

Fisheries Mitigation Plan
for
Empire Wind 2
Version 1.0

Prepared Pursuant to
Section 12.05 of the Offshore Wind Renewable Energy
Certificate Purchase and Sale Agreement by and
Between the New York State Energy Research and
Development Authority and Empire Offshore Wind LLC

Albany, NY

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Links to project information:

Project website: www.empirewind.com

Fisheries website: www.empirewind.com/fisheries (click on Information for Mariners)

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1. Fisheries Mitigation Plan Summary

1.1. Overall philosophy and principles

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

- Empire Wind's approach and philosophy to project development is premised on the belief that the fishing industry and offshore wind energy developments can share ocean resources. Empire Wind believes that impacts to fisheries can be minimized by carefully evaluating existing uses of the lease area, avoiding impacts where feasible, or reducing impacts through mitigation.
- Empire Wind's approach to fisheries mitigation is founded upon the fisheries mitigation hierarchy. More specifically, this approach means that we anticipate and avoid impacts on fisheries resource and fishers; minimize impacts where avoidance is not possible; and take steps to offset any significant residual adverse impacts that are predicted to remain.
- Empire Wind believes that the project can be developed in a manner that minimizes disruption to the natural environment, natural resources, and existing uses of the Lease Area. Empire Wind believes that a successful cooperation requires open and regular communication between the Project team and the fishing industry, starting with the development and survey phase, and continuing through permitting, construction, operation, and decommissioning of the wind farm.
- Empire Wind does not intend to restrict or apply for broad-based restrictions on fishing activities within the operational wind farm. To the extent that any restrictions are necessary, these may be limited to standard safety zones during the construction phase, and operational safety zones around manned or sensitive offshore platforms or access points.
- Empire Wind recognizes the importance of adaptive management and will continue to evolve its procedures for the evaluation and mitigation of fisheries resources.
 - For example, the Plan described herein is an update to the details described in the original Empire Wind 1 bid submittal, reviewed and commented on by NYSED, and subsequently presented to the F-TWG on November 20, 2019.

1.2. Overall approach to incorporating data and stakeholder feedback

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

- Empire Wind will seek consultation and coordinate with relevant stakeholders.
- Empire Wind will review existing research and data and seek input from stakeholders regarding data gaps to inform decisions made throughout the Project life cycle.

- Empire Wind will 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.
- Pre- and post-construction monitoring shall be designed to improve the understanding of the impacts of offshore wind energy development and operations on fisheries.
- Additionally,
 - Empire Wind will identify mitigation measures with relevant fisheries stakeholders through an iterative process of project design, including site selection, cable routing, timing of works, and consideration of construction and operations methods.
 - Empire Wind has already taken the following steps to minimize potential impacts:
 - Modifying survey schedules and locations in survey planning, and in real-time by adaptive management of survey locations to avoid areas with active and/or seasonal fishing;
 - Early spatial planning incorporating data and feedback, and real-time adaptive management during survey data acquisition, to avoid high use, high value, and high sensitivity fisheries areas in planning the export cable routes;
 - Establishing a fisheries communications and outreach strategy to effectively engage with and solicit input from a wide range of fishers and stakeholders in multiple regions; and
 - Applying data and fisheries feedback in early spatial planning for the project area, including setting “Layout Rules” for the wind farm layouts that aim to minimize impacts on fishing and facilitate continued safe access to traditional fishing grounds, establishing principles around layouts for EW1 and EW2, and establishing preferred layouts through engagement with the Responsible Offshore Development Alliance (RODA) and non-RODA members.

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 FMP. Include links, if available, for all references.

- Seller’s Fisheries Communication Plan (FCP), which provides an overview of Seller’s overall approach to offshore wind development and consideration of fisheries resources; the principles of which have been adopted for the Empire Wind 1 and 2 projects. The FCP can be found at www.empirewind.com/fisheries
- To achieve the objective of cooperation, Empire Wind has been and will continue to follow industry best practices, including, but not limited to:
 - Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial

Fishermen on the Atlantic Outer Continental Shelf, Bureau of Ocean Energy Management (BOEM) 2014-654;

- Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison - Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW), UK;
- Fishing and Submarine Cables Working Together – published by the International Cable Protection Committee;
- Bureau of Ocean Energy Management (BOEM) 2020 – Guidelines for Providing Information on Fisheries Social and Economic Conditions for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 Code of Federal Regulations (CFR) Part 585, available at <https://www.boem.gov/sites/default/files/documents/about-boem/Social%20%26amp%3B%20Econ%20Fishing%20Guidelines.pdf>;
- BOEM 2019 – Guidelines for Providing Information on Fisheries for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585, available at <https://www.boem.gov/sites/default/files/renewable-energy-program/BOEM-Fishery-Guidelines.pdf>;
- BOEM n.d.(a) – Previously Identified Offshore Wind Development Concerns;
- BOEM n.d.(b) – Possible Best Management Practices and Mitigation Measures to Reduce Conflicts between Fishing and Wind Industries;
- Hooker 2014 – Bureau of Ocean Energy Management Fishing and Offshore Energy -Best Management Practices;
- McCann 2012 – Developing Environmental Protocols and Modelling Tools to Support Ocean Renewable Energy and Stewardship;
- Ecology and Environment 2014 – Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial Fishermen on the Atlantic Outer Continental Shelf: Report on Best Management Practices and Mitigation Measures;
- Virginia Coastal Zone Management Program (VCZMP) 2015 – Collaborative Fisheries Planning for Virginia’s Offshore Wind Energy Area;
- Lipsky et al. 2016 – Addressing Interactions between Fisheries and Offshore Wind Development: The Block Island Wind Farm;
- Moura et al. 2015 – Options for Cooperation between Commercial Fishing and Offshore Wind Energy Industries: A Review of Relevant Tools and Best Practices;
- Gray et al. 2016 – Changes to fishing practices around the UK as a result of the development of offshore windfarms – Phase 1;
- Petruncy-Parker et al. 2015 – Identifying Information Needs and Approaches for Assessing Potential Impacts of Offshore Wind Farm Development on Fisheries Resources in the Northeast Region;

- Mid-Atlantic Fishery Management Council (MAFMC) 2014 – Offshore Wind Best Management Practices Workshop;
- New York State Offshore Wind Master Plan: Fish & Fisheries Study, Section 6 and Appendix D (2017);
- Anticipated best practice guidance tools that may be developed through initiatives such as F-TWG, E-TWG, Responsible Offshore development Alliance (RODA) Task Force, and other groups;
- BOEM 2019. Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 C.F.R. Part 585, available at <https://www.boem.gov/sites/default/files/renewable-energy-program/Regulatory-Information/BOEM-Renewable-Benthic-Habitat-Guidelines.pdf>. The guidance recommends that the NMFS EFH mapper tool (<http://www.habitat.noaa.gov/protection/efh/habitatmapper.html>) be used for species identification and habitat characteristics at any particular location (page 7);
- Experience gained from collaborating with the fishing industry in Seller's affiliates' offshore wind energy developments in Europe; and
- The application of lessons learned from the US as the offshore wind industry develops.

