statistical power for meaningful data analysis.*
- *Outside expertise will, if practicable, be consulted during study design and data analysis processes.*
- *Community Offshore Wind shall seek to collaborate with other regulatory agencies and stakeholder groups to identify research needs and opportunities.*
- *Community Offshore Wind will support and engage in studies to detect changes in distribution, habitat use, movements, behavior, and other important aspects of fish and invertebrate life history as well as their habitats throughout each phase of the Project.*

- Change will be assessed and quantified to the extent practicable on different temporal and spatial scales and effort will be made to tie changes back to population- and ecosystem-level consequences. Community Offshore Wind will rely on RWSC, ROSA, the E-TWG, the F-TWG, NYSDEC, and other scientific experts to inform methodologies that will integrate into regional studies and achieve statistically robust outcomes with accounting for variability and context-dependent changes (e.g., changes in underlying dynamic habitat variables may affect distribution).
- Community Offshore Wind acknowledges the difficulty in detecting change and connecting change to particular variables and to particular consequences for individuals and species. Efforts to successfully detect and quantify change will by necessity be collaborative and long-term commitments that require significant expert scientific input.

6.4.2 Address data gaps

Describe how data gaps will be addressed.

- *Community Offshore Wind shall seek to work with stakeholders, including regulatory agencies, to identify data gaps to be addressed through surveys or permitting applications.*
- Community Offshore Wind will prioritize funding research to address gaps in collaboration with agencies, RWSC, ROSA, the E-TWG, the F-TWG, other developers, and other stakeholders to maximize data value and create public and transparent studies. Research priorities to address data gaps have been assessed in a variety of workshops, and a research plan is under development by RWSC.
- Community Offshore Wind will continue to collaborate with the fishing industry, ROSA, agencies (e.g., with NEFSC using the CRADA), and other research organizations to study fish, invertebrates, and habitats in conjunction with fisheries research to help address data gaps in understanding the relationships among ocean uses, fauna, and habitats to better address impacts.
- Fishing vessels also are potential platforms of opportunity to collect data that benefits both fisheries and wind developers to better understand resources and cumulative impacts.

6.5 Strategies for developing alternate protocols

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

- *As necessary, Community Offshore Wind shall explore this further in consultation with the E-TWG, regulatory agencies and relevant stakeholders*
- Community Offshore Wind will engage with New York State agencies, federal agencies, scientists, and other stakeholders regularly (as described in the Stakeholder Engagement Plan in response to Appendix E of the ORECRFP23-1). Part of this engagement will be to assess when mitigation strategies do not appear to be sufficient. Community Offshore Wind will make scientific data publicly available as quickly as practicable to allow for such assessments and follow the advice of scientific experts.
- In the event avoidance is not practicable or direct mitigation is not sufficient, additional direct measures, such as choosing a maintenance schedule that avoids a sensitive month or seasons, based on the data and expert advice, will be considered, and frameworks for developing offset mitigation for fish, invertebrates, and their habitats will be applied in collaboration with NOAA, which has developed a comprehensive mitigation strategy.

- NOAA's mitigation strategy includes offset mitigation such as conservation banking, restoration, and habitat preservation[43] and will be considered in alternative protocols.
- ESA recovery plans identify major threats to ESA-listed species and can serve as a guide to where funding and research to benefit listed species would be best applied. New York State Wildlife Action Plans can also inform threats and potential offset mitigation.

[43] https://www.noaa.gov/sites/default/files/2022-07/NAO_216-123_Mitigation_Policy.pdf

7 Considerations for subsea and onshore cables

7.1 Mitigation strategies for subsea and onshore cables

This section should describe any additional environmental mitigation strategies for proposed subsea and onshore cable routes that support the offshore wind project.

