Best Management Practices for Fulfilling ESA and EFH Obligations When Conducting Offshore Wind Site Characterization and Site Assessment Activities in the Gulf of Mexico

Bureau of Ocean Energy Management, with the Bureau of Safety and Environmental Enforcement and the US Environmental Protection Agency

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Abbreviations and Acronyms

Short form	Long form
AIS	Automatic Identification System
AMP	Alternative Monitoring Plan
AUV	autonomous underwater vehicle
BMP	Best Management Practice
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
CHIRP	Compressed High-intensity Radiated Pulse
COP	Construction and Operations Plan
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
EPAct	Energy Policy Act of 2005
ESA	Endangered Species Act of 1973
FWS	United States Fish and Wildlife Service
GAP	General Activities Plan
G&G	geological and geophysical
GIS	geographic information system
GOM or GoMex	Gulf of Mexico
GPS	global positioning system
HRG	high-resolution geophysical
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OSW	offshore wind
pk-pk	peak-to-peak pressure
PSO	Protected Species Observer
REN	BOEM's GOM Renewable Energy Program
ROV	remotely operated vehicles
SAP	Site Assessment Plan
SAV	submerged aquatic vegetation
SERO	NMFS Southeast Regional Office
SLR	single lens reflex
WGS84	World Geodetic System 1984

1. Background

The Outer Continental Shelf Lands Act (OCSLA), as amended, authorizes the Secretary of the Interior, through the U.S. Department of the Interior's (DOI) Bureau of Ocean Energy Management (BOEM), to manage the siting and development of the U.S. Outer Continental Shelf (OCS) for renewable energy facilities. BOEM is delegated the responsibility for overseeing offshore renewable energy development in the OCS (30 C.F.R. Part 585). Through these regulations, BOEM oversees responsible offshore renewable energy development, including the issuance of leases for offshore wind (OSW) development.

BOEM and the Bureau of Safety and Environmental Enforcement (BSEE), as co-action agencies for the proposed action, completed programmatic consultations with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS) to assess the potential for ESA-listed species to be affected by OSW leasing and the site assessment and site characterization activities anticipated to occur after lease issuance. BOEM and BSEE also completed programmatic consultation with NMFS to assess the potential for Essential Fish Habitat (EFH) to be affected by OSW and the site assessment and site characterization activities anticipated to occur after lease issuance. **The proposed action for each programmatic consultation is defined for that consultation in the respective consultation documents. Due to the differing requirements and objectives of the Endangered Species Act and Magnuson-Stephens Fishery Management and Conservation Act, the area defined for the proposed action, activity descriptions, and triggers for reinitiation differ and lessees should refer to the consultation documents on BOEM's Gulf of Mexico Region Consultations webpage for detailed descriptions of the areas and activities covered.**

The following Best Management Practices (BMPs) are provided to guide lessees and operators in fulfilling their obligation to comply with the compliance requirements imposed on BOEM-authorized OSW leases and lessees' activities through ESA and EFH consultations. Lessees and operators can either follow the BMPs described in this guidance document or may propose other methods that meet or exceed those standards. However, additional consultations with NMFS or FWS may be required to ensure alternative methods meet or exceed required monitoring, avoidance, mitigation, and reporting standards.

Table 1. Offshore Wind Lease Site Assessment and Site Characterization Protocols

Protocol	Applicable to:	Purpose
Avoiding Sensitive, Benthic Habitat (ESA & EFH)	All Activities; Employees and all at-sea contract personnel and vessels.	To avoid impacts to benthic habitats by distancing bottom-disturbing activity from sensitive benthic features including chemosynthetic communities, topographic banks, pinnacles, live bottoms (e.g., submerged aquatic vegetation [SAV] and oyster beds), or any other hard bottom benthic feature(s).
Pre-initiation Survey Plan Submittal (ESA)	Acoustic Surveys; Lessee or Lessee's representative(s)	To notify BOEM and BSEE of upcoming acoustic surveys; To facilitate BOEM and BSEE monitoring of acoustic surveys.

Protocol	Applicable to:	Purpose
Site Characterization Surveys Using Acoustic Source (ESA)	Any survey vessel operating high-resolution geophysical survey equipment to obtain data associated with a lease and operating such equipment at or below 180 kHz.	To avoid injury of protected species and minimize the likelihood of adverse effects associated with potential disturbance through the establishment of pre-start clearance, exclusion zones, shutdowns, PSO monitoring, and other Protocols to avoid and reduce exposure of protected species to underwater survey noise.
Marine Debris (ESA & EFH)	All at-sea and dockside operations.	To provide training to all employees and contract personnel on the proper storage and disposal practices at-sea to reduce the likelihood of accidental discharge of marine debris that can impact protected species through entanglement or incidental ingestion.
Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting (ESA)	All vessels; PSOs and project-related personnel who observe a protected species.	To avoid injuring or disturbing protected species by requiring operators to watch for protected species and establishing minimum separation distances between vessels and marine protected species; To provide operational protocols for vessels when animals are sighted.
Transit Plan (ESA)	All Activities; Employees and all at-sea contract personnel and vessels.	Lessees or their recognized representative must notify the Bureau of Ocean Energy Management (BOEM) of their proposed transit for any activities associated with their lease.
Entanglement Avoidance (ESA)	Mooring and anchoring systems for buoys and metocean data collection devices.	To use the best available mooring systems using anchors, chain, cable, or coated rope systems that prevent or reduce levels of any potential entanglement or entrainment of protected species.
Slack-Line Precaution (ESA)	All activities or equipment that use lines in the water.	To avoid injuring or disturbing protected species through entrapment or entanglement.
Moon Pool Monitoring (ESA)	All vessels with Moon Pools that are open and accessible during OCS activities.	To avoid injuring or disturbing protected species through entrapment or entanglement in moon pools (i.e., a walled hole or well in the hull of a ship or mobile offshore drilling unit [MODU] through which equipment, assemblies, ROVs, and diving bells pass).
Vessel Operations and Asset Deployment in Manatee Habitat (ESA)	During in-water work in areas that potentially support manatees.	To avoid impacts, including harming, harassing, or killing manatees in their coastal habitats.

The referenced protocols are considered BMPs and assumed to meet the avoidance and mitigation standards imposed on the proposed action through consultation with NMFS.

2. Avoiding Sensitive, Benthic Habitat (ESA & EFH)

Under 30 CFR 585.611 and 585.627, BOEM requires Lessees' plans to provide information about benthic habitats, as well as methods for avoiding, minimizing, reducing, eliminating, and monitoring environmental impacts. The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and

could extend the time necessary to complete the review of the Lessee's proposed activities. Bottom disturbing activities in the vicinity of sensitive benthic habitats, including site characterization and site assessment activities, have the potential to cause deleterious impacts to those habitats.

2.1 Definitions

1. *Bottom-disturbing activity* is an activity that results in physical contact with the seafloor. This includes, but is not limited to, the emplacement of infrastructure (e.g., buoy installation, cable laying), trenching, drilling, coring, boring, anchor placement and drag, and the use of chains, cables, and wire ropes.
2. *Sensitive benthic features* include chemosynthetic communities, topographic banks, pinnacles, live bottoms (e.g., submerged aquatic vegetation [SAV] and oyster beds), or any other hard bottom benthic feature(s).

2.2 Protocol

All bottom-disturbing activities shall be distanced at least 1,000 feet (ft) from any National Marine Sanctuary boundary and 500 ft from any other sensitive benthic features including chemosynthetic communities, topographic banks, pinnacles, live bottoms (e.g., submerged aquatic vegetation [SAV] and oyster beds), or any other hard bottom benthic feature(s). The lessee shall also maintain a minimum vertical clearance of at least 15 ft for mooring or anchoring lines, chains, and/or cables that cross sensitive benthic features. Departure from the above distancing requirements may be approved through coordination with BOEM's New Orleans Office and may require further project-specific EFH consultation with NMFS's Habitat Conservation Division, Southeast Regional Office. However, if consultation with NMFS results in avoidance standards greater than those referenced above, the lessee shall comply with the more conservative distance requirements.

For all site characterization and site assessment activities that propose bottom disturbing activity (e.g., anchoring and benthic sampling), the lessee shall include, at minimum, in its survey plan how hard bottom and other potentially sensitive benthic features will be avoided.

