



GAS, OIL, AND FUEL HANDLING AND LOADING MITIGATION MEASURES AND BEST PRACTICES

The action agency or project proponent shall implement the following mitigation measures and best practices to minimize risk from construction and operation of gas, oil, or fuel handling (GOF) terminals to Endangered Species Act (ESA)-listed species under the jurisdiction of NOAA Fisheries Southeast Regional Office (SERO), Protected Resources Division (PRD).

This document is divided into two sections: mitigation measures and best practices. Mitigation measures detail what the action agency will do or require from the project proponent during the project's construction phase to minimize potential effects to ESA-listed species and critical habitat. Best practices detail what the action agency or project proponent will do after construction and during the operational phase to minimize potential effects to ESA-listed species and critical habitat.

Mitigation Measures

The following is a list of mitigation measures that should be completed before or during the construction phase for GOF terminals.

- Map sensitive habitats and ESA-listed species likely to be present. Sensitive habitats include coral reefs, hard bottom habitats, seagrass beds, floating vegetation areas (e.g., sargassum mats), mangroves, and ESA listed critical habitat areas. NOAA offers the [Environmental Sensitivity Index maps and data](#) that can help identify at-risk resources to prioritize for deployment of available resources to prevent or minimize impacts to sensitive habitats. NOAA Fisheries also provides an [Essential Fish Habitat Mapper](#) and [the SERO ESA Section 7 Mapper](#) that can provide additional information.
- During the design phase, avoid impacts to sensitive habitats and designated critical habitat to the extent practicable.
- Arrange for compensatory mitigation to impacted sensitive habitats at a minimum of a 1:1 ratio on a functional basis. A 1:1 ratio on a functional basis requires restoring an equivalent level of habitat function for protected species, accounting for temporal delays and failure risks. Since restoration projects take years to reach full functionality, the required mitigation area may exceed the impacted area to compensate for this lag.



- Prior to starting construction, the project proponent must have an approved spill response action plan in place for the operational phase. NOAA's Office of Response and Restoration provides a hub for [response tools](#). Existing spill response plans that have been developed in coordination with the USCG, EPA, NMFS, USFWS and other relevant agencies should be initiated immediately upon notification of a spill.
- If queen conch may be present in the action area, NMFS recommends a queen conch preconstruction survey be conducted as per [NOAA Fisheries Queen Conch Survey, Construction Conditions, Relocation and Reporting Guidelines: January 2025](#).
- The project proponent will implement [NOAA Fisheries Protected Species Construction Conditions, Revised: May 2021](#).
- The project proponent will implement [NOAA Fisheries Vessel Strike Avoidance Measures, Revised: May 2021](#).
- For projects near sea turtle nesting, if construction activities occur during nighttime, then masking of lighting as much as is practicable should be required on all construction equipment (e.g., barge) and support vessels. This may include the use of amber, orange, or red lighting, outside of the nesting sea turtle and hatchling visual spectrum.
- The project proponent shall develop a water quality and environmental monitoring plan, to include pre- and post-construction surveys to ensure no direct impacts occur to aquatic resources outside of the project footprint. It is strongly recommended that the project proponent ensure that [EPA pollution control guidelines](#) are also followed even in the case of emergency actions.
- For all activities where acoustic impacts have the potential to result in take of ESA-listed species, the project proponent shall implement a NOAA Fisheries approved sea turtle and marine mammal monitoring plan and ensure that a sufficient number of protected species observers is present to monitor the zone of potential impacts. As a conservative estimate, under ideal conditions, a properly equipped and trained PSO can observe a 120-degree arc to a distance of 2 km, or a 360-degree radius to a distance of 500 m. At a minimum, it requires the following:
 - Maintain a minimum pre-clearance and safety shutdown zone of 500 m during project activities with acoustic impacts for sea turtles and marine mammals. This zone must be monitored by Protected Species Observers (PSOs) for the presence of ESA-listed fishes, sea turtles and marine mammals for at least 30 minutes prior to initiating noise creating in-water activities. If at any time, a listed fish, sea turtle or marine mammal is observed within the shutdown zone, noise generating operations shall cease until the animal has left the safety zone of its own volition.
 - When ESA-listed species are observed in the acoustic impact monitoring zone,



additional information and corrective actions should be taken, such as a shutdown of trenching equipment, timing the duration of the shut-down, observing the behavior of the animal, and tracking the time spent in the safety zone. Recorded data will be reported to NMFS.

- No spudding or anchoring of project vessels or barges will occur in areas of sensitive habitat.
- If the proposed action occurs within critical habitat for ESA-listed corals, the project proponent must survey for those species and suitable substrates. If either is present, the project proponent must contact NOAA Fisheries so they may aid in developing and implementing a NOAA Fisheries-approved minimization, relocation, and compensatory mitigation plan for those species.

Best Practices

During the post-construction and operation phase of the proposed action, the project proponent will implement the following best practices:

- For facilities near sea turtle nesting beaches, if operational activities occur during nighttime, then masking of lighting as much as is practicable is required on all equipment and vessels. This may include the use of amber, orange, or red lighting, outside of nesting the sea turtle and hatchling visual spectrum.
- Support and maintenance vessels shall implement [NOAA Fisheries Vessel Strike Avoidance Measures, Revised: May 2021](#).
- The project proponent shall follow [NOAA Fisheries Protected Species Construction Conditions, Revised: May 2021](#)
- The project proponent will implement a ballast water management plan or use a ballast water treatment facility to prevent the introduction of foreign species for all vessels berthing at the facility.

For additional information, please contact NOAA Fisheries SERO PRD at:

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Visit us on the web at [Protected Marine Life in the Southeast](https://www.fisheries.noaa.gov/region/southeast#protected-marine-life)
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Planning Resources

[NOAA Hub for Spill Response Resources](#)

[Characteristic Coastal Habitats – Choosing Spill Response Alternatives](#)

[Characteristics of Response Strategies: A Guide for Spill Response Planning in Marine Environments](#)