Appendix E: Mitigation

The Draft Programmatic Environmental Impact Statement (PEIS) assesses the potential physical, biological, socioeconomic, and cultural impacts that could result from the construction, operations and maintenance (O&M), and decommissioning of the two Humboldt and three Morro Bay lease areas in US Federal waters offshore of California, as well as the change in those impacts that could result from adopting programmatic mitigation measures.

The Proposed Action (Alternative C) for the Draft PEIS is the adoption of programmatic mitigation measures that lessees may incorporate into their plans, or the Bureau of Ocean Energy Management (BOEM) may require as conditions of approval, where appropriate, for activities proposed by lessees in Construction and Operations Plans (COP) submitted for the five California lease areas. The COP-specific National Environmental Policy Act (NEPA) analysis may result in additional or different mitigation. Table E-1 presents the mitigation measures analyzed in the Draft PEIS under the Proposed Action.

Measures were derived from best management practices and a subsequent Biological Assessment (BA) for these 5 lease areas offshore California (BOEM 2022a; BOEM 2022b; NOAA 2022). These measures are considered part of the Federal action of lease issuance and required under terms of the lease. Language for these measures were further refined as requirements for the leasing process offshore Oregon (BOEM 2024a). Other measures below come from BOEM NEPA and consultations for offshore the East Coast in the Atlantic Ocean. Please see the following documents for more information and reference, New York Bight Programmatic EIS (BOEM 2024b, Appendix G) and BOEM's Project Design Criteria and Best Management Practices for Protected Species Associated with Offshore Wind Data Collection notice (last revised on November 22, 2021; BOEM 2021) are required under terms of the lease and issuance. These measures are primarily related to reducing impacts on marine life and features from geophysical surveys and vessel traffic during site characterization. BOEM BA Best Management Practices (BMPs) may also apply to all activities associated with the construction, maintenance, and operations of a project as applicable, including all post-lease geophysical and geotechnical (G&G) surveys carried out over the life of the leases. BMPs are therefore not considered separate mitigation measures under this Draft PEIS. Measures required by federal law, such as U.S. Coast Guard (USCG) discharge rules, are not mitigation measures and not included in this appendix because they apply to all vessel operators and are not limited to offshore wind or project-specific activities.

Table E-1. Proposed Action Mitigation Measures

Mitigation Number	Measure Name	Description
MM-1	Near real-time PAM monitoring and alert system for cetaceans	Implementation of a near real-time Passive Acoustic Monitoring (PAM) system for the detection of cetaceans during offshore wind development activities will be required, with an alert system/notice to mariners/construction operators. This could be achieved through the deployment of mobile or fixed PAM systems and through partnership with other industries, academia, NGOs, and federal agencies in a regional effort. Every effort should be made to deploy equipment in advance of any on-water activity, including site characterization work, construction work, etc., for use in mitigating against potential vessel strike risk and other disturbance. Each system will be equipped with reliable PAM technology and marine mammal detection and classification software. Detections will be transmittable to a PAM analyst for verification. This real-time PAM alert system will increase the opportunity to detect marine mammals, providing the opportunity for increased situational awareness (e.g. for vessel strike avoidance) to PSOs and others of marine mammal presence in the area.
MM-2	Long-term PAM monitoring	The lessee must conduct archival, continuous, and long-term PAM to develop baselines and monitor changes in the presence of marine species as well as changes in ambient noise for 1 year before construction through at least 10 years of operations. Throughout deployments and data analysis, the lessee will be expected to follow the best practices outlined in the Regional Wildlife Science Collaborative (RWSC) Best Practices for the Atlantic unless a similar West Coast entity is formed, in which case the lessee should follow the best practices outlined by that entity. The lessee must also process the data to document, minimally, the presence/absence of cetacean vocalizations, and if possible, the locations, of cetacean vocalizations, as well as metrics of ambient noise. The lessee will be expected to archive the full acoustic record at National Centers for Ecological Information and to submit cetacean detections to BOEM, BSEE, and NMFS at least twice a year.