2.3 Reporting Requirements

The lessee shall provide, as a section within the progress report (submitted to BOEM every six months during the site assessment term), the as-placed locations of all bottom-disturbing activities. The lessee should provide evidence that bottom-disturbing activities did not physically impact sensitive benthic features. The lessee shall additionally submit a map or maps at a scale of 1 inch = 1,000 ft that accurately shows the location of the seafloor disturbance relative to all identified sensitive, benthic features within 1,000 ft of any seafloor contact. The lessee shall also depict the location of any mid-line buoys used. Sensitive benthic features include, but are not limited to, chemosynthetic communities, topographic banks, pinnacles, live bottoms (e.g., submerged aquatic vegetation [SAV] and oyster beds), or any other hard bottom benthic feature(s). The lessee shall also provide a geodatabase that includes spatial data (e.g., GIS point and/or polygon shapefiles) of all hardbottoms and bottom-disturbing activity locations (e.g., anchoring, coring, and benthic sampling). Provided anchoring information must include drop and recovery locations for every anchor.

3. Pre-initiation Survey Plan Submittal

Pursuant to 30 CFR § 585.601, a SAP must be submitted 12 months from lease or grant issuance. The information required in a SAP is specified in 30 CFR §§ 585.610 and 585.611. This information is used to comply with the Outer Continental Shelf Lands Act (OCSLA), as amended by the Energy Policy Act of 2005 (EPAct), and other applicable laws and regulations. A SAP is also used to inform BOEM, other Federal agencies, affected states (as defined in 30 CFR § 585.113), and the public, of proposed site assessment activities to ensure that activities on the OCS leases will be safe and will protect the human, marine, and coastal environment. A SAP must demonstrate that the proposed site assessment activities are being conducted in a manner that conforms to responsible offshore development per 30 CFR § 585.606. Additionally, before BOEM will approve the siting of a facility, structure, or cable proposed for a renewable energy project on the Outer Continental Shelf (OCS), an applicant must submit with its Site Assessment Plan (SAP), Construction and Operations Plan (COP), or General Activities Plan (GAP), the results of applicable site characterization surveys and supporting data.

BOEM will use the data from these surveys to evaluate the impact of construction, installation, and operation of meteorological towers, buoys, cables, wind turbines, and supporting structures on physical, biological, and socioeconomic resources, as well as the seafloor and sub-seafloor conditions. The information will be used by BOEM, other Federal agencies, and potentially affected states in the preparation of NEPA documents, for consultations and other regulatory requirements.

The following guidelines were developed in consultation with NMFS and are assumed to ensure BOEM and/or BSEE have adequate notification and time to review proposed surveys types and methods to satisfy the responsibilities of BOEM to protect the environment and to conserve the natural resources of the OCS as provided by 30 CFR 585.102.

3.1 Definitions

1. *Survey Plan* means a plan for any and all of the site characterization and site assessment activities that the lessee or its representative will conduct. General requirements for a Survey Plan can be found in the stipulations of the issued lease.
2. *Alternative Monitoring Plan (AMP)* means a submitted plan that describes monitoring methodology that will be used to ensure that the Exclusion Zone(s) can be maintained during nighttime and low-visibility survey operations. The AMP can be part of the Survey Plan but must be noted in transmittal email to BOEM.

3.2 Protocol

1. The lessee shall submit a Survey Plan to BOEM and BSEE (protectedspeciesREN@boem.gov and OSWsubmittals@bsee.gov) no less than 90 days prior to the planned initiation of site characterization and site assessment activities. The lessor will not accept a Survey Plan that does not provide sufficient detail for review, including, but not limited to, specific description and illustration of the geographic areas to be surveyed, specific discussion of the survey methods and equipment to be employed, and a schedule of survey activities. The Survey Plan will include, but is not limited to: (1) proposed start and end dates for renewable activity; (2) location of activity and port(s) used; (3) projected number of line/kms; (4) proposed survey days; (5) equipment (sound

source) type(s); (6) equipment (source) volume; (7) number, name, and type of source vessels and any supporting vessels AIS number, if available; (8) multiple equipment (source) types (if applicable) and if they will be operating (emitting sound) simultaneously; (9) equipment specifications including operating frequency, firing pressure, source level (rms), source level (pk-pk), pulse duration/rate, and pulse frequency (some specifications may only be applicable to certain equipment types); (10) track line spacing; (11) water depths of survey area; (12) equipment tow depth (if applicable); (13) description of use of an autonomous underwater vehicle (AUV) and operating depth (if applicable); and (14) a listing of the applicable GOM Renewable Energy Program (REN) Protocols proposed for implementation during the acoustic survey.

2. Within 30 calendar days from receipt, BOEM, in consultation with BSEE, will notify the lessee of its concurrence or nonconcurrence with the proposed REN Protocols to be implemented during a Survey Plan. In the event of a nonconcurrence, BOEM will provide a revised REN Protocol list.
3. The lessee will respond to the concurrence or nonconcurrence from BOEM, in consultation with BSEE, within 7 days of receipt. The intent to implement the revised REN protocol list, if applicable, must be expressly stated in the emailed response.
4. After BOEM and/or BSEE concurrence on the final Survey Plan has been reached, BOEM will send the Survey Plan to NMFS SERO along with documentation of consistency within this programmatic consultation as an email for the record. This will be submitted via nmfs.ser.esa.consultations@noaa.gov and will include the following information in the subject line for tracking purposes: GoMex OSW Programmatic Site Characterization and Site Assessment, SERO-2022-02857.

4. Site Characterization Surveys Using Acoustic Source

The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

4.1 Background

High-resolution geophysical (HRG) surveys are used to collect information about the subsurface and to detect and monitor geohazards, archaeological resources, and certain types of benthic communities. HRG surveys may have an impact on marine species. Many marine species that occur in the GOM are protected under ESA and all marine mammals (including the Florida manatee) are protected under the Marine Mammal Protection Act (MMPA). The protected species that occur in the GOM are provided in Table 2.

Table 2. ESA-Listed Species in the Gulf of Mexico

Common Name	Scientific Name	Notes
Rice's whale	*Balaenoptera ricei*	-
Sperm whale	*Physeter macrocephalus*	-
Green turtle	*Chelonia mydas*	North Atlantic DPS and South Atlantic DPS

Common Name	Scientific Name	Notes
Hawksbill turtle	*Eretmochelys imbricata*	-
Kemp's ridley turtle	*Lepidochelys kempii*	-
Leatherback turtle	*Dermochelys coriacea*	-
Loggerhead turtle	*Caretta caretta*	Northwest Atlantic Ocean DPS
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	-
Oceanic whitetip shark	*Carcharhinus longimanus*	-
Giant manta ray	*Manta birostris*	-
Florida manatee	*Trichechus manatus latirostris*	Managed by the US Fish and Wildlife Service

This protocol shall be applied to any ESA-listed protected species (and all marine mammals) that occur in the GOM, including extralimital species. The requirements discussed herein primarily focus on protected species that are more readily observed at the surface, such as marine mammals, sea turtles, and giant manta ray. However, all observations of any ESA- listed species shall be reported as detailed below.

BSEE and BOEM consult jointly with NMFS and the U.S. Fish and Wildlife Service (FWS) under Section 7 of the ESA to ensure that BOEM- or BSEE-authorized activities do not jeopardize the continued existence of ESA-listed species nor result in destruction or adverse modification of designated critical habitat.

These protocols are the result of coordination between BOEM and BSEE and are based on NMFS' technical memorandum on standards for a protected species observer (PSO) and data management program (Baker et al. 2013). BSEE is tasked as the lead agency for compiling lessee reporting data applicable to both Bureaus and assessing for mitigation measure compliance. Therefore, while BOEM is issuing these protocols, all PSO reports described herein must be submitted to BSEE as well as to NMFS, where specified.

To protect ESA-listed species and marine mammals during site characterization and site assessment surveys using acoustic sources for any HRG surveys, operators will be required to use PSOs and follow specific protocols when operating as applicable. The measures contained herein apply to all site characterization and site assessment surveys using acoustic sources associated with REN conducted under 30 CFR 585, regardless of water depth. Operators must demonstrate compliance with these requirements by submitting reports to federal agencies as detailed below.

4.2 Definitions

Terms used in these protocols have the following meanings:

1. *Protected species* means any NMFS trust species listed under the ESA and/or protected by the MMPA.
2. *Protected Species Observer* (PSO) means a trained, independent biologist employed for purposes of conducting visual observation for protected species.
3. *Small odontocete* means a group of cetacean species for purposes of defining the appropriate pre-start clearance period. Small odontocetes, as defined here, include certain genera of the Family Delphinidae (*Delphinus*, *Lagenodelphis*, *Lagenorhynchus*, *Lissodelphis*, *Stenella*, *Steno*, and *Tursiops*). Note that the use of the term "small" in this context is not an absolute reference to size, but is rather used as reference to a group of species that are not typically deep diving.