2. Communications and Collaboration Approach

2.1. Overview and communication plan objectives

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

- Empire Wind will seek methods and processes to allow for a two-way flow of information between key stakeholders and developers, highlighting how feedback informs their decision making.
- Empire Wind will provide updates to the fishing industry stakeholders in an appropriate manner that is easily accessed and widely distributed.
- Additionally:
 - Openness is a core value and cornerstone of Empire Wind's approach to fisheries liaison and communications. Regular, open consultation will be key to ensuring that all parties are well informed of offshore activities and project updates, and in order to provide meaningful input in design and mitigation options.
 - Empire Wind understands that effective, clear and inclusive communication is required to ensure as many affected stakeholders as possible can be reached.
 - Empire Wind intends that its fisheries outreach will be as inclusive as possible; including engagement with fisheries stakeholders through Fishing Industry Representatives ("FIR") and/or groups such as F-TWG and RODA, as well as engaging with organizations or individual fishers not represented in these groups.
 - Empire Wind notes that this approach has proven effective and well-received throughout the continued development of projects and submission of the Empire Wind COP.

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 should also include links to the project website so readers know where to find additional information.

Name/Title	Role/Responsibilities	Contact Information
Elizabeth Marchetti; Fisheries Manager, Empire Offshore Wind LLC	<ul style="list-style-type: none"> • Primary contact with Empire Wind Management Team on fisheries matters; • Member of the New England Fisheries Management Council (NEFMC) Habitat Advisory Panel; • Representative on F-TWG, Responsible Offshore Science Alliance (ROSA), Mass FWG and other working groups; • Point of contact between Project and fishing fleets; 	emarc@equinor.com

Name/Title	Role/Responsibilities	Contact Information
	<ul style="list-style-type: none"> • Maintain database of fisheries interactions; • Arrange meetings and disseminate project information; • Consult with FIRs (see below); • Monitor fishing activity during surveys and for assessments; • Attendance at Fisheries Council meetings; • Fisheries data collection and supporting on impact assessments and identification of appropriate mitigation; • Provision of Offshore Fishery Liaison Officer's (OFLRs) and scout vessels during surveys and construction activities. 	
Stephen Drew; Fisheries Liaison Officer (FLO; Empire Wind Project)	<ul style="list-style-type: none"> • Point of contact between Project and fishing fleets; • Maintain database and track all interactions between project team and fishers; • Arrange meetings and disseminate information; • Consult with FIRs (see below); • Support development of procedures to address lost/damaged fishing gear claims as appropriate; • Monitor fishing activity during surveys and for assessments; • Attendance at Fisheries Council meetings; • Fisheries data collection and supporting on impact assessments and identification of appropriate mitigation 	sdrew@searisksolutions.com
Fishing Industry Representatives (FIRs)	<ul style="list-style-type: none"> • Essential contacts within fishing community to represent/relay views of majority of fishers; • Main point of contact for FLO; • Identify individuals/groups to provide feedback on specific topics; • Assist in distribution of information. 	<p>FIRs are being sourced from the following organizations:</p> <ul style="list-style-type: none"> • Port of New Bedford, MA • Massachusetts Lobsterman's Association • Commercial Fisheries Center of Rhode Island

Name/Title	Role/Responsibilities	Contact Information
Offshore Fisheries Liaison Officer (OFLR), representing Empire Offshore Wind LLC	<ul style="list-style-type: none"> • Present onboard vessels working on behalf of Empire Wind, for example survey and construction vessels; • Maintain daily contact with and keep records of fishing vessels; • Keep masters and watch officers informed of fishing vessels or fishing gear in the area; • Outreach to fishing vessels; • Ad-hoc assistance to wind farm-related vessel officers to support co-existence, including ensuring the principles of the Fisheries Mitigation Plan (FMP) are adhered to offshore. 	<p>Contact details for contacting OFLRs vessel to vessel at sea will be distributed with Survey Flyers.</p> <p>Empire Wind FLOs will be the primary point of contact for enquiries related to survey activity (see above)</p>

2.3. Identification of fishing industry stakeholders

This section should describe the process by which stakeholders relevant to fisheries and the fishing industry will be identified and classified by stakeholder group.

Effective consultation is essential for sharing information and soliciting feedback. Effective consultation is facilitated with the establishment of a comprehensive contact database for local and regional fisheries associations, societies, groups, individual fishers and the various industry organizations. This database is maintained and regularly updated by the FLO in conjunction with Empire Wind's key project team members.

Members of the commercial and recreational fishing communities are identified through various channels and include, but are not limited to:

- Contacting fishing industry leaders known through the combined FLOs' and Fisheries Manager's liaison and industry experience;
- Contacting fishing industry association leaders;
- Attending Fishery Management Council meetings;
- Attending meetings related to offshore wind and fisheries interactions;
- Manning stands at commercial and recreational fishing forums;
- Recommendations from state and federal fisheries staff;
- Fisheries Management Council Advisory Panel lists online;
- Public comments and documents online;
- Word of mouth from the fishing community;
- Automatic Identification System (AIS) monitoring including ship identification;
- Fishing vessels identified offshore during surveys by the OFLR;
- NMFS permit holder lists online;
- Dock visits; and

- Fisheries contacts information referenced in NYSED's New York State Offshore Wind Master Plan Fish and Fisheries Study (NYSED, 2017; Appendix J).

2.4. Participation in stakeholder and technical working groups

2.4.1 Communication with F-TWG

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

- Empire Wind will dedicate project specific technical resources to the F-TWG.
- Empire Wind will work with and attend future F-TWG meetings and sponsored conferences.
- Additionally:
 - Empire Wind will continue to participate in the F-TWG, represented by those listed within the Communication Officers table located in Section 2.2.
 - Empire Wind will present all aspects of the Empire Wind FMP to the F-TWG during dedicated workshops at appropriate timing intervals to ensure the goals of the FMP are met and the FMP is evolved to reflect feedback.
 - As well as the F-TWG, Empire Wind will proactively engage with the fishing industry not represented on F-TWG, or in addition to those on F-TWG. This may be via industry groups such as RODA, other FIRs, or with individual fishing organizations or fishers.

2.4.2 Communication with other New York State agencies

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

Empire Wind is committed to continuing consultation with New York state agencies throughout the Empire Wind project development process. This includes:

- Consultation on matters including the Empire Wind project development updates and schedules, benthic and fisheries resources and fisheries outreach and cooperation.
- Site Assessment Plan (SAP), approved on November 21, 2018, included consultation with the New York State Department of Environmental Conservation (NYSDEC).
- The New York State agencies including:
 - New York Department of State;
 - New York State Department of Environmental Conservation;
 - New York State Office of Parks, Recreation and Historic Preservation;
 - New York State Department of Public Service;
 - New York Office of General Services; and
 - New York State Energy Research and Development Authority.

2.4.3 Communication with other stakeholder and working groups

This should describe any relevant participation with other stakeholder groups, such as international fisheries groups that would help inform the FMP.

