



Recommended Best Practices for Geophysical Survey Crews to Assist Entangled Wildlife

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Background

Members of the EnerGeo Alliance (EnerGeo) recognize that marine debris presents a serious global threat to marine life and maritime industries. Plastics in particular can remain intact for centuries, leeching microplastics into the water, causing harm to animals that incidentally ingest them, and entangling and entrapping wildlife. “Ghost” fishing gear, including abandoned or lost lines, nets, pots, and other fishing equipment account for a substantial portion of marine debris. Ghost gear continues to “fish” long after it is no longer under the control of a fishing operation.

In 2016, EnerGeo members led the development of the Ghost Net & Marine Debris Removal Initiative (GNI), which encourages member companies to remove marine debris during survey operations and report the amount removed to a centralized reporting system at EnerGeo. As of the end of 2020, EnerGeo members reported removing nearly 2.5 million pounds of debris.

During geophysical survey operations, EnerGeo members reported encounters with wildlife entangled in marine debris. In some circumstances, debris may be entangled with both an animal and deployed equipment, requiring crews to intervene. Due to the remote nature of the industry’s activities, it is often impossible for professional support to reach the survey vessel if the animal has been brought on board due to entanglement with gear, and it is extremely unlikely that a free-swimming animal would be located successfully for disentanglement. While survey crew members are highly trained as safety professionals, EnerGeo members recognized a need for explicit guidance to manage these interactions in a manner that ensures both human and animal safety.

The Geophysical Industry's Commitment

EnerGeo Alliance members are dedicated to providing assistance to entrapped and entangled wildlife in a safe manner, with deference to the local jurisdiction's laws governing interactions with marine life, particularly with respect to threatened, protected, and endangered species.

Members recognize that fully trained animal professionals are always the best choice to provide care to wildlife in distress and always endeavor to contact appropriate personnel as a first option. When professional support is unavailable, members will provide assistance to distressed wildlife only when confident that human and animal safety can be maintained and will collect information to inform the relevant local authorities.



Recommendations for Managing Entangled Wildlife Encounters

Prior to Start of Survey

Preparation is vital to a coordinated, safe response to animal entanglement events. The outlined pre-survey steps are recommended to ensure that crewmembers are appropriately trained and risks are identified.

- Identify common species and species of concern in the survey area through the pre-survey environmental review process (Environmental Impact Assessment, Strategic Environmental Assessment, etc.).
- Determine the appropriate regulatory agency and stranding response contacts for the survey jurisdiction and ensure that this information is readily accessible to the survey vessel crew.
- During the environmental review process, share intervention plan with the local regulatory agency to discuss specific situations when intervention is appropriate and when it should be avoided.
- Review the intervention protocol with crewmembers as part of regular safety trainings and identify roles and responsibilities.
- Identify the chain of command and lines of communication to ensure proper supervision during disentanglements and recording and reporting of necessary information.

Response Equipment

Prior to launching the survey vessel, a marine fauna rescue response kit should be prepared. While some of this equipment might be readily available on the vessel, it may be beneficial to collect a full standalone kit to ensure all necessary gear is at hand and sterilized for entanglement events. The listed items are recommended to facilitate a safe, efficient process.

- Personal protective equipment
 - o Medical grade rubber or latex gloves
 - o Safety gloves
 - o Eye protection
 - o Protective coveralls or aprons (long sleeves preferred)
 - o Face masks or shields
 - o Safety harnesses
 - o Personal flotation devices

- o Personal serrated knife or rope cutters
 - o Hard hat
- Telescopic poles
- Grapple hooks
- Boat hook
- Non-retractable knives with handles suitable for attachment to ropes, poles, etc.
- Non-stretch rope
- Rope cutters
- Tape
- Tie wraps
- Cameras
- Towels and padding
- Buckets
- Hand sanitizer gel or wipes
- Non-toxic animal marker paint (to aid in later identification should the animal be resighted, stranded, or reencountered at a later time)