4. *Small delphinid* means a group of cetacean species for which shutdown requirements are waived and include the same genera of the Family Delphinidae as are included in the definition of the term *small odontocete* above.
5. *Pre-start clearance* means a period of monitoring that may be required in order to ensure that protected species are not present within defined zones prior to activation of the sound source.
6. *Ramp-up* means the gradual and systematic increase of emitted sound levels from an active acoustic source.
7. *Shutdown* means the immediate de-activation of the acoustic source.
8. *Exclusion zone* (or *Shutdown zone*) means the area to be monitored for possible shutdown upon detection of protected species within or entering that zone.
9. *Visual monitoring* means the use of trained PSOs to systematically scan the ocean surface visually for the presence of protected species and implement the required mitigation procedures.
10. *Alternative Monitoring Plan (AMP)* means a submitted plan that describes monitoring methodology that will be used to ensure that the Exclusion Zone(s) can be maintained during nighttime and low-visibility survey operations. The AMP can be part of the Survey Plan but must be noted in the transmittal email to BOEM.
11. *Monthly Acoustic Survey Completion Report* (PSO Report) means a survey completion report submitted on the 1st of each month that provides information about PSO sightings while an acoustic survey is underway. See the Data Collection section for details of data requirements.
12. *Draft Comprehensive Acoustic Survey Completion Report* (draft comprehensive report) means a report that summarizes all activities and monitoring results that should be submitted within 90 days of the completion of the survey activities described in a Survey Plan.
13. *Final Comprehensive Acoustic Survey Completion Report* (final comprehensive report) means a revised version of the Draft Comprehensive Acoustic Survey Completion Report (draft comprehensive report) that has incorporated revisions or clarifications requested by either BOEM, BSEE and/or NMFS during the draft comprehensive report review.

4.3 Protected Species Observers (Visual PSOs) PSO qualifications

1. The operator must use independent, dedicated, trained PSOs, meaning that the PSOs must be employed by a third-party observer provider, must have no tasks other than to conduct observational effort (visual), collect data, and communicate with and instruct relevant vessel crew with regard to the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards), and must have successfully completed a NMFS-approved PSO training course for G&G surveys appropriate for their designated task (visual).
2. NMFS (nmfs.psoreview@noaa.gov) must review and approve PSO resumes accompanied by a relevant training course information packet that includes the name and qualifications (i.e., experience, training completed, or educational background) of the instructor(s), the

course outline or syllabus, and course reference material, as well as a document verifying successful completion of the course. NMFS shall have one week to approve PSOs from the time that the necessary information is submitted by the Lessee or its representative, after which PSOs meeting the minimum requirements shall be considered approved.

3. At least one visual PSO (if required) shall be aboard the vessel. If multiple PSOs are on board, the PSO with the most at-sea experience shall be designated as the lead for the entire protected species observation team. The lead shall coordinate duty schedules and roles for the PSO team and serve as primary point of contact for the vessel operator (the responsibility of coordinating duty schedules and roles may instead be assigned to a shore-based, third-party monitoring coordinator). To the maximum extent practicable, the lead PSO shall devise the duty schedule such that experienced PSOs are on duty with those PSOs with appropriate training but who have not yet gained relevant experience.

   a. Per NMFS, PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program (*www.fisheries.noaa.gov/national/endangered-species-conservation/protected- species-observers*). PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics. The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted by the Lessee to NMFS (nmfs.psoreview@noaa.gov) and must include written justification. Requests shall be granted or denied (with justification) by NMFS within one week of receipt of submitted information. Alternate experience that may be considered includes but is not limited to: (1) secondary education and/or experience comparable to PSO duties;
   b. previous work experience conducting academic, commercial, or government- sponsored protected species surveys; or (3) previous work experience as a PSO; the PSO should demonstrate good standing and consistently good performance of PSO duties.

4.4 Equipment

The operator is required to:

1. Provide PSOs with bigeye binoculars (e.g., 25 x 150; 2.7 view angle; individual ocular focus; height control) of appropriate quality solely for PSO use. These shall be pedestal-mounted on the deck at the most appropriate vantage point that provides for optimal sea surface observation, PSO safety, and safe operation of the vessel.
2. Work with the selected third-party observer provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed protected species. Such equipment, at a minimum, shall include:

   a. Reticle binoculars (e.g., 7 x 50) of appropriate quality (at least one per PSO, plus backups).
   b. Global Positioning Units (GPS) (at least one plus backups).

c. Digital cameras with a telephoto lens that is at least 300 mm or equivalent on a full-frame single lens reflex (SLR) (at least one plus backups). The camera or lens should also have an image stabilization system.

d. Equipment necessary for accurate measurement of distances to protected species.

e. Compasses (at least one plus backups).

f. Means of communication among vessel crew and PSOs.

g. Any other tools deemed necessary to adequately and effectively perform PSO tasks.

Equipment specified in (a) through (g) above may be provided by an individual PSO, the third-party observer provider, or the operator, but the latter is responsible for ensuring PSOs have the proper equipment required to perform the duties specified within these protocols.

4.5 Data collection

PSOs must use standardized electronic data collection forms. PSOs shall record detailed information about any implementation of mitigation requirements, including the distance of animals to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source. If required mitigation was not implemented, PSOs should record a description of the circumstances. Monthly and comprehensive report requirements are described in the Reporting Requirements section below. The PSOs may record data electronically, but the data fields listed below must be recorded and exported to a Microsoft® Excel file. Alternatively, BOEM has developed a Microsoft® Excel spreadsheet with all the necessary data fields that is available upon request. At a minimum, the following information must be recorded:

1. Project Name
2. Lease number
3. Vessel names (source vessel and other vessels associated with survey), vessel size and type, maximum speed capability of vessel, port of origin, and call signs;
4. PSO names and affiliations;
5. Dates of departures and returns to port with port name;
6. Date and participants of PSO briefings;
7. Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort;
8. Vessel location (latitude/longitude) when survey effort began and ended and vessel location at beginning and end of visual PSO duty shifts;
9. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change;
10. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions changed significantly), including Beaufort Sea State (BSS) and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;

11. Factors that may have contributed to impaired observations during each PSO shift change or as needed as environmental conditions changed (e.g., vessel traffic, equipment malfunctions);
12. Survey activity information, such as acoustic source power output while in operation, number and type of equipment and operating frequency, tow depth of the equipment, and any other notes of significance (i.e., pre-start clearance, ramp-up, shutdown, testing, data acquisition, ramp-up completion, end of operations, etc.); and
13. Upon visual observation of any protected species, the following information:
    a. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel and/or platform);
    b. PSO who sighted the animal;
    c. Time of sighting;
    d. Vessel location (coordinates) at time of sighting;
    e. Water depth;
    f. Direction of vessel's travel (compass direction);
    g. Direction of animal's travel relative to the vessel;
    h. Pace of the animal;
    i. Estimated distance to the animal and its heading relative to vessel at initial sighting;
    j. Identification of the animal (e.g., genus and/or species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
    k. Estimated number of animals(high/low/best);
    l. Estimated number of animals by cohort (adults, juveniles, group composition, etc.);
    m. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
    n. Detailed behavior observations (e.g., number of blows and/or breaths, number of surfaces, breaching, spy hopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior), including an assessment of behavioral responses to survey activity;
    o. Animal's closest point of approach and/or closest distance from any element of the acoustic source;
    p. Platform activity at time of sighting (e.g., deploying, recovering, testing, shooting, data acquisition, other); and
    q. Description of any actions implemented in response to the sighting (e.g., delays, shutdown, ramp-up) and time and location of the action.

4.6 Non-Airgun High-Resolution Geophysical (HRG) Protocol

Non-airgun HRG surveys are conducted to evaluate the potential for geohazards, archaeological resources, and certain types of benthic communities. Non-airgun HRG sources include, but are not limited to, electromechanical sources such as side-scan sonars, sector-scanning sonars boomers, sparkers (in limited situations) and compressed high-intensity radiated pulse (CHIRP) sub-bottom profilers (in limited situations), and single-beam or multibeam echosounders.