- Empire is participating on international fisheries groups, including the UK's Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW);
- Empire Wind is a founding member of the RODA joint industry task force and participates regularly in meetings;
- Empire Wind is a founding board member of ROSA (Responsible Offshore Science Alliance) and participates as a member of the advisory council;
- Empire Wind is hosting webinars for fisheries open houses during COVID-19 pandemic
- Empire Wind's Fisheries Manager is a member of the New England Fisheries Management Council (NEFMC) Habitat Advisory Panel
- Empire Wind will continue to engage with federal agencies, including:
 - BOEM as the lead agency to ensure a smooth permitting process and soliciting feedback on baseline data requirements;
 - NOAA's National Marine Fisheries Service ("NMFS") in relation to development of survey plans, baseline characterization data, for example, benthic and fisheries data sources and providing feedback on Empire Wind's data collection efforts, strategic advice on threatened and endangered species, Incidental Harassment Authorizations ("IHAs") for geophysical surveys and the potential future requirements for IHAs in relation to construction activities.
 - U.S. Fish and Wildlife Service ("USFWS");
 - U.S. Environmental Protection Agency ("EPA");
 - U.S. Coastguard ("USCG") and U.S. Army Corps of Engineers ("USACE"); and
 - National Park Service ("NPS")
- Empire Wind will continue to engage with the general public, which includes open houses and public hearings to address comments and questions. Empire Wind's fisheries team has over 1,100 contact events with fishermen documented since 2018.

2.5. Communication methods and tools

2.5.1. Methods 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.

Proposed Outreach Methods/Tools	Phase*			
	1	2	3	4
Contact with FIRs	X	X	X	X
Contact with fisheries associations	X	X	X	X
Directly from the FLO to individual fishermen not represented by an FIR, but identified on the FLO's database	X	X	X	X
USCG Local Notice to Mariners	X	X	X	X
Electronic email distribution to commercial fishing permit holders (National Oceanic and Atmospheric Administration (NOAA) or state agencies)	X	X	X	X
Empire Wind's website- "Fisheries" page	X	X	X	X
Offshore Wind-Fisheries-specific websites for disseminating information, for example F-TWG	X	X	X	X
Local harbor masters	X	X	X	X
State Fisheries mailing lists	X	X	X	X
3D Simulation Tool demonstrations (provides perspective on turbine layouts, spacing, which facilitates discussions on ability to fish and transit between turbines)	X	X		
Survey flyers / Notification Flyers (includes information related to surveys, construction or maintenance schedules and activities, contact information and requests for feedback)	X	X	X	X
Statements of Common Ground (SoCG) (Established between developers and stakeholders to set out areas of agreement, disagreements, and unresolved issues. May include description of development and affected parties, summary of consultation to date, issues discussed, resolved, unresolved, etc.)	X	X	X	X
Fisheries specific newsletters (includes project overview, schedules, meetings; requests for information; contact information and other information)	X	X	X	X
Presentations or networking at fishing conferences and exhibitions and webinars	X	X	X	X
Notices in fishing news publications	X	X	X	X
*Phase: 1: Survey/Design; 2: Construction; 3: Operation; 4: Decommission				

2.5.1 Communication with vessels

This section should describe communication methods/tools with vessels actively fishing in areas in or adjacent to the Project area during site assessment and construction activities and facilitate proper notification to vessels and resource managers.

- To avoid fisheries conflicts, to the greatest extent practicable Empire Wind shall seek to employ a fishing captain or other experienced fishing industry representative to be onboard vessels during key time/activities where potential conflicts could be greatest.

- Additionally:
 - Notification of upcoming site assessment and/or construction activities via various sources, including Survey Flyers, Local Notice to Mariners (LNMs), email notifications, details on project specific webpages and relevant fisheries web pages.
 - The OFLR will be responsible for monitoring the presence of fishing vessels and/or fishing gear in or around locations of site assessments and/or construction activity, and communications with vessels at sea and for relaying information back to the FLO.
 - The FLO and Fisheries Manager will be responsible for engaging with fisheries managers, fleet managers, FIRs and individual fishermen prior to and during site assessment and/or construction activity.
 - The FLO will monitor AIS in real-time to identify fishing activity (for those fishing vessels carrying AIS) in or around locations of sites assessment and/or construction activity.
 - Where appropriate, scout vessels acting on behalf of Empire Wind will monitor for the presence of static fishing gear, identify owners and contact details, and relay the information to site assessment/construction vessels/OFLRs and the FLO.

3. Monitoring and Research Pre-, During, and Post-Construction

3.1. Identification of scope of monitoring activities/studies

This section should provide an overview of the anticipated monitoring activities, including how the specific scope of monitoring activities will be identified and what types of scientific questions will be addressed.

- Monitoring methods and scientific designs shall meet the highest scientific standards.
- To the greatest extent practicable, fisheries and related research will be performed onboard commercial and recreational fishing vessels. These vessels shall meet all appropriate regulatory safety and scientific standards prior to the beginning of any monitoring activity.
- Additionally:
 - Baseline data characterization and monitoring will be conducted in accordance with best practices, including BOEM guidance as well as consideration of recommendations for further research from groups such as F-TWG, E-TWG and ROSA.
 - Empire Wind will explore appropriate monitoring protocols, including, for example, monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources or fishing practices as a direct result of the offshore wind energy development.
 - Monitoring plans for the Empire Wind project are not yet defined. It is felt this is best dealt with in consultation and in collaboration with other wind developers, the fishing industry and the regulators.

3.2. Baseline data and characterization approach

This section should describe how baseline data will be established on the spatial and temporal presence of fish and invertebrates in the proposed area of the Project at multiple life history stages including egg, larval, juvenile, adult, and spawning stages, as well as associated fish and invertebrate habitats.

3.2.1 Existing literature and data of benthic and fisheries resources

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

- Public data sources suitable for characterizing benthic habitat and fisheries resources in the relevant area, including evaluation of NYSDA's Master Plan Fish and Fisheries Study (2017; Appendix J).
- NOAA National Centers for Coastal Ocean Science and BOEM Comprehensive Seafloor Substrate Mapping and Model Validation in the Atlantic (2019).
- Estuarine Living Marine Resource database (NOAA 2000) provide descriptions of spatial and temporal distributions of species (by life stage) in Hudson River/Raritan Bay and the Great South Bay, however, the database is not updated regularly.
- Use of fisheries effort data as a proxy for fish species (see 3.2.3).

3.2.2 Data collected of benthic and fisheries resources

This section should describe survey activities undertaken or that will be undertaken by the developer that will inform the baseline characterization of benthic and fisheries resources.

- NOAA National Centers for Coastal Ocean Science and BOEM Comprehensive Seafloor Substrate Mapping and Model Validation in the Atlantic research/survey collected sediment grab samples at 400 locations in the lease area, as well as bathymetric data and opportunistic fisheries data.
 - Status: Complete
- Empire Wind commissioned benthic sampling in 2018 by Gardline Environmental covering the entire Lease Area and building on previous comprehensive benthic surveys carried out by NOAA's National Center for Coastal Ocean Science (NOS). These Empire Wind surveys were conducted at a total of 67 sample stations, and included grab samples, drop down digital video and stills imagery. Grab samples were analyzed for sediment grain size distribution and macro faunal analysis. This report has been made publicly available for download from the Empire Wind website.
 - Status: Complete
- Empire Wind commissioned, benthic sampling was conducted in 2019 by Inspire Environmental, covering proposed potential export cable routes for the Lease Area, including the proposed Gowanus export cable route for the Empire Wind 1 project. Sampling included Sediment Profile Imaging (SPI) and Plan View (PV) imaging at 157 sample stations, with 15 reference stations and sediment grab samples for sediment grain size analysis and macrofaunal analysis for verification. This report has been made publicly available for download from the Empire Wind website.
 - Status: Complete
- Geophysical, benthic habitat (through geophysical interpretation), and geotechnical surveys from March 2018 to November 2018 across the entire Lease Area and export cable corridors, with additional geophysical and geotechnical surveys carried out in 2019 to fill in data gaps and cover areas from landfall to the 65 ft (20 m) depth contour.
 - Status: Complete
- With the site specific and existing benthic data, and the existing fisheries data, there is sufficient data for the purpose of the COP impact assessments, spatial planning and/or mitigation. However, Empire Wind will consult with E-TWG, F-TWG, ROSA and the fishing industry, including fisheries scientists and managers, on requirements for further surveys for targeted fisheries monitoring and research.