MM-3	Marine mammal and sea turtle entanglement avoidance/prevention	Vessels and facilities must have adequate equipment available and must be prepared to address entanglements, consistent with current guidelines and local marine stranding centers.
MM-4	Vessel speed limit	All offshore wind-related vessels will travel at 10 knots (18.5 kilometers per hour) or less during project-related activities, and while operating in lease areas. The only exception is when the safety of the vessel or crew necessitates deviation from this vessel speed limit.
MM-5	Low Visibility Monitoring Plan	The lessees must submit an Low Visibility Monitoring Plan (LVMP) for any project activities requiring marine mammal and sea turtle monitoring that would be conducted at night or during other low-visibility conditions. The Plan must at a minimum contain two components: (1) Low-Visibility Monitoring and (2) Nighttime Monitoring. The purpose of this plan is to demonstrate that the lessees can meet the visual monitoring criteria for the associated harassment zone(s)/mitigation and monitoring zones plus any agreed-upon buffer zone (these combined zones are referred to henceforth as the nighttime and low-visibility clearance and shutdown zones). The plan will demonstrate effective use of technologies that the lessee is proposing to use for monitoring during nighttime and low-visibility conditions for instances during daylight hours when lighting or weather (e.g., fog, rain, sea state) prevent visual monitoring of the full extent of the clearance and shutdown zones. “Daytime” is defined as 1 hour after civil sunrise to 1.5 hours before civil sunset. The LVMP must be submitted at least 60 days prior to proposed activities, and BOEM and/or BSEE will review and provide comments, if any, on the plan. The lessee must resolve all comments on the LVMP to BOEM’s and/or BSEE’s satisfaction prior to implementing the plan. **Low-Visibility Monitoring**: This part of the plan must at a minimum address: identification of low-visibility monitoring devices (e.g., vessel-mounted thermal infrared [IR] camera systems, handheld or wearable night vision devices [NVDs], handheld IR imagers) that would be used to detect marine mammal and sea turtle species relative to clearance and shutdown zones. **Nighttime Monitoring**: This part of the plan must demonstrate the capability of the proposed monitoring methodology to detect marine mammals and sea turtles within the full extent of the established clearance and shutdown zones (i.e., species can be detected at the same distances and with similar confidence) with the same effectiveness as daytime visual monitoring (i.e., same detection probability). Only devices and methods demonstrated as being capable of detecting marine mammals and sea turtles to the maximum extent of the clearance and shutdown zones will be acceptable. This part of the plan must at a minimum include: identification of nighttime monitoring devices (e.g., vessel-mounted thermal IR camera systems, handheld or wearable NVDs, handheld IR imagers); the lessee must discuss the efficacy (range and accuracy) of each device proposed for nighttime monitoring as demonstrated in field trials.
MM-6	Berm survey and report	Where plows, jets, grapnel runs, or other similar methods are used, post-construction geophysical surveys are required as part of the Post-Installation Cable Monitoring and must be completed to determine the height and width of any created berms. If there are bathymetric significant changes in berm height, the lessee must develop and implement a Berm Remediation Plan to restore created berms to match adjacent natural bathymetric contours (isobaths), as technically and/or economically practical or feasible.
MM-7	Vessel noise reduction guidelines	To the extent reasonable and practicable, follow the most current International Maritime Organization (IMO) guidelines for the reduction of underwater radiated noise, including propulsion noise, machinery noise and dynamic positioning systems of any vessel associated with the project.