Protocol implementation is required regardless of water depth. PSOs are not required during survey operations in which the active acoustic source(s) are deployed on human-occupied vehicles (HOV) and/or autonomous underwater vehicles (AUV) and/or remotely operated vehicles (ROV).

4.6.1 Non-airgun HRG surveys with frequencies ≥180 kHz

Acoustic sources do not require mitigations because the frequency is outside the general hearing range of marine mammals and sea turtles.

4.6.2 Non-airgun HRG surveys with frequencies <180 kHz

For all non-airgun HRG surveys in which one or more active acoustic sound sources are operating at <180 kHz, the mitigations (e.g., PSO) below do apply. Protocols are generally considered applicable to surveys using sparkers and some other sources (e.g., 1- and 2-plate boomers and bubble guns).

4.7 Visual monitoring

1. During survey operations (e.g., any day on which use of the acoustic source is planned to occur, and whenever the acoustic source is in the water, whether activated or not), a minimum of one visual PSO must be on duty and conducting visual observations at all times during daylight hours (i.e., from 30 minutes before sunrise through 30 minutes following sunset).
2. Visual monitoring must begin no less than 30 minutes prior to the start of a survey and when technically feasible a “ramp-up”. A “ramp-up” begins with the power of the smallest acoustic equipment for the geophysical survey at its lowest power output. When technically feasible the power will then be gradually turned up and other acoustic sources added in a way that the source level would increase gradually. Visual monitoring will continue one hour after use of the acoustic source ceases or until 30 minutes past sunset.
3. PSOs shall coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and shall conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.
4. PSOs shall establish and monitor applicable exclusion zones. The focal area for visual observation includes the exclusion zone, but PSOs should periodically scan adjacent waters. Visual monitoring of the exclusion zones (and adjacent waters) is intended to establish and, when visual conditions allow, maintain zones around the sound source that are clear of protected species. These zones shall be based upon the radial distance from the acoustic source (rather than being based around the vessel itself). During use of the acoustic source (i.e., anytime the acoustic source is active, including ramp-up), occurrences of protected species within the exclusion zone should be communicated to the operator to prepare for the potential shutdown for marine mammals (or voluntary pause for other non- marine mammal protected species [e.g., sea turtles] if being employed) of the acoustic source.
5. Two exclusion zones are defined, depending on the species and context. Here, a standard exclusion zone encompassing the area at and below the sea surface out to a radius of 100

meters from the sound source (0–100 meters) is defined for marine mammals and sea turtles. For special circumstances, the exclusion zone encompasses an extended distance of 500 meters (0–500 meters, see Table 3 below). Note that the list in Table 3 is not exhaustive and other species or circumstances may warrant use of the extended exclusion zone as determined by the lead PSO.

6. Any observations of protected species by crew members aboard any vessel associated with the survey shall be relayed to the PSO team.
7. Visual PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least one hour between watches and may conduct a maximum of 12 hours of observation per 24-hour period. Observational duties (may not exceed 12 hours per 24-hour period for any individual PSO.

Table 3. Extended Distance Exclusion Zone Species

Species and/or Group	Exclusion Zone (meters)
Rice's whale (*Balaenoptera ricei*)	0–500
Sperm whale (*Physeter macrocephalus*)	0–500
Beaked whales (*Mesoplodon* / *Ziphius* spp.)	0–500
Dwarf and pygmy sperm whales (*Kogia* spp.)	0–500
Large whale with calf*	0–500
Groups (6+) of large whales	0–500

*Large whale defined as a sperm whale or any baleen whale; calf defined as an animal less than two-thirds the body size of an adult observed to be in close association with an adult.

4.8 Pre-start clearance and ramp-up

A ramp-up procedure, involving a gradual increase in source level output, is required at all times as part of the activation of the acoustic source when technically feasible. Operators should ramp up sources to half power for 5 minutes and then proceed to full power. A 30- minute pre-start clearance observation period must occur before the start of ramp-up. The intent of pre-start clearance observation (30 minutes) is to ensure no protected species are within the exclusion zones prior to the beginning of ramp-up. The intent of ramp-up is to warn protected species of pending operations and to allow sufficient time for those animals to leave the immediate vicinity. All operators must adhere to the following pre-start clearance and ramp- up requirements:

1. The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time should not be less than 60 minutes before the planned ramp-up in order to allow the PSO(s) time to monitor the exclusion zones for 30 minutes before the initiation of ramp-up (pre-start clearance). During this 30-minute pre-start clearance period, the entire applicable exclusion zone must be visible.
2. Ramp-ups shall be scheduled so as to minimize the time spent with the source activated.
3. A visual PSO conducting pre-start clearance observations must be notified again immediately before initiating ramp-up procedures and the operator must receive confirmation from the PSO to proceed.
4. Any PSO on duty has the authority to delay the start of survey operations if a protected species is detected within the applicable pre-start clearance zone.

5. The operator must establish and maintain clear lines of communication directly between PSO(s) on duty and crew controlling the acoustic source to ensure that mitigation commands are conveyed swiftly while allowing PSO(s) to maintain watch.
6. Ramp-up may not be initiated if any protected species is within the applicable exclusion zone. If a protected species is observed within the applicable exclusion zone during the 30-minute pre-start clearance period, ramp-up may not begin until the animal(s) has been observed exiting the zones or until an additional time period has elapsed with no further sightings (15 minutes for small odontocetes and 30 minutes for all other species).
7. PSOs must monitor the exclusion zones 30 minutes before and during ramp-up, and ramp-up must cease and the source must be shut down upon observation of a protected species within the applicable exclusion zone.
8. Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of protected species in the 30 minutes prior to beginning ramp-up. Acoustic source activation may only occur at night where operational planning cannot reasonably avoid such circumstances (see #11 below).
9. If the acoustic source is shut down for periods of less than 30 minutes for reasons other than implementation of prescribed mitigation (e.g., mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual observation and no detections of protected species have occurred within the applicable exclusion zone. For any longer shutdown, pre-start clearance observation and ramp-up are required.
10. The operator must provide information to the PSO documenting that all appropriate procedures were followed.
11. For geophysical surveys to be conducted at night or during low-visibility conditions, PSO(s) must be able to effectively monitor the Exclusion Zone(s). No surveys may occur if the Exclusion Zone(s) cannot be reliably monitored for the presence of ESA-listed whales to ensure avoidance of injury to those species.
    a. An Alternative Monitoring Plan (AMP) must be submitted to BOEM and BSEE detailing the monitoring methodology that will be used during nighttime and low-visibility conditions and an explanation of how it will be effective at ensuring that the Exclusion Zone(s) can be maintained during nighttime and low-visibility survey operations. The plan must be submitted 90 days before survey operations are set to begin. The subject of the email should include "Renewable Geophysical Survey at Night AMP".
    b. The AMP must include technologies that are able to detect all ESA-listed whales out to 500 m and sea turtles to 100 m.
    c. PSOs should be trained and experienced with the proposed night vision technology (e.g., infrared and/or thermal camera).
    d. The AMP must describe how calibration will be performed, for example, by including observations of known objects at set distances and under various lighting conditions. This calibration could be performed during mobilization and periodically throughout the survey operation.

e. PSOs shall make nighttime observations from a platform with no visual barriers (though safety is paramount), due to the potential for the reflectivity from bridge windows or other structures to interfere with the use of the night vision optics.

f. This AMP does not remove or alter the need to comply with any other applicable regulatory or legal requirements with respect to vessel operations, including as outlined herein.

g. The operator shall submit a draft comprehensive report on all activities and monitoring results within 90 days of the completion of the survey. Lessee shall submit the report to BOEM and BSEE (protectedspeciesREN@boem.gov and protectedspecies@bsee.gov). The Reporting Requirements and Data Collection outlines for information and effectiveness herein should be followed. The report must also be sent to NMFS SERO via nmfs.ser.esa.consultations@noaa.gov and will include the following information in the subject line for tracking purposes: GoMex OSW Programmatic Site Characterization and Site Assessment, SERO-2022-02857.