3.3. Monitor for potential impacts during each phase

This section should describe how potential impacts will be monitored on these types of life history stages 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.

- Empire Wind will seek to collaborate with other regulatory agencies and stakeholder groups (e.g., E-TWG, F-TWG, and ROSA) to identify research needs and opportunities.
- Additionally,
 - Empire Wind acknowledges that ongoing research and monitoring at the lease area and wider regional scale is important to refine the understanding of impacts, potential mitigation options, and for future planning purposes, including facilitating the responsible leasing and development of future offshore wind energy areas within the Northeast and Mid-Atlantic Ocean.
 - Empire Wind understands that from the outset, any research and monitoring to assess changes and impacts should be statistically robust. However, for some biological monitoring, this level of robustness to adequately detect change as a direct result of an offshore wind farm is not always possible as many outside factors can influence these variations with much greater significance than the factors that can be attributed to causes from offshore wind energy developments (e.g., seawater temperature, nutrient levels, etc.).
 - As such, Empire Wind is open to monitoring and exploring other approaches to detect and quantify change, where further monitoring is appropriate, for example, behavioral responses or changes in temporal or spatial distribution of biological resources or fishing practices as a direct result of the offshore wind energy development. Empire Wind will work with the regulatory agencies, F-TWG and relevant stakeholders to identify research and monitoring needs and agree on methodology.
 - Empire Wind proposes to conduct studies consistent with identified needs and priorities in collaboration with other developers and stakeholders, such as: regulatory agencies, fishers, F-TWG and other fisheries groups or initiatives, such as ROSA and the RODA Task Force.
 - Potential studies should be tested for statistical power prior to initiating.
 - Empire Wind is in favor of developing and supporting research initiatives aimed at improving opportunities for continued and enhanced access for recreational and commercial fishing in the operational offshore wind energy developments. For example, Empire Wind is supportive of research aimed at innovative technical approaches to issues such as turbine spacing, impacts on navigation equipment, trawling equipment, safety equipment, training and/or information dissemination options.
 - Ideally, specific questions and focal taxa will 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.
 - Outside expertise will, if practicable, be consulted during study design and data analysis processes.
 - Empire Wind is committed to exploring appropriate monitoring protocols, for example monitoring of potential behavioral responses or changes in spatial and

temporal distribution of biological resources or fishing practices as a direct result of the offshore wind energy development.

- Monitoring and research should ideally be targeted towards interactions between offshore wind energy developments and the receptors it is being judged against.
- 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.

3.4. Assess and quantify changes to fishery resources

This section should describe how changes to fisheries 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.
- Additionally:
 - Detecting change in biological resources such as fisheries resources as a direct result of an offshore wind development can be challenging, as the fisheries resource may be subject to natural fluctuations in abundance and spatial and temporal distribution due to outside factors, for example oceanographic conditions. As such, any proposals for monitoring should be statistically robust and Empire Wind advocates for technical experts to conduct statistical power analyses up front in the planning process before implementing future studies.
 - Empire Wind will collaborate with F-TWG and E-TWG and seek input from stakeholders on monitoring requirements and methods.
 - Empire Wind supports collaborative research and monitoring opportunities.
 - Empire Wind is committed to exploring appropriate monitoring protocols, for example monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources as a direct result of the offshore wind energy development.
 - Empire Wind is willing to explore collaborative fisheries research and monitoring initiatives, such as ROSA.

3.5. Assess potential changes to commercial and recreational fishing activities

3.5.1 Current and historical usage

This section should describe how the proposed Project area is used by commercial and recreational fisheries in the region, including current and historic usage as well as how associated transit routes will be determined.

- Current and historical use of the Empire Wind project area by commercial and recreational fisheries has and will continue to be determined by the means described in section 2.4.

3.5.2 Changes in usage

This section should describe how changes in commercial and recreational fishing patterns will be calculated postconstruction using statistically sound methods.

- Monitoring changes in pre and post construction fishing effort due to the presence of an offshore wind energy development can be challenging. Many factors dictate fishing effort within a given area on a seasonal and year by year basis which make statistically detecting “change” difficult. For example, fishing effort may be influenced by factors independent of an offshore wind farm such as quota, presence of a mobile species, market prices, fuel prices and fisheries closures. As such, due to the complexities and the need to design a methodology that has both industry and fisheries support, EmpireWind proposes that if required, such studies be discussed as part of the F-TWG.
- Empire Wind will consult on potential monitoring and research with the fishing industry.
- Empire Wind is committed to exploring alternative monitoring protocols, such as behavioral responses or changes in spatial and temporal distribution of biological resources or fishing practices.
- If impacts are present, Empire Wind will consider several options, including:
 - (i) exploring whether further mitigation can be applied to reduce impacts (e.g., improved access through technical solutions to fishing practices and/or navigation equipment);
 - (ii) using adaptive management by applying mitigation in the spatial planning and layouts of later phases of the Lease development; and
 - (iii) sharing the results so that they can be used in adaptive management on a wider scale, for development of future lease areas in the Northeast and Mid-Atlantic Ocean and wider offshore wind energy space.

3.6. Addressing data gaps

This section should describe how data gaps will be addressed.

- Empire Wind will seek to work with stakeholders, including regulatory agencies, to identify data gaps to be addressed through surveys or permitting applications.
- Additionally,

- Empire Wind is committed to working with F-TWG, regulators, and the fishing community to establish if fisheries data gaps exist, the potential data sources and/or studies that can better inform these gaps or impacts, and to agree on methodologies for conducting meaningful studies.