MM-8	Protected Species Observers	Qualified third-party Protected Species Observers (PSOs) are required on vessels during project activities. PSOs must complete a training program approved by NMFS. Crew members also must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements. PSOs must have a 360-degree visual coverage around the vessel at all times that noise-producing equipment <180 kHz is operating, or the vessel is transiting. The Low Visibility Monitoring Plan may include requirements for PSOs for activities at nighttime and other instances of low visibility. PSO data must be collected in accordance with standard data reporting, software tools, and electronic data submission standards approved by BOEM, NMFS, or other appropriate agency. Further PSO requirements may arise out of consultation or other environmental review processes.
MM-9	Avoid the use of SF-6	Sulfur hexafluoride (SF_6) is an extremely potent greenhouse gas that is used as an anti-arcing insulator in electrical and transmission systems. Lessees should ensure that a substitute insulator gas rather than SF_6 is used in project infrastructure, as long as the substitute materials do not impose a higher environmental or safety risk. If the lessee determines using non-SF_6 switchgear is infeasible then the lessee should provide written justification of this determination to BOEM. Any instances where the lessee believes there is technical (and/or economic) infeasibility should be supported by a technical feasibility analysis, as appropriate.

Mitigation Number	Measure Name	Description
MM-10	Reducing emissions from vessels, equipment, and vehicles engaged in activities on the OCS	The lessee is encouraged to use zero-emissions technologies when feasible, and to replace diesel fuel and marine fuel oil with alternative fuels such as natural gas, propane, or hydrogen, to the extent that use of such alternative fuels is feasible and provides emissions reductions.
MM-11	Vessel transit strike avoidance	All vessels transiting between a port and the project location must comply with the vessel strike avoidance measures consistent with measures for other marine wildlife. Vessels must avoid transiting through areas of visible aggregations of birds and particularly for species that can occur in larger numbers including alcids, albatrosses, shearwaters, storm-petrels, and cormorants. If operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas. The disturbance avoidance zone for birds is defined as 100 meters from any surface-sitting birds and includes Federally listed species under the ESA (e.g., Marbled Murrelet and Short-tailed Albatross). If surface-sitting birds are sighted within the operating vessel's forward path, the vessel operator must slow down to 4 knots (unless unsafe to do so) and steer away as much as possible. The vessel may resume normal operations once the vessel has passed the individual or flock. Any incidents must be reported.
MM-12	Seasonal cut-in speeds	Lessees may be required to comply with seasonal cut-in speeds to reduce impacts to bats. Specific dates, times, and speed will be determined on a site-specific basis.
MM-13	Avian and bat annual reporting	By January 31 of each year, the lessee must provide an annual report to BOEM and BSEE documenting any dead or injured birds or bats found during construction, operations, or decommissioning. The report must contain the following information: the name of species, date found, location, a picture to confirm species identity (if possible), and any other relevant information. Carcasses with Federal or research bands must be reported to the United States Geological Survey Bird Band Laboratory, available at https://www.usgs.gov/labs/bird-banding laboratory.
MM-14	Bird and bat monitoring plan	Lessees will develop a Bird and Bat Monitoring Plan. Annual monitoring reports are a required component of the plan and will be used to determine the need for adjustments to monitoring approaches, consideration of new monitoring technologies, and/or additional periods of monitoring. Immediate reporting of injured and dead species listed in the Endangered Species Act must occur to BOEM, ideally within 24 hours and no more than 3 days after the sighting.
MM-15	Bird and bat tracking system	The lessee must install bird and bat tracking technology to address information gaps of selected species offshore movements of birds and bats on project infrastructure. Prior coordination will likely be required with other leaseholders and relevant agencies. Currently used technology is Motus (https://motus.org/).
MM-16	Bird-deterrent devices and plan	To minimize the attraction of birds, the lessee must install bird deterrent devices (e.g., anti-perching or other deterrent devices) where appropriate on project facilities before deployment on the OCS. The lessee must develop a Bird Deterrent Plan which will identify how bird deterrent devices would be incorporated into the project and a monitoring plan for the life of the project, allow for modifications and updates as new information and technology becomes available, and track the efficacy of the deterrents.