4.9 Shutdown

All operators must adhere to the following shutdown requirements:

1. Any PSO on duty has the authority to call for shutdown of the acoustic source if a protected species is detected within the applicable exclusion zone.
2. The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch.
3. When the acoustic source is active and a protected species appears within or enters the applicable exclusion zone, the acoustic source must be shut down. When shutdown is instructed by a PSO, the acoustic source must be immediately deactivated and any dispute resolved only following deactivation.
4. The shutdown requirement is waived for small delphinids.
   a. If a delphinid (individual belonging to the *Delphinus*, *Lagenodelphis*, *Lagenorhynchus*, *Lissodelphis*, *Stenella*, *Steno*, and *Tursiops* genera of the Family Delphinidae) is visually detected within the exclusion zone, no shutdown is required unless the PSO confirms the individual to be of a genus other than those listed, in which case a shutdown is required.
5. If there is uncertainty regarding identification of a marine mammal species (i.e., whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived or one of the species with a larger exclusion zone), PSOs shall defer to a more conservative approach and call for a shutdown.
6. Upon implementation of shutdown, the source may be reactivated after the protected species has been observed exiting the applicable exclusion zone or following a clearance period (15 minutes for small odontocetes and 30 minutes for all other species) with no further detection of the protected species. For sea turtles observed in the exclusion zone, a voluntary shutdown not requiring ramp- up (i.e., a “pause”) may be implemented until the sea turtle is no longer observed in the exclusion zone.

4.10 Entanglement and entrainment risk reduction

All lines (rope, chain, cable, etc.) associated with geophysical surveys should be stiff, taut, and non-looping to the extent practicable to avoid possible entanglement and entrainment risk. When feasible, flexible lines such as nylon or polypropylene that could loop or tangle protected species should be enclosed in a sleeve to add rigidity and prevent looping or tangling. No excess underwater line is allowed. Equipment, especially towed apparatuses (e.g., tail buoys), shall be operated in a way as to prevent entrainment of sea turtles or other protected species to the extent feasible.

4.11 Reporting requirements

- The operator shall submit Monthly Acoustic Survey Reports (see Data Collection section for details) on the 1st of each month to BSEE (OSWsubmittals@bsee.gov) detailing all protected species observations with closest approach distance. The operator shall also submit a *Draft Comprehensive Acoustic Survey Completion Report* (draft comprehensive report) on all activities and monitoring results within 90 days of the completion of the survey activities described in a Survey Plan. The Lessee shall submit these reports to BOEM and BSEE (protectedspeciesREN@boem.gov and OSWsubmittals@bsee.gov). The report must also be sent to NMFS SERO via nmfs.ser.esa.consultations@noaa.gov and will include the following information in the subject line for tracking purposes: GoMex OSW Programmatic Site Characterization and Site Assessment, SERO-2022-02857. The report must describe all activities conducted and sightings of protected species, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the dates and locations of survey operations and all protected species sightings (dates, times, locations, activities, associated survey activities). The draft report shall also include geo-referenced, time-stamped vessel tracklines for all time periods during which acoustic sources were operating. Tracklines should include points recording any change in acoustic source status (e.g., when the sources began operating, when they were turned off, or when they changed operational status such as from a bubble gun or vice versa). GIS files shall be provided in Esri® shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates shall be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data shall be made available. The report must summarize the information submitted in monthly reports (if required) as well as additional data collected as described above in *Data Collection*. A *Final Comprehensive Acoustic Survey Completion Report* must be submitted within 30 days following resolution of any comments on the draft report.

- Reporting injured or dead species can be found and described under *Incidents Requiring Immediate Reporting* (see Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocol).

5. Marine Debris (ESA & EFH)

Marine debris poses a threat to fish, marine mammals, sea turtles, and potentially other marine animals; causes costly delays and repairs for commercial and recreational boating interests; detracts from the aesthetic quality of recreational shore fronts; and increases the cost of beach and park maintenance. The discharge of garbage and debris has been the subject of strict laws,

such as MARPOL-Annex V and the Marine Debris Act, 33 U.S.C. 1951 *et seq.*, and regulations imposed by various agencies including the United States Coast Guard and the Environmental Protection Agency.

The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

5.1 Definitions

Marine debris means as any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper or any other solid, human-made item or material that is lost or discarded in the marine environment by the Lessee while conducting site characterization and site assessment activities on the OCS in connection with a lease, grant, or approval issued by BOEM.

5.2 Protocol

5.2.1 Marine Debris Placards

The Lessees must post placards that include each of the information text boxes in Attachment 1 of this Protocol in prominent places on all vessels, offshore training or orientation areas engaged in REN operations in the GOM OCS or where activity occurs. Each of the placards depicted, with the language specified, must be displayed on a 5x8 inch format or larger. One or more areas may be omitted if there is insufficient space. These notices must be referenced, and their contents explained, during any initial orientation given on the vessel. Placards must be sturdy enough to withstand the local environment and must be replaced when damage or wear compromises readability.

5.2.2 Marine Debris Training and Certification Process

All vessel operators, employees, and contractors performing OCS activities on behalf of the Lessee (collectively, "Lessee Representatives") must complete marine debris awareness training annually. The training consists of two parts:

1. viewing a marine debris training video or slide show (described below); and
2. receiving an explanation from management personnel that emphasizes their commitment to the requirements.

The marine debris training videos, training slide packs, and other marine debris related educational materials may be obtained at https://www.bsee.gov/debris. The training videos, slides, and related material may be downloaded directly from the website.

Lessee Representatives engaged in site characterization and site assessment activities must continue to develop and use a marine debris awareness training and certification process that reasonably assures that they, and their respective employees, contractors, and subcontractors are, in fact, trained.

The training process must include the following elements:

1. A viewing of either the video or the slide show by the personnel specified above;
2. An explanation from the management that conveys the commitment of the company to achieve the objectives of the debris containment requirement;
3. Attendance measures (initial and annual); and
4. Recordkeeping and availability of records for inspection by BSEE.

Training Report: By January 31st of each year, the Lessee must provide BSEE with an annual report (1–2 pages) signed by a company official that describes your marine debris awareness training process, number of people trained, estimated related costs, and certifies that the training process has been followed for the previous calendar year. You should send the report and any questions concerning compliance by email to marinedebris@bsee.gov. In lieu of emailing the report, you may send a printed copy to:

Bureau of Safety and Environmental Enforcement Gulf of Mexico OCS Region
Office of Environmental Compliance
1201 Elmwood Park Blvd.
New Orleans, Louisiana 70123

5.3 Marine Debris Marking and Securing

Marking: Materials, equipment, tools, containers, and other items used in OCS activities which could be lost or discarded overboard must be clearly marked with the vessel or facility identification. All markings must clearly identify the owner and must be durable enough to resist the effects of the environmental conditions to which they may be exposed.

Securing: Materials, equipment, tools, containers, and other items used in OCS activities which could be lost or discarded overboard must be properly secured to prevent loss overboard.

1. Marine Debris Incidents

Recovery: Lessees must recover marine debris that is lost or discarded in the marine environment while performing OCS activities. If the marine debris is located within the boundaries of a potential archaeological resource and/or avoidance area, or a sensitive ecological and/or benthic resource area, the Lessee must contact BSEE for approval prior to conducting any recovery efforts that could impact the seafloor. The Lessee must enact steps throughout its OCS program to prevent similar incidents and must submit a description of these actions to BSEE in the Recovery Report below.

48-Hour Report: Lessees must submit a report to BSEE within 48 hours of a marine debris incident via marinedebris@bsee.gov. The "48-Hour Report" must describe recovery efforts or explain in detail if the Lessee determined that debris recovery is not warranted because (a) conditions are unsafe; (b) debris is insignificant and unrecoverable because it has floated away or sunk to the seafloor; or (c) debris is insignificant and immediate recovery is cost prohibitive. If conditions are unsafe, recovery must be attempted when conditions become safe. The Lessee must recover the marine debris lost or discarded if BSEE does not agree with the reasons provided by the Lessee to be relieved from the obligation to recover the marine debris. The 48-Hour Report must also include the following:

a. project identification and contact information for the Lessee, operator, and/or contractor;

b. the date and time of the incident;
c. the lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees);
d. a detailed description of the dropped object to include dimensions (approximate length, width, height, and weight), composition (e.g., plastic, aluminum, steel, wood, paper, hazardous substances, or defined pollutants), and whether it floats or sinks in seawater;
e. pictures, data imagery, data streams, and/or a schematic/illustration of the object, if available;
f. indication of whether the lost or discarded item could be a magnetic anomaly of greater than 50 nanotesla (nT), a seafloor target of greater than 0.5 meters (m), or a sub-bottom anomaly of greater than 0.5m when operating a magnetometer or gradiometer, side scan sonar, or sub-bottom profiler in accordance with BOEM's and BSEE's applicable guidance;
g. an explanation of how the object was lost; and a description of immediate recovery efforts and results, including photos.