7.1.1 Subsea cables

- BMPs and guidelines will be applied to cable routing, installation, maintenance and decommissioning. For example, BOEM provides a guide to cable spacing that includes regulatory regimes, stakeholder interfaces, and principles of cable routing (BOEM 2014), and the National Renewable Energy Lab describes BMPs for cable setbacks (Best and Kilcher 2019).
- The Department of Business Enterprise and Regulatory Reform (2008) in the United Kingdom prepared a review of cabling techniques and environmental effects for offshore wind that includes a section on good practice measures and an appendix of standards and codes of practice that is a helpful guide. Because undersea cables are common across industries, Community Offshore Wind will seek BMPs across industries to further develop the EMP.
- Cable crossing to shore will be an important focus of planning and risk assessment. Standard practice for transitioning subsea cables to shore includes horizontal directional drilling to minimize disturbance to surface habitats such as beaches, wetlands, seagrass, and other sensitive habitats in the transition to shore. Community Offshore Wind commits to conducting thorough pre-installation surveys off- and on shore to minimize risks through high quality data for planning and design, including in alternative cable routes developed in support of the Article VII and other federal and state applications.
- Cables will have proper sheathing and burial depths to minimize EMF, heat, and vibration.
- Cable routing will be optimized to minimize and avoid benthic habitat impacts as practicable and Community Offshore Wind will work with stakeholders and regulators to offset and/or remediate impacts as appropriate (potentially including seasonal installation windows).
- Community Offshore Wind will work with New York State to develop a regular, periodic survey approach to ensure the integrity of cables and stability of their locations and burial depth or otherwise report on any shifts in cable locations, as buried cables can move, particularly with heavy storms or other such disturbances.
- Although no problems are anticipated, Community Offshore Wind commits to addressing any problem with cables becoming exposed as quickly as practicable. In places where cables cannot be buried, Community Offshore Wind will work with New York State and U.S. Army Corps of Engineers to determine the best alternative to covering and securing cables. Community Offshore Wind also commits to utilizing a monitoring system which will provide a notification of impact and temperature change.
- Community Offshore Wind commits to supporting research on technologies that will help to improve industry's ability to effectively monitor undersea cables while minimizing disturbance to wildlife, habitats, and ocean users. The specifics of this support will be developed through collaborations with the RWSC, ROSA, and academic partners.

- Mitigation and monitoring measures will continue to be added to the EMP as stakeholder engagement processes and the regulatory environmental review process continues through development of the design and implementation of the Project.

7.1.2 Onshore cables

- Community Offshore Wind will use existing data, data collected during surveys and stakeholder engagement, and logistical requirements to site routes to avoid important habitats for endangered, threatened, and other protected species and stay within existing rights-of-way to the extent practicable and provide offset and restoration mitigation for any unavoidable substantive impacts to habitats.
- Local stakeholder engagement in the form of notices in local papers, local public meetings, and clearly described activities and timing on Community Offshore Wind's website and social media accounts with the opportunity to receive feedback online will help engage residents, community members, and local regulators and assist in planning cable routes and activities to minimize impacts and offset or remediate impacts that cannot be avoided.
- Community Offshore Wind commits to engagement with local governments to work toward compliance with local ordinances and to reach a larger constituency of stakeholders at the local level starting during planning and early in the development phases.
- Community Offshore Wind will also pursue co-location of our onshore cables with those of other developers. By coordinating our routes and construction schedules, we will be able to reduce the footprints of both projects and minimize stakeholder fatigue.
- Community Offshore Wind will explore site specific application of air insulated switchgear (AIS) versus gas insulated switchgear (GIS). Community Offshore Wind will continue to monitor the technical and commercial viability of non-sulfur hexafluoride (SF6) equipment and promote its development. If the technology is available, use of non-SF6 solutions to avoid the greenhouse gases and toxic decomposition products associated with the traditional SF6 gas insulation will be considered.
- Community Offshore Wind commits to working with stakeholders and specifically reaching out to Environmental Justice Communities, Disadvantaged Communities, and Underserved Communities and New York State agencies to ensure equitable treatment of all communities and stakeholders affected by cables.
- Local stakeholder engagement in the form of notices in local papers, local public meetings, and clearly described activities and timing on Community Offshore Wind's website and social media accounts with the opportunity to receive feedback online will help engage residents and community members and assist in planning cable routes and activities to minimize impacts and offset or remediate impacts that cannot be avoided. Considerations for potential cultural heritage sites as well as municipal service lines and other infrastructure are also important to Community Offshore Wind in determining the optimal route for cable installation, and outreach will be conducted to gain as much information as practicable on existing sites that could be affected by proposed cables.
- Community Offshore Wind will use existing data, data collected during surveys and stakeholder engagement, and logistical requirements to site routes to avoid important habitats for endangered, threatened, and other protected species and stay within existing rights-of-way to the extent practicable and provide offset and restoration mitigation for any unavoidable substantive impacts to habitats. Mitigation and monitoring associated with cabling infrastructure is considered on a taxonomic basis

above. As with mitigation and monitoring for taxa, habitat considerations will be addressed through a combination of regulatory requirements and stakeholder engagement.