MM-17	Light impact reduction for birds	The lessee must minimize lighting impacts on avian species to the maximum extent practicable. Any lights used by the lessee to aid marine navigation during construction, operations, and decommissioning must meet USCG requirements for private aids to navigation (https://www.navcen.uscg.gov/pdf/AIS/CG_2554_Paton.pdf) and BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development (https://www.boem.gov/2021-lighting-and-marking-guidelines). Consistent with, and not conflicting with, any measures that may result from USCG requirements, the lessee must use any additional lighting only when necessary, and such lighting must be shielded downward and directed, when possible, to minimize use of high intensity lighting, and reduce upward illumination and illumination of adjacent waters. Additionally, the lessee must ensure that red-flashing strobe aviation obstruction lights emit infrared energy within 675–900 nanometers wavelength to be compatible with Department of Defense night vision goggle equipment.
MM-18	Bird and bat conservation strategy (formerly Compensatory Mitigation Plan)	The lessee must develop a conservation strategy for migratory birds and bats. This strategy will be a life-of-a-project framework for identifying and implementing actions to conserve birds and bats during project planning, construction, operation, maintenance, and decommissioning. It will provide a framework for assessing impacts; avoiding, minimizing, and mitigating impacts; guiding current actions; and planning future impact assessments and actions to conserve birds and bats. The strategy should be updated regularly as new information, including monitoring of project impacts and technical advancements, becomes available. If BOEM determines, through consultation with USFWS or other agencies, that compensatory mitigation is appropriate, the strategy should outline the actions needed to offset take of ESA-listed birds, migratory birds protected under the Migratory Bird Treaty Act, and bats. The components of a compensatory mitigation plan will be identified and developed during the COP review stage.
MM-19	Anchoring Plan	Lessee must develop an anchoring plan to with a Construction and Operation Plan and prior to placing anchors, equipment, or installation of facilities (e.g., buoys, export cable installation, WTG or OSS installation and interarray cable installation) or decommissioning. The plan and plats (designs and maps) must include all available data on bathymetry, and locations of interest with set distances labeled. Locations of interest include hard-bottom, sensitive habitats, cultural resources, ancient submerged landform features, potential shipwrecks, potential hazards and existing and planned infrastructure. The plan will have a description of the navigation equipment that would be used to ensure anchors are accurately set; and anchor handling procedures to prevent or minimize anchor dragging, such as placing and removing all anchors vertically. The plan will require all vessels deploying anchors to use, whenever feasible and safe, mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seafloor. After completion of activity, as-placed plats must be submitted to BOEM and BSEE after completion of an activity show the "as-placed" location of all anchors and any associated anchor chains and/or wire ropes and relevant locations of interest or avoidance on the seabed where applicable. The plats must be at a scale of 1 inch = 1,000 feet (300 meters) and within current BOEM data submission standards.
MM-20	Sensitive Marine Species Characterization and Monitoring Plan	Lessee must develop and submit a plan to characterize the marine biological species and habitats in the water column or on the seafloor that may be affected by a project's activities. Species and habitats that are particularly sensitive to impacts, and beyond those already addressed specifically elsewhere in the Appendix, will be identified, avoided, and require monitoring to track changes over time, allowing for the identification of adverse effects and evaluation of mitigation efforts. Consolidated seafloor sediments (e.g. hard bottom, hard grounds, reefs) are equivalent to sensitive habitats and species (e.g. hard corals, sponges, commercially important fish species, endangered species) and shall be avoided from direct and indirect impacts unless data exists to demonstrate no harm to sensitive species and habitats. Upon or after COP submission, BOEM may require the lessee to conduct additional surveys to define boundaries and avoidance distances and/or may specify the survey methods and instrumentations for conducting the biological survey and specify the contents of the biological report. If, during the conduct of lessee's approved activities, the lessee or BOEM finds that sensitive seafloor habitats, essential fish habitat, or habitat areas of particular concern may be adversely affected by lessee's activities, BOEM must consult with the NFMS (30 CFR 585.703).