Recovery Plan: The Lessee must submit a "Recovery Plan" to BSEE via marinedebris@bsee.gov if marine debris is not recovered in 48 hours and BSEE determines that recovery is warranted. If BSEE does not object to an assertion in the 48-Hour Report that recovery is not warranted, then a Recovery Plan is not needed. The Recovery Plan must be submitted no later than 10 calendar days from the date in which the incident occurred and must detail a plan to recover the debris within 30 days from the date in which the incident occurred. Unless otherwise objected to by BSEE within 48 hours of the filing of the Recovery Plan, the Lessee can proceed with the activities described in the Recovery Plan. The Lessee must request and obtain approval of a time extension if recovery activities cannot be completed within 30 days from the date in which the incident occurred.

Recovery Report: The Lessee must submit a "Recovery Report" to BSEE vi marinedebris@bsee.gov within 10 calendar days from the date in which the recovery activities are completed. The Recovery Report must inform BSEE whether the debris has been recovered, a description of the recovery activities, and any substantial deviation from recovery activities as proposed in the Recovery Plan. The Lessee must describe steps enacted throughout all the Lessee's OCS leases to prevent similar incidents. If recovery was performed within 48 hours and described in the 48-Hour Report, or recovery is unwarranted, a Recovery Report is not required.

Decommissioning Application: Information on unrecovered marine debris must be included and addressed in the description of the site clearance activities provided in the decommissioning application required under 30 CFR § 585.906.

6. Vessel Strike Avoidance and Injured and/or Dead Aquatic Protected Species Reporting

The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

6.1 Aquatic Protected Species Identification

Crew and supply vessel personnel should use a GOM reference guide that includes identifying information on marine mammals, sea turtles, and other marine protected species (i.e., species that are not marine mammals and ESA- listed such as Gulf sturgeon, giant manta ray, or oceanic whitetip shark; hereafter collectively termed "other aquatic protected species") that may be encountered in the GOM OCS or anywhere activity occurs. Vessel operators must comply with the below measures except under extraordinary circumstances when the **safety of the vessel or crew is in doubt or the safety of life at sea is in question**.

6.2 Vessel strike avoidance

Vessel operators and crews must maintain a vigilant watch for all aquatic protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any protected species. A single aquatic protected species at the surface may indicate the presence of submerged animals in the vicinity of the vessel; therefore, precautionary measures should always be exercised. A visual observer aboard the vessel must monitor a vessel strike avoidance zone (species-specific distances detailed below) around the vessel according to the parameters stated below, to ensure the potential for strike is minimized. Visual observers monitoring the vessel strike avoidance zone can be either third-party observers or crew members (e.g., captain), but crew members responsible for these duties must be provided sufficient training to distinguish aquatic protected species to broad taxonomic groups, as well as those specific species detailed further below.

1. Vessel speeds must also be reduced to 10 knots or less when mother-calf pairs, pods, or large assemblages (greater than three) of any marine mammal are observed near a vessel.
2. All vessels must maintain a minimum separation distance of 100 meters (m) from sperm whales, and 500 m from any baleen whale to specifically protect the GOM Rice's whale. If the species is indistinguishable, then operators should assume it is a Rice's whale and act accordingly.
3. All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all "other aquatic protected species" including sea turtles and manatees, with an exception made for those animals that approach the vessel.
4. When aquatic protected species are sighted while a vessel is underway, the vessel should take action as necessary to avoid violating the relevant separation distance (e.g., attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area). If aquatic protected species are sighted within the relevant separation distance, the vessel should reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear (e.g., source towed array).
5. All vessels 65 feet or greater associated with site characterization and site assessment activities in support of renewable energy development must have a functioning AIS onboard and operating at all times as required by the U.S. Coast Guard. Even if the U.S. Coast Guard does not require AIS for the vessel, it is strongly encouraged. At minimum, the reporting (as specified) must be followed and include trackline (e.g., time, location, and speed) data.

6. The above requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of that restriction, is unable to comply.

6.3 Injured and/or dead protected species reporting

At all times, vessel operators must report sightings of any injured or dead aquatic protected species immediately, regardless of whether the injury or death was caused by the operator's vessel. If the injury or death was caused by a collision with the operator's vessel, the operator must immediately report the incident to the appropriate NMFS contact below for 24-hour response. The operator must further notify BOEM, BSEE, and NMFS immediately of the strike by email to protectedspeciesREN@boem.gov and protectedspecies@bsee.gov and nmfs.ser.esa.consultations@noaa.gov. The report must include the following information:

1. Name, telephone number, and email of company providing the report;
2. The vessel name at time of activity;
3. The lease number;
4. Time, date, and location (latitude and longitude [lat/long]) of the incident;
5. Species identification (if known) or description of the animal(s) involved;
6. Vessel's speed during and leading up to the incident;
7. Vessel's course/heading and what operations were being conducted (if applicable);
8. Status of all sound sources in use;
9. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
10. Environmental conditions (e.g., wind speed and direction, Beaufort Sea State, cloud cover, visibility) immediately preceding the strike;
11. Estimated size and length of animal that was struck;
12. Description of the behavior of the marine mammal immediately preceding and following the strike;
13. If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
14. Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
15. To the extent practicable, photographs or video footage of the animal(s).

6.4 Incidents requiring immediate reporting

In the event that any of the following occur at any time, immediate reporting of the incident is required, after personnel and/or diver safety is ensured:

- Entanglement or entrapment of a protected species (i.e., an animal is entangled in a line or cannot or does not leave a moon pool of its own volition).

- Injury of a protected species (e.g., the animal appears injured or lethargic).
- Interaction or contact with equipment by a protected species.
- Any observation of a leatherback sea turtle within a moon pool (regardless of whether it appears injured, or an interaction with equipment or entanglement and/or entrapment is observed).

As soon as personnel and/or diver safety is ensured, any of the incidents listed above must be reported to NMFS by contacting the appropriate expert for 24-hour response. If an immediate response is not received, the operator must keep trying until contact is made. Any failed attempts should be documented. Contact information for reporting is as follows:

- Marine mammals: contact WHALE HELPLINE at 877-942-5343.
- Sea turtles: contact NMFS Veterinary Medical Officer at 352-283-3370. If no answer, contact 301-310-3061. This includes the immediate reporting of any observation of a leatherback sea turtle within a moon pool.
- Other protected species (e.g., giant manta ray, oceanic whitetip shark, or Gulf sturgeon): nmfs.ser.esa.consultations@noaa.gov and include the following information in the subject line for tracking purposes: GoMex OSW Programmatic Site Characterization and Site Assessment, SERO-2022-02857.

The report must include the following information:

1. Time, date, water depth and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
2. Name, type, and call sign of the vessel in which the event occurred;
3. Equipment being used at time of observation;
4. Species identification (if known) or description of the animal(s) involved;
5. Approximate size of animal;
6. Condition of the animal(s) during the event and any observed injury and/or behavior;
7. Photographs or video footage of the animal(s), if able; and
8. General narrative and timeline describing events that took place.

After the appropriate contact(s) have been made for guidance and/or assistance as described above, the operator may call BSEE at 985-722-7902 (24 hours/day) for questions or additional guidance on recovery assistance needs (if still required) and continued monitoring requirements. The operator may also contact this number if a timely response from the appropriate contact(s) listed above were not received. Minimum post-incident reporting includes all information described above in addition to the following:

9. NMFS liaison or stranding hotline that was contacted for assistance;
10. For moon pool observations or interactions:
11. Size and location of moon pool within vessel (e.g., hull door or no hull door);

12. Whether activities in the moon pool were halted or changed upon observation of the animal; and
13. Whether the animal remains in the pool at the time of the report, or if not, the time and date the animal was last observed.

Post-incident reporting should be made to BOEM and BSEE (protectedspeciesREN@boem.gov, protectedspecies@bsee.gov, OSWsubmittals@bsee.gov) and NMFS SERO (nmfs.ser.esa.consultations@noaa.gov).

7. Transit Plan

The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

Lessees must notify BOEM of their proposed transit for any site characterization and site assessment activities associated with their lease. Transit plans for surveys shall be included in all survey plans (submitted at least 90 days prior to mobilization) and transit plans regarding site assessment activities (e.g., buoy installation, maintenance, and decommissioning) shall be included in the Site Assessment Plan (SAP), representing the entirety of this proposed action.