- BMPs and guidelines will be applied to cable routing, installation, maintenance, and decommissioning. The Department of Business Enterprise and Regulatory Reform (2008) in the United Kingdom prepared a review of cabling techniques and environmental effects for offshore wind that includes a section on good practice measures and an appendix of standards and codes of practice that is a helpful guide. Because onshore cables are common across industries, Community Offshore Wind will seek BMPs across industries to further develop the EMP.
- Mitigation and monitoring measures will continue to be added to the EMP as stakeholder engagement processes and the regulatory environmental review process continues through development of the design and implementation of the Project.

8 Additional considerations

8.1 Additional mitigation strategies and EMP refinement

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

- *Community Offshore Wind will support collaborative research on potential mitigation strategies and best management practices, with other developers, agencies, and stakeholders.*
- Community Offshore Wind will provide NYSERDA, at least six months prior to Construction and Operation Plan submission, an Underwater Acoustic Monitoring Plan detailing how data will be collected and made available as soon after collection as is practicable for use by third parties. As required, the Plan will include commitments to allow raw and metadata to be publicly available no more than six months after installation completion.
- Community Offshore Wind commits to supporting collaborative research on potential mitigation strategies and BMPs with other developers, agencies, and stakeholders. Community Offshore Wind seeks to develop strong collaborations with agencies, researchers, NGOs, Tribes/Tribal Nations, fisheries, and other stakeholders to support research and mitigation that addresses priorities, focuses on question-driven science, fills both fine-scale and broad-scale data gaps, and delivers robust actionable outcomes.
- Community Offshore Wind's overarching strategy for refining the EMP is to leverage ongoing work and the tremendous frameworks of scientific and stakeholder engagement developed by NYSERDA, RWSC, ROSA, the E-TWG, the F-TWG and others to take an active role in regional collaborations and find the path to a net positive outcome of the Project for the environment and communities.

8.2 Process for updating EMP

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

- *Community Offshore Wind will continuously evaluate and evolve this EMP so that all the components of the EMP are complete and sufficient. Community Offshore Wind will continue to follow the scientific work underway by BOEM, NOAA, NOWRDC, Department of Energy, National Renewable Energy Labs, USFWS, and academic researchers through engagement and conferences like the NYSERDA State of the Science Workshops and incorporate relevant information into the EMP, as appropriate.*
- *Community Offshore Wind expects that additional guidance and information will become available throughout the planning and regulatory process and as such will continue to consider its relevance to the EMP at the appropriate intervals. At this stage, the EMP serves as an initial commitment and as a scaffold on which to build more refined actions.*
- *Updates to the EMP are intended to reflect the results of iterative exchanges with members of the E-TWG, F-TWG and relevant stakeholders.*
- *Community Offshore Wind shall update the EMP in a timely manner that reflects changes made based on key regulatory project deliverable dates.*

- The results of feedback received based on public meetings and notices, Tribe/Tribal Nation engagement, fisheries engagement, and engagement with Environmental Justice and Disadvantaged communities and businesses will be considered in refining the plan. Concerns or recommendations in conflict will be examined carefully to ensure decisions do not disproportionately adversely affect Environmental Justice and/or Disadvantaged communities and businesses.
- The plan will reside on the Community Offshore Wind website with an opportunity for stakeholders to contact Community Offshore Wind with comments and questions. Community Offshore Wind expects iterative exchanges with stakeholders and the E-TWG and the F-TWG.
- Community Offshore Wind has assigned Joel Southall, Manager of Environmental Affairs & Sustainability, to be directly responsible for the EMP, directing staff in completing quarterly updates, communicating EMP contents to other Community Offshore Wind staff, and reviewing relevant plans to ensure successful application of the EMP.