Information Collection

Even in instances where disentanglement is not possible, documenting the event and sharing detailed information with local government agencies and stranding response groups is beneficial and may allow the animal(s) to be located and assisted. If possible, continuous monitoring of the animal or group may help responders locate the distressed individual(s). Crewmembers should use their best judgement in collecting the information listed, but should be advised not to speculate if they are uncertain as to any of the following points. In the event that an animal is entangled in seismic survey equipment, crews are encouraged to document and report these events. Sharing information regarding entanglements with equipment engineers and manufacturers may support identification of potential design flaws, thereby decreasing the likelihood of future entanglement encounters. The following information collection protocol is advised any time an injured or entangled animal is sighted:

- Photographs and/or video, if possible
- Species, if possible (otherwise, general size and physical description)
- Time and date of encounter

- GPS coordinates
- Direction and speed of movement;
- Number of animals sighted, and number entangled/injured;
- Mobility of animals (e.g., free swimming, fixed in location);
- Type of gear or debris, if identifiable;
- Estimated age group (e.g., calf, juvenile, or adult);
- General notes regarding animal and group behavior;
- Whether intervention was attempted and whether it was successful.
- EnerGeo Alliance members are encouraged to report this information in the “wildlife interaction” notes section when submitting a GNI Post-Survey form.

Human Safety Policies

Crewmember safety is the top priority in all rescue scenarios. Intervention should never be attempted under conditions that may pose a threat to human safety.

- Crewmembers should never, under any circumstances, attempt to enter the water to free an entangled animal.
- Even small, slow moving marine animals pose a significant risk to physical safety. Under no circumstances should a single crewmember attempt to handle an animal, regardless of size or apparent mobility.
- Self-entanglement is a serious risk. Removal or cutting of lines should be attempted at a distance whenever possible. Crewmembers should never allow hands to become wrapped in entangling debris, nor should they place their hands between the entangling debris and the animal.
- All loose line should be accounted for and placed into a bucket if possible. Never stand on, in, or around loose line.
- All animals present a risk of zoonotic disease spread. Similarly, it is possible for humans to spread disease to animals. Personnel should be equipped with gloves, goggles, face masks or shields, and other personal protective equipment if appropriate. All equipment should be disinfected prior to use, and again prior to storage. Crewmembers should thoroughly wash or sanitize hands before and after contact, and any injuries, including minor scrapes, should be promptly treated and disinfected immediately, and the project medic or doctor kept aware.
- If at any point a crewmember feels that the situation has become unsafe, rescue efforts should be immediately halted until the unsafe condition can be rectified. In the event that rectification is not possible and continuing the rescue attempt poses a risk to safety, the rescue attempt should be abandoned.

Animal Safety and Disentanglement Process

When working with marine fauna, it is important to remember that the animals spend all or most of their time in the water. While this may be obvious, it has vital implications for ensuring safe animal handling. Crewmembers should note that all marine life is capable of causing injury or death, and even small, apparently docile animals can quickly become dangerous and unpredictable when exposed to a perceived threat. Throughout the disentanglement attempt, behavior and temperament should be closely monitored.

- When determining whether to intervene and disentangle the animal, the animal's general behavior should be considered carefully.
 - Attempting to assist extremely large or visibly distressed animals may ultimately cause harm.
 - If the animal is part of a group, the behavior of the group must also be addressed; conspecifics can pose a threat to the safety of the rescue effort. Independent observers (e.g., Marine Mammal Observers, Protected Species Observers, Environmental Advisors, etc.) may be valuable sources of insight if in doubt.
 - Disentanglement of large whales is particularly dangerous and should only be attempted by trained professionals. If a large whale is encountered, the outlined information should be reported to the local authorities. If possible, continuous monitoring of the animal (by a support vessel, communication with a nearby mariner, etc.) may help with locating the animal.
- When determining whether to intervene, the following animal evaluation criteria are recommended by the [International Whaling Commission Global Whale Entanglement Response Network](#) and are broadly applicable regardless of the type of animal:
 - How large is the affected individual?
 - What species?
 - General temperament (e.g., docile, agitated, distressed)?
 - Visible health conditions, including body profile and skin conditions?
 - Nature of visible injuries?