3.7. Data availability

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

- Empire Wind will make non-proprietary environmental and fisheries data publicly available in a format and manner best suited for efficient distribution.
- Additionally, Empire Wind has made the following fisheries related studies publicly available:
 - 2018 benthic survey report covering the “SAP” related survey locations within Lease Area (benthic grab samples with grain size and macro fauna analysis, drop down video stills, habitat description). This report is currently available on the Empire Wind webpage;
 - 2018 benthic survey report covering “COP” related survey locations within Lease Area totaling 67 sample locations (benthic grab samples with grain size and macro fauna analysis, drop down video stills, habitat description). This report will be made available on the Empire Wind webpage;
 - 2019 benthic survey report covering “COP” related survey locations within the proposed export cable corridors (Sediment Profile Imaging (SPI) Plan View Imaging (PVI), benthic grab samples with grain size and macro fauna analysis, drop down video stills, habitat description). This report will be made available on the Empire Wind webpage ;
 - 2017 to 2018 digital aerial survey images, monthly, quarterly and annual reports of avian species, marine mammals, sea turtles and data of large bony fish assemblages as observed from the 12 x monthly digital aerial surveys carried out from November 2017 to October 2018. These data and reports are all currently available on the ReMOTe webpage https://remote.normandeau.com/ewind_overview.php ;
 - 2018 to 2019 digital aerial survey images, monthly and quarterly reports of large bony fish assemblages as observed from the 12 x monthly digital aerial surveys carried out from November 2018 to October 2019. These data and reports will be made available on the ReMOTe webpage https://remote.normandeau.com/ewind_overview.php; and
 - Oceanographic data, not deemed proprietary, for example seawater temperature and salinity, from the “Metocean Facilities” deployed within the Lease Area.
- The following studies and reports will be available to the public once the COP has been issued by BOEM for public comment:

- Benthic Resources Characterization Reports
- Essential Fish Habitat (EFH) Assessment
- Offshore Electric and Magnetic Field Assessment
- Onshore Electric and Magnetic Field Assessment
- Underwater Acoustic Assessment
- Sediment Transport Analysis
- Information for Planning and Conservation (IPaC) Report and New York State Department of Environmental Conservation Natural Heritage Response Letters
- Conceptual Project Design Drawings
- Oil Spill Response Plan
- Coastal Zone Management Consistency Statements
- Prior to any disclosure, data made available by Empire Wind will undergo final quality assurance/quality control (“QA/QC”) to be performed by Empire Wind.
- Empire Wind is open to exploring additional outlets for sharing information (e.g., the F-TWG webpage or other data portals), however, version control will be important.

4. Supporting Other Research

4.1. Support of collaborative research

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

- Empire Wind is committed to collaborate with the scientific community, F-TWG, relevant stakeholders, other offshore wind energy developers and third-party groups to conduct robust and relevant research studies that relate to fisheries and offshore wind energy developments. Studies may include fishing feasibility (by technique) within operational wind farms.
- Options for research can be discussed through the F-TWG, or other fisheries related initiatives such as ROSA and the fishing industry.
- Empire Wind is a board member of the ROSA and active member of the Advisory Council.
- Additionally, Empire Wind will:
 - Consider making existing wind farm related vessels, buoys or structures available for research opportunities where this does not materially impact existing objectives of those resources. For example, Empire Wind will consider proposals for adding additional or third-party self-contained sensors on survey vessels, construction vessels, operations and maintenance (O&M) vessels, wind farm structures or wind farm related buoys and metocean moorings.
 - Explore appropriate monitoring protocols, for example monitoring of potential behavioral responses or changes in spatial and temporal distribution of biological resources as a direct result of the offshore wind energy development.
 - Consider requests to access existing operating offshore wind energy developments in Europe of Empire Wind's affiliates.
- Empire Wind advocates that technical experts conduct statistical power analyses up front in the planning process before implementing any future studies. In addition, F-TWG and/or E-TWG are appropriate forums in which to discuss the development of such analyses and should be part of this process.

4.2. 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 and fishery sensitivities and/or the impacts of offshore wind energy development on fish, invertebrates and fisheries for the purpose of publication in peer reviewed journals.

- Empire Wind will make an effort to meet with any interested parties when contacted to discuss prospective research.

Empire Wind is willing to consider requests to access its affiliates existing operating offshore wind energy developments in Europe to conduct research and monitoring.

4.3. 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.

- Empire Wind shall seek to explain why identified data types are considered commercially sensitive.
- Additionally:
 - Empire Wind will restrict access to commercially sensitive data (e.g., wind resource data and operational availability estimates, geological information, etc.).

4.4. 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 related to fish, invertebrates and fisheries, including federal or State-supported research. Or, if elected, provide the level of commitment to a general fund for supporting third-party research into relevant fish and invertebrate communities and associated commercial and recreational fisheries and the effects of offshore wind energy development.

- Empire Wind will support regional monitoring of wildlife and key commercial fish stocks equivalent to the specified value of \$10,000 per MW. Half of this will support regional monitoring of key commercial fish stocks to better understand how offshore wind energy development is potentially altering the biomass and/or distribution of these stocks; and the other half will support regional monitoring of wildlife to better understand how offshore wind energy development effects distribution and abundance of sensitive species. These monitoring efforts may be committed via regional monitoring organizations (e.g., ROSA, Regional Wildlife Science Entity (RWSE) or similar) or independently by Empire Wind.
- Empire Wind is committed to continue participating in the development of RWSE, and Laura Morales (Head of Environment and Permitting (NY)) sits on the Steering Committee.
- Empire Wind is committed to continue participating in ROSA, where Scott Lundin (Head of Environment and Permitting (MA)) sits on the Board of Directors.
- Empire Wind is committed to continue participating in the Massachusetts Fisheries and Habitat Working Groups (MA FWG and MA HWG, respectively).
- Empire Wind's OFLR is a member of the New England Fishery Management Council's Habitat Committee Advisory Panel. The Council's Habitat Committee is actively engaged in the development of offshore wind in the Northeast region, participating in various groups seeking to mitigate the effects of offshore wind on marine species and fisheries and helping to facilitate coordinated regional science and monitoring.

4.5. 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.

- Empire Wind has collaborated with SUNY Stony Brook to attach four fish tag receiver gates to the Empire Wind 1 and 2 Metocean Facilities. The receiver gates, used primarily for detecting Atlantic sturgeon but also capable of detecting other tagged species, were part of a previously BOEM-funded study. Empire Wind has been coordinating with Stony Brook on opportunities to download and service the sensors during scheduled service for the sensors approximately every 6 months. Empire intends to explore continuing this collaboration.
- Empire Wind is collaborating with the Wildlife Conservation Society (WCS) and Woods Hole Oceanographic Institute (WHOI) on real-time large whale detection and notification buoys in a minimum 3-year monitoring program. This includes an exhibit at the New York Aquarium concerning the program.
- Empire Wind has and will continue to contribute to the startup of ROSA.
- Empire Wind is a member of the RODA Task Force.

5. Proposed Mitigation of Impacts to Benthic/Fishery Resources

5.1. Potential impacts/risks and mitigation measures by project stage

The table below should list the potential impacts and risks to benthic/fishery resources and proposed mitigation measures. To this end, a description of how the potential adverse impacts of infrastructure design elements (e.g., turbine spacing and layout, turbine foundation type, cable burial and protection methods, and cable crossing designs) on fishing in the proposed Project area will be considered in mitigating impacts should be included. The mitigation measures should also demonstrate that the Project area and proposed site design allows for reasonable flexibility in the site layout (e.g. orientation of turbine lines, distance between turbines, and navigation areas) to accommodate changes that may be needed in the future. The section should also describe the planned operational protocol to avoid, minimize, and mitigate impacts to fish, invertebrates and fisheries during Project construction and operation phases, such as vessel transit routes, designation and monitoring of safety zones, gear monitoring and retrieval, and communication with fishing vessels and resource managers.