Mitigation Number	Measure Name	Description
MM-21	Scour and cable protection plan	The lessee must prepare a Scour and Cable Protection Plan (SCPP) that includes descriptions and specifications for all cable protection materials. Plan(s) must include depictions of the location and extent of scour and cable protection, the habitat delineations for the areas of cable protection measures, and detailed information on the proposed scour or cable protection materials for each area and habitat type. The lessee must avoid engineered stone or concrete mattresses in complex habitat, as practicable and/or feasible. The lessee must ensure that all materials used for scour and cable protection measures consist of natural or engineered stone that does not inhibit epibenthic growth and provides three-dimensional complexity in height and in interstitial spaces, as practicable and feasible. If concrete mattresses are necessary, bioactive concrete (i.e., with bio-enhancing admixtures) must be used as practicable as the primary scour protection (e.g., concrete mattresses) or veneer to support biotic growth. Lessees should consider using materials the blend and compliment the surrounding tapered or sloped edges to reduce hangs for mobile fishing gear. The lessee should avoid the use of plastics/recycled polyesters/net material (i.e., rock-filled mesh bags, fronded mattresses) for scour protection. The lessee must resolve all comments on the SCPP before placement of cable protection measures.
MM-22	Fisheries Compensatory Mitigation	Lessees should consider establishing a compensation process if a project is likely to result in lost income to commercial and recreational fisheries. The compensation process should be equitable and fair across fisheries and fishing communities and consider best practices and consistency across other offshore wind energy projects. Financial compensation can include compensation for gear loss and damage and lost fishing income.
MM-23	Fisheries Communication Plan and Liaison	Lessees should prepare a Fisheries Communication Plan, outlining the specific methods for engaging with and disseminating project information to the local fishing community, as well as other associated stakeholders, throughout each phase of the project. To the greatest extent practicable, the plan should describe how the lessee intends to engage with the various fishing constituencies that are active within a project area. The Fisheries Communication Plan must include the contact information for an individual retained by the lessee as its primary point of contact with fisheries stakeholders (i.e., Fisheries Liaison).
MM-24	Fisheries community involvement	Lessees should work cooperatively with commercial/recreational fishing entities and interests to minimize potential disruptions to commercial and recreational fishing interests during construction, operation, and decommissioning of a project. Lessees should review planned activities with potentially affected fishing organizations and port authorities to prevent unreasonable fishing gear loss or damage. Lessees should notify registered fishermen of the location and time frame of the project construction activities well in advance of mobilization and provide updates throughout the construction period.
MM-25	Environmental Justice (EJ) Communications Plan	The lessee should develop an Environmental Justice (EJ) Communications Plan, in collaboration with communities that have EJ concerns. This plan should aim to outline how the lessee will communicate with these communities, identified as populations affected by environmental justice issues under Executive Order 14096 and the revised implementation regulations for NEPA (National Environmental Policy Act Implementing Regulations Revisions Phase 2; 89 Federal Register 35554 – 35577 (May 1, 2024)), referred to herein as "EJ populations"). Draft EJ Communications Plan should be developed in consultation with community leaders and community organizations who work with the identified EJ population(s). Plans should be specifically designed for EJ populations and advance meaningful engagement based on each affected community's unique communication and information needs. EJ populations should be identified by any applicable federal and state-level EJ and related screening tools, or other relevant local information. The lessee may utilize efforts or language developed for any state requirements (e.g., measures identified through state renewable energy procurement processes or as requirements of state permits) to satisfy this Draft EJ Communications Plan partially or wholly.