- o Presence of cohorts or predators?
 - o Is the animal mobile, restricted, or fixed?
 - o Type of entangling gear? Condition of gear?
- Whenever possible, animals should not be removed from the water. Equipment recommended can be utilized to disentangle animals without removing them, while maintaining a safe distance.
- Loud noises and sudden movements can startle animals and elicit defensive responses. Crewmembers engaged in the rescue attempt and those nearby should avoid rapid movements and keep voices low and calm when possible. Rapid maneuvering of vessels can also cause distress. The animal's behavior and responses during approach should be carefully monitored.
- Attempting to lift, carry, or move cetaceans can cause serious musculoskeletal injury if not performed correctly. Bringing cetaceans aboard the vessel is never recommended except under exceptional circumstances (e.g., a small porpoise entangled in a net wrapped around a streamer).
- While marine turtles and pinnipeds are generally more resilient to handling, in-water disentanglement is preferable. If the animal must be brought aboard, care should be taken to avoid lifting or moving the animal by flippers, which can result in fractures and injuries. Proper padding, containment, shade, and moisture should be maintained and handling time should be minimized as much as possible. Animals should be monitored closely to avoid drying out or overheating.
- The areas directly in front of the animal and within reach of flukes or flippers poses the greatest risk to human safety. Time spent in these areas should be minimized as much as possible.
- The animal's reaction to approach and human presence should be tested and evaluated from a distance prior to getting in close proximity.

- The general procedure for disentanglement is the same regardless of the species:
 - Bring the animal alongside the rescue vessel, or, if necessary, aboard. The vessel should be in neutral (except as necessary for safety positioning) and the animal should not be towed while disentangling. Avoid using sharp objects to control the animal (hooks may be appropriate to secure lines or nets).
 - Ensure the animal is able to breathe (remember, marine mammals and turtles breathe air!) and allow it to calm down until safe handling is possible.
 - If possible, unwind the entangling gear. Avoid placing hands between the animal and the gear.
 - If it is not possible to disentangle the animal by hand, use a knife to cut the gear. Ensure that the gear is clear of the animal using a hook, and cut away from animals and humans.
 - Remove all gear before unwinding or cutting the anchoring line. Time adjacent to or aboard a vessel should be minimized as much as possible. If the animal is capable of independent movement or is dead, it should be returned to the water immediately. If possible, the animal may be marked using nontoxic livestock marker paint to assist in identification if the animal is reencountered or resighted.
 - Take note of the animal's behavior as it swims away. Do not start the engine until the animal is clear of the vessel.

Except at the explicit direction of an animal rescue professional, crewmembers should never attempt to address any other health condition (e.g., visible barnacles or tumors on a turtle), nor should food be provided. Doing so without veterinary training may cause severe injury or death. Crewmembers should never attempt to capture or handle an animal that is not entangled.

For marine turtles that are unresponsive, see the [NOAA Sea Turtle Handling and Resuscitation Requirements Wheelhouse Card](#).

Recommended Resources

- [National Marine Fisheries Service \(NMFS\) Criteria for Disentanglement Roles and Training Levels](#)
- [United States Local Stranding Network Locator](#)
- [United States Gulf of Mexico & Atlantic Sea Turtle Stranding and Salvage Network](#)
- [Alaska Dept. of Fish and Game Entanglement in Marine Debris](#)
- [Canada Dept. of Fisheries and Oceans Guidance to Keeping Whales Free from Fishing Gear](#)
- [Australian Dept. of Agriculture, Water and the Environment Entanglement Guidance](#)
- [NOAA Sea Turtle Handling and Resuscitation Requirements Wheelhouse Card](#)
- [Final Rule: Sea Turtle Conservation; Restrictions Applicable to Fishing and Scientific Research Activities \(66 FR 67495\)](#)
- [International Whaling Commission Global Whale Entanglement Response Network](#)
- [Canada Dept. of Fisheries and Oceans Leatherback Sea Turtle: Tips for Handling and Releasing](#)
- [British Divers Marine Life Rescue Resources](#)



Disclaimer: The recommendations provided herein are for informational purposes only. The EnerGeo Alliance and the authors of this document accept no responsibility for crewmember injury or death, nor equipment loss or damage associated with the use of this guidance, in whole or in part, to govern marine megafauna rescue policies. Survey operators are responsible for review of and compliance with all relevant local, national, and international regulations governing interactions with marine life. EnerGeo and the authors of this document are not responsible for violations.