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Micro-siting conflicts with habitats and fishery resources	<ul style="list-style-type: none"> • Empire 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. <p>Additionally,</p> <ul style="list-style-type: none"> • Empire Wind will avoid, to the extent possible, siting structures (wind turbines, offshore substations, and submarine cables) in areas of sensitive habitat, where feasible; • Empire Wind will consider the timing of construction activities; working with the fishing industry and fisheries agencies on sensitive spawning and fishing periods to actively avoid or reduce interaction with receptors, where feasible. • Micro-siting of the export cable route to further reduce potential impacts on sensitive habitats and minimize areas where burial is more challenging. 	X			
Temporary, alteration of the seabed and localized increases in noise and turbidity	<p>General:</p> <ul style="list-style-type: none"> • Most construction vessels will maintain position using dynamic positioning, limiting the use of anchors and jack-up features, where feasible. Any anchors or jack-up features would be placed within the previously cleared and/or disturbed area around the foundations; • Empire Wind will consider the use of HDD at landfall to minimize physical disturbance of coastal 	X	X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	<p>habitats. Empire Wind would implement appropriate measures during HDD activities at landfalls to minimize potential release of HDD fluid. To minimize an inadvertent fluid return, an HDD Contingency Plan would be developed and implemented; and</p> <ul style="list-style-type: none"> • Empire Wind will consider the use of appropriate measures and timing during cable installation activities to minimize sediment resuspension and dispersal in areas of known historically contaminated sediments. • Empire Wind will seek to use commercially available and technically feasible noise reducing technologies, in accordance with associated authorizations. 				
Long-term changes to seabed and habitat	<ul style="list-style-type: none"> • Empire Wind will, to the extent possible, avoid sensitive benthic habitats. • Empire Wind will implement mitigation and avoidance measures to protect water quality, such as spill prevention. Specifically, Empire Wind will use appropriate measures for vessel operation and implementing an OSRP, which includes measures to prevent, detect, and contain accidental release of oil and other hazardous materials. Project personnel will be trained in accordance with relevant laws, regulations, and project policies, as described in the OSRP; • During construction and maintenance, Empire Wind will implement an agency-reviewed OSRP; • During construction, operations, and maintenance, Empire Wind will utilize sensitive lighting schemes to minimize exposure of light, as available; • Most construction vessels will maintain position using dynamic positioning, limiting the use of 	X	X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	<p>anchors and jack-up features, where feasible. Any anchors or jack-up features would be placed within the previously cleared and/or disturbed area around the foundations;</p> <ul style="list-style-type: none"> • Empire Wind will consider the use of HDD at the landfall to minimize physical disturbance of coastal habitats. Empire Wind would implement appropriate measures during HDD activities at landfalls to minimize potential release of HDD fluid. To minimize an inadvertent fluid return, an HDD Contingency Plan would be developed and implemented. 				
EMF Impacts	<ul style="list-style-type: none"> • Empire Wind will use proper shielding to reduce EMF impacts; • Empire Wind will conduct EMF modeling and assessments to identify potential mitigation requirements; • Electrical cables shall be sufficiently buried where feasible to reduce EMF effects; and • As noted above, Empire Wind will conduct both onshore and offshore EMF assessments for the COP. 		X	X	
Cable burial	<ul style="list-style-type: none"> • Empire Wind shall bury export cables to an appropriate minimal depth to reduce exposure risk. If depth cannot be reached, Empire Wind will add protective materials over the cable. 		X	X	
Additional proposed mitigations	<ul style="list-style-type: none"> • Empire Wind will install of scour protection, as needed; and • Empire Wind will develop a monitoring program to address specific questions, identify key species of interest, and when possible, contribute to the understanding of long-term project-specific impacts and large scale efforts to understand cumulative impacts. 	X	X	X	X
*Phase: 1: Survey/Design; 2: Construction; 3: Operation; 4: Decommission					

5.2. Coordination with F-TWG and other stakeholders

This section should describe how the Developer will engage with stakeholder groups such as the F-TWG and other regional fishermen that address stakeholder concerns related to benthic and fisheries resource. Specifically, describe the key types of information and design decisions where feedback will be solicited from stakeholders.

- Empire Wind shall coordinate with the F-TWG stakeholders to address concerns and mitigate impacts to benthic/fisheries resources.
- Upon request the developer shall provide a detailed, step by step breakdown of the process used to create the Project layout.
- Additionally, Empire Wind has and will continue to engage in discussion on the following topics with F-TWG, E-TWG, regulators and other stakeholder groups as appropriate to solicit feedback on studies and designs:
 - Spatial planning of export cable routing;
 - Sediment transport modeling;
 - EMF modeling and assessment;
 - Project Design Envelope;
 - Project Layouts; and
 - Benthic and fisheries resource data collected and assessed as part of the COP submission.

6. Proposed Mitigation of Impacts to the Recreational and Commercial Fishing Industry

6.1. Potential impacts/risks and mitigation measures by project stage

The table below should list the potential impacts and risks to recreational and commercial fishing and proposed mitigation measures. To this end, this section should describe how the potential adverse impacts of infrastructure design elements (e.g., turbine spacing and layout, turbine foundation type, cable burial and protection methods, and cable crossing designs) on fishing in the proposed Project area will be considered in mitigating impacts. The mitigation measures should also demonstrate that the Project area and proposed site design allows for reasonable flexibility in the site layout (e.g. orientation of turbine lines, distance between turbines, and navigation areas) to accommodate changes that may be needed in the future. The section should also describe the planned operational protocol to avoid, minimize, and mitigate impacts to fish, invertebrates and fisheries during Project construction and operation phases, such as vessel transit routes, designation and monitoring of safety zones, gear monitoring and retrieval, and communication with fishing vessels and resource managers.

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
Fishing gear loss	<ul style="list-style-type: none"> • Empire Wind will seek consultation with regulatory authorities and fisheries stakeholders for the development and use of a Gear Loss Prevention and Claim Procedure. • Use scout vessels to identify fixed gear in advance of project specific activities; • Continue implementation of a Fisheries Mitigation Plan throughout the construction process to alert local fishing industries to relevant construction activities through the use of in-person communications, social media, website communications, and LNMs; • Undertake cable route planning to avoid areas of high fishing activity; • Where feasible, plan the location and timing of construction activities to minimize overlap with areas or times of high activity; • Continue active engagement with the fishing industry on the timing and location of construction so that they can, where possible, elect to fish in other areas and plan accordingly; • Continue to use offshore OFLRs to facilitate communications with the fishing community; • Continue communications between FLO and fisheries on the areas of temporary construction 	X	X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	<p>closures, when they are re-opened, updates on schedules through email serves, flyers, websites;</p> <ul style="list-style-type: none"> Utilize a CBRA to determine sufficient burial depth along the export cable route and, where target burial depth cannot be reached, secondary protection shall be considered; Utilize a guard vessel to alert mariners to Safety Zones and/or active construction areas where appropriate; In the event of maintenance within the offshore environment, alert the fishing industry to the occurrence of these activities. Communication methods will include the use of FLOs, social media, website communications, and LNM; Utilize the Layout Rules to achieve wind farm layouts, wind turbine spacing, and lines of orientation within the array that facilitate continued access to traditional fishing grounds; Bury export and interarray cables to a target burial depth of 4 ft (1.2 m) and 6 ft (1.8 m) where clam dredging is known to occur in order to minimize the risk of snagging; Following installation of the export and interarray cables, conduct cable burial surveys at appropriate intervals to assess if target burial depth is being maintained; To minimize risk of anchors and fishing gear snagging the submarine export cable, route the export cable route to target areas where chances of burial are improved; Minimize the use of concrete mattresses as surface cable protection, to the extent practicable; Provide all submarine export cable, interarray cable, wind turbine, and offshore substation locations to NOAA for updates to nautical charts; To the extent practicable and in consultation with the fishing industry, mark turbine locations and cable routes on the most common types of software used by fishermen for navigation and fishing 				
Navigation safety concerns	<ul style="list-style-type: none"> Empire Wind will seek consultation with appropriate regulators, F-TWG and fishing community, to minimize the overall area of temporary closed areas; Highly visible marking and lighting of active construction sites; 	X	X		