9 Project decommissioning

9.1 Potential impacts on marine wildlife, birds, bats, and fisheries

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

- *Community Offshore Wind's waste handling processes during decommissioning shall focus on re-use or recycling, with disposal as the last option.*
- *Community Offshore Wind shall collaborate with regulatory authorities and key environmental stakeholder groups better understand the effects and potential impacts associated with decommissioning*
- Decommissioning activities and potential impacts to the environment are preliminarily identified in Table 9-1.
- Stressors associated with decommissioning are like those associated with construction but also include disruption to artificial habitats (infrastructure) on which some organisms may have become dependent or otherwise adapted to in the environment.
- Mitigation measures for decommissioning will be developed in collaboration with stakeholders and regulators using the best available science closer to the time of decommissioning. Ongoing collaborations with RWSC, ROSA, and others will be used to support science around minimizing impacts of decommissioning, developing mitigation, and monitoring, and determining which structures should be fully removed or fully or partially left intact to minimize the disturbance to wildlife, habitats, and fisheries in the short- and long-term.
- Community Offshore Wind plans to conduct a survey prior to decommissioning to identify the state of marine resources/habitats, as it is expected that marine life will adapt to, and potentially develop a dependence on, infrastructure during operations of the wind farm.
- *Community Offshore Wind is also dedicated to minimizing the waste products associated with the decommissioning of our project.*
- Decommissioning activities include dredging, geophysical surveys, benthic sampling, and full or partial removal of offshore and onshore infrastructure, such as turbines and foundations.
- Community Offshore Wind is committed to evaluating and identifying BMPs to recycle component parts and other required materials and will examine the potential for recycling and reusing as part of evaluating equipment for use in the wind farm. Parts that cannot be recycled and are determined to require removal will be disposed of in a safe and environmentally responsible manner as determined in collaboration with regulators and stakeholders at that time, including a focus on avoiding disproportionate adverse impacts on Environmental Justice and Disadvantaged and Underserved communities and businesses.
- Ease of disassembly or replacement of parts that are likely to be upgradable as technologies improve will also be incorporated in planning so that life extension would be maximally feasible rather than complete disassembly and replacement, should New York determine at that time that it wants to continue to purchase power from the Project and the infrastructure is updated rather than decommissioned.

Table 9-1 Potential Impacts from Decommissioning

Potential stressors	Potential impacts	Impacted taxa					
		Marine mam-mals	Sea turtles	Birds	Bats	Fisher-ies	Habi-tat
Sound/ Particle motion	Behavioral disturbance, injury/mortality, interference with human uses	X	X	X	X	X	X
Increased vessel traffic	Behavioral disturbance, emissions, collision risk, navigational/ fisheries hazard, interference with human uses	X	X			X	X
Bottom disturbance	Behavioral disturbance, turbidity, contaminant release, injury/mortality of some benthic organisms	X	X	X		X	X
Habitat alteration	Behavioral disturbance, displacement, injury/mortality for benthic/encrusting organisms, reduced connectivity, navigational/fisheries risk for infrastructure left in place	X	X	X	X	X	X

9.2 Approach for decommissioning plan and coordination with stakeholders

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

- *Community Offshore Wind shall decommission the Project in accordance with all necessary laws and regulations and generate a detailed Project-specific decommissioning plan*. The Decommissioning Plan will be based on current regulations and outcomes of stakeholder engagement and BOEM's PEIS, the COP process, and the EIS that will support the COP process. Community Offshore Wind will develop the plan to ensure all decommissioning activities are conducted in accordance with necessary regulations and meet stakeholder needs.
- *Community Offshore Wind shall seek input on the detailed Project-specific decommissioning plan from regulatory agencies, fisheries and marine stakeholders, and local communities. Tribes/Tribal Nations will also be engaged with for input and feedback.*
- *Community Offshore Wind shall use "lessons learned" from the construction and operations activities and apply them when appropriate to the decommissioning plan.*

- To streamline decommissioning, decommissioning concepts will be integrated into the Project infrastructure design, as practicable, and this will be considered as Design for Decommissioning.
- The ongoing communications and stakeholder identification described in Section 2 and the Stakeholder Engagement Plan submitted in response to ORECRFP23-1 Appendix E will be used to engage stakeholders and to identify and minimize any decommissioning impacts of concern.
- Ongoing academic and other research collaborations will provide more information about potential decommissioning impacts, opportunities to reuse and recycle materials, and ways to dispose of materials and mitigate environmental effects of decommissioning activities to inform the Decommissioning Plan.
- Decommissioning activities will also require permitting and environmental assessment processes when they are eventually proposed, providing other opportunities to identify and engage stakeholders.
- Community Offshore Wind commits to collaborating with other offshore wind developers to publicize data as it pertains to decommissioning such that similar projects may take findings from Community Offshore Wind to better their decommissioning processes.