Transit plans should include, at a minimum, the following information:

1. the lease number and any other BOEM-designated number used to identify the activity;
2. AIS vessel code, if available;
3. time and date of proposed vessel transit; and,
4. a map of the location of the activity, the port(s) from which the vessel(s) will depart and return, and the proposed vessel routes between port and work location and back to port. Lines drawn using the figure below or similar map would be acceptable to depict proposed transit routes. Any changes to that route should be submitted to BOEM and BSEE.

7.1 Reporting requirements

The lessee shall provide actual vessel transit routes as a section within their progress report(s) (submitted to BOEM every six months during the site assessment term). The lessee should provide the following details, which will provide BOEM information about the actual locations of vessel traffic associated with the lease:

1. the lease number and any other BOEM-designated number used to identify the activity;
2. AIS vessel code(s), if available;
3. times and dates of actual vessel transit as it relates to Renewables;
4. whether the actual transit routes differ from the proposed routes submitted in the transit plan(s);

5. a georeferenced map or maps depicting the location of the completed activity, the port(s) utilized for the completed activity, and the actual vessel routes traveled between port to the work location and back to port.

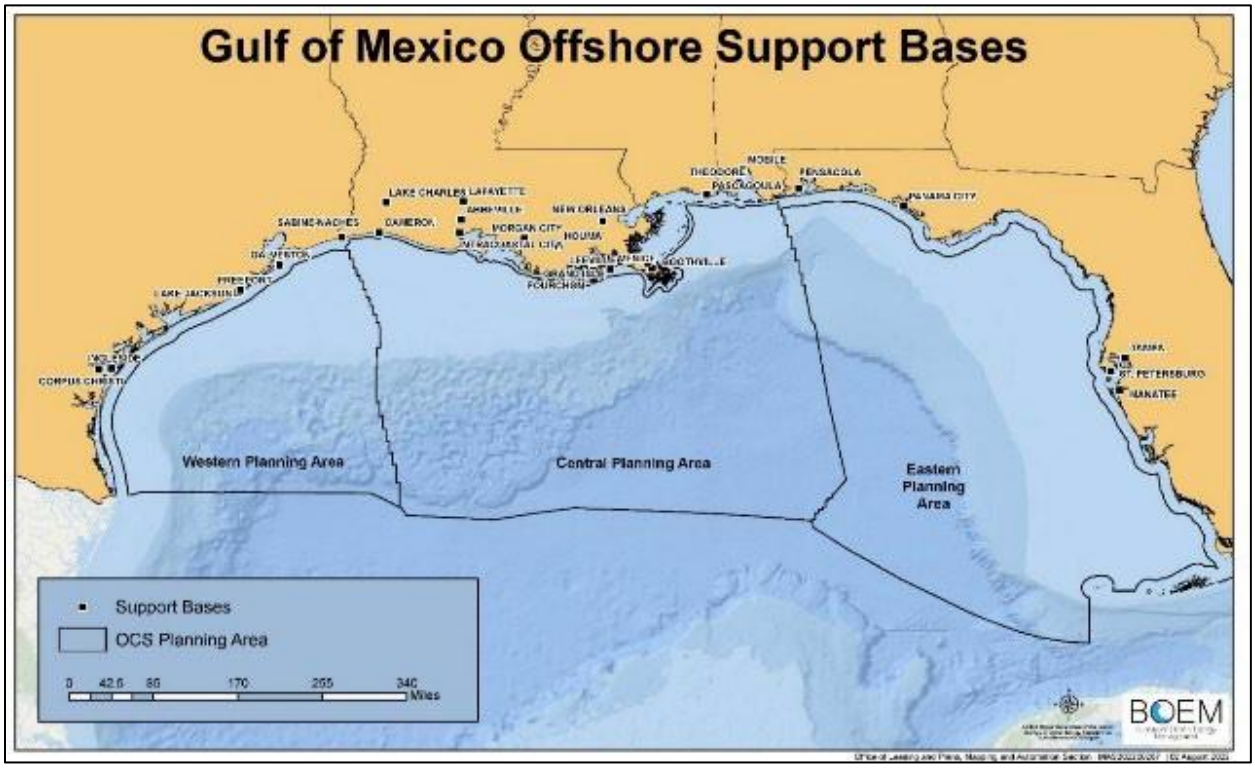

Figure 1. Map of potential Gulf of Mexico offshore support bases.

8. Entanglement Avoidance

The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

Any mooring systems used during site characterization and site assessment activities should be designed to prevent any potential entanglement or entrainment of protected species, and in the unlikely event that entanglement does occur, ensure proper reporting of entanglement events according to the measures specified below.

1. The Lessee must ensure that any buoys attached to the seafloor use the best available mooring systems. Buoys, lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs must prevent any potential entanglement of protected species while ensuring the safety and integrity of the structure or device.
2. All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves,

weak-links, chains, cables, or similar equipment types that prevent lines from looping, wrapping, or entrapping protected species.

3. Any equipment must be attached by a line within a rubber sleeve for rigidity. The length of the line must be as short as necessary to meet its intended purpose.
4. During all buoy deployment and retrieval operations, buoys should be lowered and raised slowly to minimize risk to protected species and benthic habitat. Additionally, PSOs or trained project personnel (if PSOs are not required) should monitor for listed species in the area before and during deployment and retrieval and work should be stopped if protected species are observed in the area to minimize entanglement risk.
5. If a live or dead marine protected species becomes entangled, operators must immediately contact the applicable stranding network coordinator using the reporting contact details (see Reporting below) and provide any on-water assistance requested.
6. All buoys must be properly labeled with owner and contact information.

8.1 Reporting requirements

This is described under *Incidents Requiring Immediate Reporting* (see Vessel Strike Avoidance and Injured and/or Dead Aquatic Protected Species Reporting Protocol).

9. Slack-Line Precaution

The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

If operations require the use of flexible, small diameter (< 2 inch) lines to support operations (with or without divers), operators and/or contractors must reduce the slack in the lines, except for human safety considerations, to prevent accidental entanglement of protected species (i.e., species protected under the ESA and/or MMPA). This requirement includes tether lines attached to remotely operated equipment. The requirements below must be followed for any activities entailing use of flexible, small diameter lines that will not remain continuously taut, except when complying with these requirements would put the safety of divers, crew, or the vessel at risk:

- Operators must use tensioning tools and/or other appropriate procedures to reduce unnecessary looseness in the lines and/or potential looping;
- The lines must remain taut, as long as additional safety risks are not created by this action;
- A line tender must be present at all times during dive operations and must monitor the line(s) the entire time a diver is in the water; and
- Should the line tender and/or diver become aware of an entanglement of an individual protected species, the reporting requirements described below must be followed as soon as safety permits.

9.1 Reporting requirements

This is described under *Incidents Requiring Immediate Reporting* (see Vessel Strike Avoidance and Injured and/or Dead Aquatic Protected Species Reporting Protocol).

10. Moon Pool Monitoring

The following guidelines were developed in consultation with NMFS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

The following protocol would apply to all activities entailing use of the moon pool, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk. If any protected species (i.e., species protected under the ESA and/or the MMPA) is detected in the moon pool, you are required to follow the appropriate procedures described in the Reporting below.

10.1 General requirements

- Where the moon pools have hull doors, the operator(s) should keep the doors closed as much as reasonably practicable when no activity is occurring within the moon pool, unless the safety of crew or vessel require otherwise. This will prevent protected species from entering the confined area during periods of non-activity.

- Use of a moon pool requires regular monitoring while open to the water column and if a vessel is not underway. Regular monitoring means 24-hour video monitoring with hourly recurring checks for at least five minutes of the video feed, or hourly recurring visual checks of the moon pool for at least five minutes by a dedicated crew observer with no other tasks during that short visual check.

- If water conditions are such that observers are unable to see within a meter of the surface, operations requiring the lowering or retrieval of equipment through the moon pool must be conducted at a rate that will minimize potential harm to protected species.

10.2 Closure of the hull door

- Should the moon pool have a hull door that can be closed, then before and after closure, the moon pool must be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual protected species is present in the moon pool area. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring is required before hull door closure.

- If a protected species is observed in the moon pool before the closure of the hull door, the hull door must not be closed, except for human safety considerations. Once the observed animal leaves the moon pool, the operator may commence closure. If the observed animal remains in the moon pool, contact NMFS or BSEE before the closure of the hull doors

according to reporting requirements (see Reporting Requirements under Reporting of Observations of Protected Species within an Enclosed Moon Pool).