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	<ul style="list-style-type: none"> Compliance by vessels associated with the project with international and flag state regulations including the COLREGs and the SOLAS; Utilization of existing TSSs, maintained channels, and transit lanes by vessels associated with the project to comply with existing uses and management of the surrounding waterway, to the extent practicable; Marine coordination for vessels associated with the project (i.e., a central coordination hub from which all project vessel movements will be managed, and third-party traffic will be monitored); Minimum advisory safe passing distances for cable laying vessels (where feasible); Monitoring of third-party vessel traffic by AIS; The implementation of up to a 1,640-ft (500-m) dynamic safety zone around active construction sites (including partially installed wind turbines) pending agreement with USCG; Implementation of the Layout Rules; Regular updates, including the positions of installed and partially installed structures, to the local marine community through social media, the USCG LNM, and active engagement with Maritime Association of the Port of New York and New Jersey Harbor Safety, Navigation, and Operations Committee; The potential use of buoys and/or support vessels to mark temporary working areas or potential hazards (e.g., partially-installed structures). 				
Displacement/loss of access to traditional fishing grounds during survey and construction activities	<ul style="list-style-type: none"> Empire Wind will coordinate with fishing stakeholders to determine spatial and temporal use; Empire Wind will, to the extent practicable, avoid heavily fished areas; Empire Wind is actively avoiding areas being fished during survey activities; Pre-survey consultation with fishing industry to determine upcoming spatial and temporal use, which is avoided by survey vessels where feasible; Planning of export cables routes that avoid heavily fished areas, for example static gear, prior to surveying as practicable; Timing of offshore surveys to avoid seasonal fishing where feasible; 	X	X	X	X

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	<ul style="list-style-type: none"> Dissemination of information related to offshore survey activities, with contact details for further information; Real-time adaptive management and monitoring of fishing activity – using OFLRs, real-time AIS and consultation with the fishing community to modify survey areas of coverage as appropriate; Engagement with recreational fishermen in the field by the OFLR; To the extent possible and reasonable, actively avoiding areas being fished during construction activities through pre-planning the timing and location of activities; Dissemination of construction scheduling information as early as possible with fishers; Use of real-time fisheries monitoring and adaptive management of construction timing and location, to the extent possible; Potential for use of construction practices such as rolling construction safety zones in consultation with the appropriate regulators, F-TWG and fishing community, to minimize overall area of temporary closed areas. 				
EMF Impacts	<ul style="list-style-type: none"> Empire Wind will use proper shielding to reduce EMF impacts; Empire Wind will conduct EMF modeling and assessments to identify potential mitigation requirements; Electrical cables will be armored and sufficiently buried where feasible to reduce EMF effects; and As noted above, Empire Wind will conduct both onshore and offshore EMF assessments for the COP. 				
Cable Burial	<ul style="list-style-type: none"> Empire Wind will bury export cables to an appropriate minimal depth to reduce risk. If depth cannot be reached, Empire Wind shall add protective materials over cable which allows fishing activity to occur; Sufficient burial of inter-array and export cables to facilitate continued seabed penetrating fishing activity; Dissemination of information to fishers on cable locations including inclusion on navigational charts; Intention to bury inter-array and export cables based on Cable Burial Risk Assessment; 				

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	<ul style="list-style-type: none"> Periodical post installation cable surveys as appropriate, with sharing of information on identified navigational risks as appropriate; Completion of a Cable Installation Plan, detailing how cable installation will be managed. 				
Impacts to Sensitive areas	<ul style="list-style-type: none"> Empire Wind will collaborate with state regulatory authorities and key stakeholders to collect data and avoid sensitive areas to the extent that is reasonably practicable; Empire Wind will, to the extent possible, avoid sensitive benthic habitats; Empire Wind will implement mitigation and avoidance measures to protect water quality, such as spill prevention. Specifically, Empire Wind will use appropriate measures for vessel operation and implementing an OSRP, which includes measures to prevent, detect, and contain accidental release of oil and other hazardous materials. Project personnel will be trained in accordance with relevant laws, regulations, and Project policies, as described in the OSRP; During construction and maintenance, Empire Wind will implement an agency-reviewed OSRP; During construction, operations, and maintenance, Empire Wind will utilize sensitive lighting schemes to minimize exposure of light, as available; Most construction vessels will maintain position using dynamic positioning, limiting the use of anchors and jack-up features, where feasible. Any anchors or jack-up features would be placed within the previously cleared and/or disturbed area around the foundations; Empire Wind will consider the use of HDD at the landfall to minimize physical disturbance of coastal habitats. Empire Wind would implement appropriate measures during HDD activities at landfalls to minimize potential release of HDD fluid. To minimize an inadvertent fluid return, an HDD Contingency Plan would be developed and implemented. 	X	X	X	
Displacement/loss of access to traditional fishing grounds during operations phase activities	<ul style="list-style-type: none"> Empire Wind does not intend to restrict or apply for broad-based restrictions on fishing activities within the operational wind farm. To the extent that any restrictions are necessary, these may be limited to standard safety zones during the construction 			X	

Potential Impacts	Proposed Mitigation Measures	Phase*			
		1	2	3	4
	phase, and operational safety zones around manned or sensitive offshore platforms or access points.				
*Phase: 1: Survey/Design; 2: Construction; 3: Operation; 4: Decommission					

6.1.1 General approach to avoiding and mitigating fishing gear loss

This section should describe how potential loss of fishing gear due to snags on turbine structures, associated cables or cable mattresses, or related structures installed or deployed as a result of offshore wind energy development, will be minimized.

- Empire Wind will endeavor to bury export cables to sufficient to minimize exposure risk. If the “appropriate depth” cannot be reached, the developer will add protective materials over the cable which to the extent practicable also allows for fishing to occur.
- Additionally, mitigation measures include:
 - Use of scout vessels to identify fixed gear in advance of project specific activities;
 - Marking & lighting of partially built structures following Private Aids to Navigations (PATONS);
 - Dissemination of charted locations of partially built and installed structures to the fishing community;
 - Provision of locations of partially built structures and installed structures in digital formats that can be uploaded to typical navigation equipment, for example navigation plotters;
 - USCG Local Notice to Mariners (LNMs);
 - Provision of locations of partially built structures and installed structures for updating NOAA Nautical Charts, as well as USCG LNM at greater frequency (i.e., weekly);
 - Consultation with the fishing community with the potential to establish temporary safety exclusion zones around partially installed wind farm electrical cables;
 - Provision of safety vessels around high-risk structures;
 - Prescribed transit routes for project related vessels;
 - Real-time monitoring and notifications to fishing vessels;
 - Bury cables to depths below fishing gear penetration where feasible and making the position of cables available for the fishing community; Where burial is not feasible, use of cable protection where appropriate to findings of the cable burial risk assessment (CBRA) and consultation;
 - Avoidance of use of concrete mattresses in areas of snagging risk, where feasible.