MM-26	Environmental Justice (EJ) Mitigation Plan	The Environmental Justice Impact Mitigation Plan should be developed in collaboration with communities that have environmental justice concerns. The plan must acknowledge existing state or local regulations (such as noise control) that may help mitigate impacts, ensuring that there is no redundancy. The plan should outline procedures for responding to reported impacts, detailing the actions the lessee will take, including the distribution of mitigation resources or other strategies. During the development of this plan, BOEM encourages the lessee to engage with other stakeholders and align this engagement with the broader communication strategy for the project.
MM-27	Fisheries mitigation – potential obstructions from submarine cable installation and decommissioning	All static cables should be buried below the seabed where technically feasible and a benefit to the environment. Lessees should avoid installation techniques that raise the profile of the seabed, such as the ejection of large, previously buried rocks or boulders onto the surface. The ejection of this material may damage fishing gear. The intent of this mitigation measure is to ensure that new obstructions are not unduly introduced for mobile fishing gear. Removal of large marine objects and decommissioning instrumentation and/or anchors should occur as soon as practicable and within required regulations and permits. Future mitigations could include gear identification and or lost survey gear monitoring and reporting.
MM-28	Marine cultural resources avoidance or additional investigation	The lessee must provide the methods and results of an archaeological survey with its COPs. The lessee will conduct HRG surveys prior to conducting bottom disturbing activities such as geotechnical/sediment sampling and avoid all potentially eligible cultural resources or historic properties. The lessee may only conduct geotechnical exploration activities, including geotechnical sampling or other direct sampling or investigation techniques, in areas of the leasehold in which an analysis of the results of geophysical surveys have been completed for that area by a qualified marine archaeologist. BOEM will establish and lessees must comply with requirements for all protective buffers recommended by BOEM for each marine cultural resource (i.e., archaeological resource and ASLFs) based on the size and dimension of the resource. Protective buffers must extend outward from the maximum discernible limit of each resource and are intended to minimize the risk of disturbance during construction. If an adverse effect cannot be avoided, the lessee will be required to conduct further investigations to minimize or resolve effects on these historic properties, per 36 CFR 800.6.
MM-29	Terrestrial archaeological resource avoidance or additional investigation	BOEM will establish avoidance criteria for any historic property or any unevaluated terrestrial archaeological resource. Lessees must avoid impacts on all historic properties and unevaluated archaeological resources. If avoidance is not feasible, the lessee must develop a plan to be submitted to BOEM that addresses the adverse effect on the terrestrial archaeological resource. The lessee may submit this plan with the Terrestrial Archaeological Resources Assessment appendix to the COP or may develop this plan in the course of BOEM's project-level NEPA review and Section 106 consultation on terrestrial archaeological resources. Avoidance would entail the development and implementation of avoidance buffers around each historic property and unevaluated resource. If avoidance of an unevaluated resource is not feasible, additional investigations must be conducted for the purpose of determining eligibility for listing in the NRHP.
MM-30	Section 106 mitigation fund	Through consultation, BOEM may request that the lessee financially contributes to a third-party managed compensatory mitigation fund to address visual impacts on aboveground historic properties related to OCS offshore wind activities.

Mitigation Number	Measure Name	Description
MM-31	Ancient submerged landform feature (ASLF) monitoring program and marine archaeological post-review discovery plan	BOEM will establish, and the lessees must comply with, monitoring and post-review discovery plans outlining processes to document and review impacts of construction or any seabed-disturbing activities on marine cultural resources. Such plans may be developed in the course of BOEM's project-level NEPA review and Section 106 consultation on marine archaeological resources. A post-review discovery plan approved by BOEM is also required in the event that an unanticipated discovery and/or inadvertent impact of a marine archaeological resource occurs.
MM-32	Shared transmission corridor	Lessees should coordinate transmission infrastructure among projects. Where practicable, transmission infrastructure should use shared intra- and interregional connections, have requirements for meshed infrastructure, apply parallel routing with existing and proposed linear infrastructure (including export cables and other existing infrastructure such as power and telecommunication cables, pipelines), and limit the combined footprint to minimize impacts and maximize potential capacity.