10.3 Movement of the vessel (no hull door) and equipment deployment and/or retrieval

- Before movement of the vessel and/or the deployment and/or retrieval of equipment, the moon pool must be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no individual protected species is present in the moon pool area.

- If a protected species is observed in the moon pool before movement of the vessel, the vessel must not be moved and equipment must not be deployed or retrieved, except for human safety considerations. If the observed animal leaves the moon pool, the operator may commence activities. If the observed animal remains in the moon pool, contact BSEE before planned movement of the vessel according to reporting requirements (see Reporting Requirements under Reporting of Observations of Protected Species within an Enclosed Moon Pool.

- Should a protected species be observed in a moon pool before activity commences (including lowering or retrieval of equipment), recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. If protected species are observed during activity, only reporting is required (see Reporting Requirements). Operators must not take such action except at the direction of, and after contact with, NMFS.

10.4 Reporting requirements

10.4.1 Reporting of Observations of Protected Species within an Enclosed Moon Pool

If a protected species is observed within an enclosed moon pool and does not demonstrate any signs of distress or injury or an inability to leave the moon pool of its own volition, measures described in this section must be followed (only in cases where they do not jeopardize human safety). Although this particular situation may not require immediate assistance and reporting as described under *Incidents Requiring Immediate Reporting* (see Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocol), a protected species could potentially become disoriented with their surroundings and may not be able to leave the enclosed moon pool of their own volition. In order for operations requiring use of a moon pool to continue, the following reporting measures must be followed.

After 24 hours of any observation, and daily after that for as long as an individual protected species remains within a moon pool (i.e., in cases where an ESA-listed species has entered a moon pool but entrapment or injury has not been observed), the following information must be reported to BOEM and BSEE (protectedspeciesREN@boem.gov and protectedspecies@bsee.gov and OSWsubmittals@bsee.gov) and NMFS SERO (nmfs.ser.esa.consultations@noaa.gov):

1. For an initial report, the information should include:
    a. Time, date, water depth and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

b. Name, type, and call sign of the vessel in which the event occurred;

c. Equipment being utilized at time of observation;

d. Species identification (if known) or description of the animal(s) involved;

e. Approximate size of animal;

f. Condition of the animal(s) during the event and any observed injury / behavior;

g. photographs or video footage of the animal(s), if able; and

h. General narrative and timeline describing events that took place.

2. For subsequent daily reports:

a. Describe the animal's status to include external body condition (e.g., note any injuries or noticeable features), behaviors (e.g., floating at surface, chasing fish, diving, lethargic, etc.), and movement (e.g., has the animal left the moon pool and returned on multiple occasions?);

b. Description of current moon pool activities, if the animal is in the moon pool;

c. Description of planned activities in the immediate future related to vessel movement or deployment of equipment;

d. Any additional photographs or video footage of the animal, if possible;

e. Guidance received and followed from NMFS liaison or stranding hotline that was contacted for assistance;

f. Whether activities in the moon pool were halted or changed upon observation of the animal; and

g. Whether the animal remains in the pool at the time of the report, or if not, the time and date the animal was last observed.

11. Vessel Operations and Asset Deployment in Manatee Habitat During Emergency Response Activities

The following guidelines were developed in consultation with FWS and are assumed to satisfy BOEM responsibilities to protect the environment and to conserve the natural resources of the OCS when applied to all site characterization and site assessment activities using acoustic sources. Although other methods may be used to satisfy the regulatory requirements, alternate methods may require project-specific consultation(s) and could extend the time necessary to complete the review of the Lessee's proposed activities.

During in-water work in areas that potentially support manatees all personnel associated with the project should be instructed about the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the MMPA and the ESA. Additionally, personnel should be instructed not to

attempt to feed or otherwise interact with the animal, although passively taking pictures or video would be acceptable.

All on-site personnel are responsible for observing water-related activities for the presence of manatee(s). We recommend the following to minimize potential impacts to manatees in areas of their potential presence:

- All work, equipment, and vessel operation should cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Personnel should be encouraged to use sunglasses with polarized lenses to improve the likelihood of seeing manatees on and below the water's surface. After the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for manatee(s).

- If a manatee(s) is sighted in or near the Action Area, all vessels associated with the project should operate at "no wake/idle" speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels should follow routes of deep water (4 ft <) whenever possible.

- If used, in-water assets (e.g., booms or turbidity barriers) should be properly secured, made of material in which manatees cannot become entangled, and be monitored to avoid manatee entrapment or impeding their movement.

- Temporary signs at least 8½ " X 11" reading language similar to the following: "CAUTION BOATERS: MANATEE AREA/ IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA AND WHERE THERE IS LESS THAN FOUR FOOT BOTTOM CLEARANCE WHEN MANATEE IS PRESENT" should be posted in a place clearly visible to the vessel operator. A second temporary sign measuring 8½ " X 11" should be posted at a location prominently visible to all personnel engaged in water- related activities and should read language similar to the following: "CAUTION: MANATEE AREA/ EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION".

Collisions with, injury to, or sightings of manatees should be immediately reported to the Service's appropriate Texas or Louisiana contacts. Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident and/or sighting; and the approximate location, including the latitude and longitude coordinates, if possible.

Attachments

Attachment 1 Marine Debris Placards

WHAT IS MARINE DEBRIS?

Marine debris is any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper or any other man-made item or material that is lost or discarded in the marine environment. Marine debris may be intentionally dumped, accidentally dropped, or indirectly deposited. Whatever the source, marine debris is a direct result of human activities on land and at sea. Depending upon its composition, marine debris may sink to the seafloor, drift in the water column, or float on the surface of the sea. Certain debris, such as plastics, can persist for hundreds of years in the marine environment without decomposing.

WARNING!

YOUR ACTIONS MAY SUBJECT YOU TO SEVERE LEGAL CONSEQUENCES!

The disposal and/or discharge of any solid waste anywhere in the marine environment (other than ground-up food particles) is strictly prohibited by U.S. Coast Guard and Environmental Protection Agency regulations. THIS INCLUDES MATERIALS OR DEBRIS ACCIDENTALLY LOST OVERBOARD.

The disposal of equipment, cables, chains, containers, or other materials into offshore waters is prohibited by the Bureau of Safety and Environmental Enforcement (30 CFR 250.300(b)(6)). THIS INCLUDES MATERIALS OR DEBRIS ACCIDENTALLY LOST OVERBOARD.

ATTENTION!

MARINE DEBRIS MAY CAUSE SEVERE ECOLOGICAL DAMAGE!

Marine debris discarded or lost from offshore and coastal sources may injure or kill fish, marine mammals, sea turtles, seabirds, and other wildlife.

Thousands of marine animals, including marine mammals, sea turtles and seabirds, die every year from being entangled in fishing line, strapping bands, discarded ropes and nets and plastic six-pack rings. Additionally, unknown numbers of marine animals die each year from internal injury, intestinal blockage, and starvation as a result of ingesting marine debris.

Marine debris fouls boat propellers and clogs water intake ports on engines thereby endangering the safety of fishermen and boaters and resulting in heavy loss of time and money.

Marine debris detracts from the aesthetic quality of recreational beaches and shorelines and increases the cost of park and beach maintenance.

ATTENTION!

SECURE ALL LOOSE ARTICLES!

NOAA Fisheries now expects petroleum industry personnel to pick up and recover any articles lost overboard from boats and offshore structures as safety conditions permit. Additionally, 30 CFR 250.300 (d) requires recording and reporting items lost overboard to the District Manager through facility daily operations reports.

Protect marine animals, as well as your valuable time and money, by doing the following to prevent accidental loss of these items:

Properly securing all materials, equipment, and personal belongings. Articles such as hardhats, life vests, sunglasses, cigarette lighters, parts bags, buckets, shrink wrap, strip lumber, and pipe thread protectors become marine debris when lost overboard.

Making sure that all trash receptacles have tight fitting lids and that the lids are used.

Providing and using secure cigarette butt containers. Cigarette butts are one of the most common forms of marine debris. Many cigarette butts contain some form of plastic and do not decompose in the ocean. Cigarette butts pose a major threat to marine wildlife as they resemble food and cause gut blockages and starvation when ingested.

Do your part to eliminate marine debris. Encourage others to be responsible about marine debris by making suggestions to secure potential marine debris on your boat or structure or by participating in a beach cleanup.