6.1.2 Processing claims for lost fishing gear

This section should describe how the Developer will approach claims of lost gear in the event of an snag that provides for a fair and timely review of the claim and appropriate compensation of impacted parties.

Per NYSERDA:

- Empire Wind shall work with F-TWG and fishing community to establish the appropriate procedures in advance of the start of construction activities. When practical, the procedures shall be standardized across projects, fisheries, gear types, and geographic regions.
- Additionally:
 - Empire Wind will work with F-TWG and fishing community to establish the appropriate procedures in advance of the start of construction activities.

6.2. Coordination with F-TWG and other stakeholders

This section should describe how the Developer will engage with stakeholder groups such as the F-TWG and other regional fishermen and shipping and navigation to determine Project layouts that address stakeholder concerns. Specifically, describe the key types of information and design decisions where feedback will be solicited from stakeholders. Describe how changes to environmental resources will be quantified using statistically sound methods.

- Empire Wind will coordinate with the F-TWG (in accordance with Section 12.04 of the Agreement) and stakeholders to address concerns and mitigate impacts to the fishing industry.
- Empire Wind will engage with the F-TWG, regional fishermen and other maritime stakeholders such as maritime experts, consultants and marine safety committees to refine project layouts that aim to minimize impacts on existing fishing practices and facilitate ongoing access to traditional fishing grounds.
- Empire Wind will work with fisherman and other stakeholders through the developer's dedicated fisheries staff to help address key concerns such as navigation, vessel access, and safety.
- Additionally,
 - Fisheries data and consultation feedback from the fishing industry and maritime community has resulted in the Empire Wind 1 and 2 projects establishing Layout Rules that aim to minimize impacts on existing fishing practices and facilitate ongoing access to traditional fishing grounds. The Layout Rules also take into account existing and future maritime navigation trends and Search and Rescue capabilities.
 - Empire Wind has and will continue to consult with the fishing industry on the project's Layout Rules and indicative layouts via F-TWG, RODA and fishing organizations.

- Empire Wind presented the project's Layout Rules and some indicative layouts to facilitate feedback in a "Layouts Brochure". Empire Wind distributed the layouts brochure directly to fisheries contacts and made the brochure publicly available on the Empire Wind webpage at www.empirewind.com/fisheries.
- Feedback from the Layouts consultations has been used to develop a potential layout for Empire Wind 1 and will be considered in further consultations for potential layouts for Empire Wind 2.

7. Project Decommissioning

7.1. Potential impacts based on available information and experience

This section should describe potential impacts to benthic/fisheries and the fishing industry from decommissioning the project, based on available information and relevant experience (if any).

- Empire Wind's waste handling processes during decommissioning shall focus on re-use or recycling, with disposal as the last option.
- Empire Wind will collaborate with regulatory authorities and key fisheries stakeholder groups to better understand the effects and potential impacts associated with decommissioning.
- Additionally,
 - At this early stage it is not possible to accurately predict impacts and appropriate mitigation from decommissioning. It can be reasonably judged that impacts from decommissioning are not expected to exceed impacts from construction.
 - Potential impacts and mitigation options will become clearer post construction and during operations, facilitated by monitoring.
 - Empire Wind will consult regulators and fisheries stakeholders to study the potential impacts of decommissioning.

7.2. Approach for developing 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 fisheries stakeholders, and any elements of its contemplated decommissioning plan that can be identified at this stage.

- Empire Wind will decommission the project in accordance with all necessary laws and regulations and generate a detailed project-specific decommissioning plan.
- Empire Wind will seek input on the detailed project-specific decommissioning plan from regulatory agencies, fisheries and marine stakeholders, and local communities.
- Empire Wind will use "lessons learned" from the construction and operation activities and apply them when appropriate to the decommissioning plan.
- Additionally,
 - The process for development of a decommissioning plan will be discussed further with E-TWG and F-TWG and relevant regulators and stakeholders.
 - Lessons learned from the construction and operations activities will be applied to the decommissioning plan at the appropriate time.
 - Empire Wind will consult with the fishing industry on the Empire Wind decommissioning plans at the appropriate time, closer to the decommissioning activities.

8. (Optional) Fisheries Compensation Plan

8.1. Consideration of compensation plan

If a fisheries compensation plan is being considered to offset impacts, this section should describe how it will determine instances where all reasonable attempts to avoid and minimize Project impacts, or restoration to predevelopment conditions are not feasible and some type of fisheries compensation plan is warranted.

- Empire Wind considers that at this early stage of development, the primary focus should be on understanding the full extent of potential impacts and what avoidance measures or effective mitigation can be applied to address them from the outset. It is therefore too early to assume the need for and quantify financial compensation measures.
- As such, Empire Wind is not in a position to provide further details of financial compensatory measures related to potential temporary displacement or restricted access of fisheries to traditional fishing grounds related to Empire Wind.
- Noting that the principles around compensation need to be addressed, Empire Wind will work with the relevant regulators and fisheries organizations to establish the details and principles around compensation, if assessed as need to address unmitigated impacts.

8.2. Approach to developing compensation plan

8.2.1 Coordination with stakeholders

This section should describe how a fisheries compensation plan was, or will be developed; how the Developer will coordinate with the F-TWG and other entities in the design or review of the fisheries compensation plan.

- As per section 8.1.

8.2.2 Third-party administration

This section should describe how the compensation plan will be administered by an nongovernmental third-party to provide reasonable and fair compensation for impacts that cannot be sufficiently addressed through other means.

- Noting that the principles around compensation need to be addressed, Empire Wind supports a process for identifying recipients and values that is open to third-party scrutiny and may be managed by an independent third-party (under confidential agreements where sensitive information exists).

9. Additional Considerations

9.1. Additional mitigation strategies and FMP refinement

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

- Empire Wind will engage with the F-TWG and fisheries organizations and use feedback in these discussions to evolve the FMP.
- Empire Wind will support collaborative research on potential mitigation strategies, with other developers, agencies and stakeholders.
- Additionally,
 - Empire Wind will continuously evaluate and evolve this FMP, including addressing additional guidance and information, so it remains complete and sufficient.
 - Empire Wind will engage with the F-TWG and fisheries organizations and use feedback in these discussions to evolve the FMP.

9.2. Process for updating the FMP

This section should describe how feedback from the fishing industry stakeholders, F-TWG, and other agencies and working groups will be incorporated and updated in the FMP.

- The developer shall update the FMP to reflect the results of iterative exchanges with members of the F-TWG and other relevant stakeholders.
- Additionally:
 - Currently Empire Wind is working with the F-TWG to establish a process for updating the Empire Wind FMP, where formal updates will likely occur after major Project milestones (e.g., a project NOI).
 - Empire Wind will continuously evaluate and evolve this FMP so that all the components of the FMP are complete and sufficient.
 - Empire 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 FMP at the appropriate intervals.