MM-33	Post-installation cable monitoring	The lessee must conduct an inspection of inter-array, interconnector, and export cables to determine cable location, burial depths, the state of the cable, and site conditions within a set time period. These surveys must also be conducted with additional events. The lessee must provide BSEE and BOEM with a cable monitoring report following each inspection with specific methods. The lessee must provide BSEE and BOEM with a cable incident report in the event of entanglement with or accidents involving vessels.
MM-34	Electrical shielding on underwater cables	Lessees should use standard underwater cables that have electrical shielding to reduce the intensity of electromagnetic fields (EMFs).
MM-35	HF radar interference mitigation agreement	Prior to completion of construction or initiation of commercial operations , the lessee must enter into a mitigation agreement with the Surface Currents Program of NOAA's Integrated Ocean Observing System (IOOS) Office to determine if the lessee's project causes radar interference to the degree that radar performance is no longer within the specific radar systems' operational parameters or fails to meet NOAA IOOS's mission objectives. Where possible, the lessee will adhere to the recommendations for mitigation to marine radar interference from the National Academy of Science: *Wind Turbine Generator Impacts to Marine Vessel Radar* (National Academies of Sciences, Engineering, and Medicine 2022).
MM-36	Oceanographic Monitoring Plan	The lessee will develop an Oceanographic Monitoring Plan. Monitoring reports are a required component of the plan and will be used to determine the need for adjustments to monitoring approach, consideration of new monitoring technologies, and or changes to the frequency of monitoring. Components of the plan to consider include coordination with relevant regulatory agencies and neighboring lessees, monitoring strategies for pre-construction, construction, post-construction, and decommissioning phases; comparisons with available model outputs; technologies (e.g., gliders, moorings, Lidar buoys, profilers, floats, ship-based methods) and appropriate physical and biochemical measurements (e.g., ocean temperature, salinity, pH, current velocity, biogeochemistry, and nutrients).
MM-37	Monitoring on strategically placed WTGs	To the extent practicable, lessees should incorporate technologies for detecting tagged (e.g., Innovasea) sea turtles and tagged fish in their project to monitor the effect of increases in habitat use and residency around WTG foundations and share monitoring results/ propose new or additional mitigation measures and/or monitoring methods if appropriate.
MM-38	Trailing suction hopper dredge mitigation	If a trailing suction hopper dredge is used offshore, operators must disengage dredge pumps when the dragheads are not actively dredging and therefore working to keep the draghead firmly on the bottom to prevent impingement or entrainment of ESA-listed fish and sea turtle species. Pumps will be disengaged when lowering dragheads to the bottom to start dredging, turning, or lifting dragheads off the bottom at the completion of dredging.
MM-39	Monitoring impacts on scenic and visual resources	In coordination with BOEM, the lessee must prepare and implement a scenic and visual resource monitoring plan that monitors and compares the visual effects of the wind farm during construction and operations/maintenance (daytime and nighttime) to the findings in the COP Visual Impact Assessment and verifies the accuracy of the visual simulations (photo and video). The monitoring plan must include monitoring and documenting the meteorological influences on actual wind turbine visibility over a duration of time from selected onshore key observation points, as determined by BOEM and the lessee.
MM-40	Regional and federal monitoring and survey program	For long-term scientific surveys that overlap with wind energy development, (e.g. NMFS scientific surveys) the lessee must submit to BOEM a survey mitigation agreement. At a minimum, the survey mitigation agreement must describe actions and the means to address impacts on the affected surveys. The survey mitigation agreement must, where possible, identify activities that will result in the generation of data equivalent to data generated by affected surveys for the duration of the project and address regional-level impacts for the surveys. Lessees are encouraged to coordinate monitoring and survey efforts across lease areas to standardize approaches, understand potential impacts to resources at a regional scale, and maximize efficiencies in monitoring and survey efforts.

E.1 References

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