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CAREFUL RELEASE PROTOCOLS FOR SEA TURTLE RELEASE WITH MINIMAL INJURY

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Chapter 1 Introduction

The careful release protocols presented here describe the tools and techniques for safely removing fishing gear from incidentally captured sea turtles (Plate C-1) and other bycatch species. The document is designed primarily to provide specific handling guidelines for removing gear from sea turtles captured in hook-and-line fisheries. Interactions with other species (e.g., fish, marine mammals, and seabirds) and gear types (e.g., trawls, gillnets, fixed gear) are mentioned briefly here, but this is not intended to be a comprehensive guide for interactions with these species or gear types. This chapter introduces the importance of gear removal, and then specific protocols and tools are addressed in the following chapters.

These protocols synthesize the results of scientific research involving gear removal tools initially developed for pelagic longline fisheries (Watson et al. 2004, Watson et al. 2005). Based on user feedback from fishery captains, crew members and observers after subsequent field-testing, these gear removal tools have been updated, and equipment design standards have been revised as needed. A demonstration of the use of many of these tools and techniques can been seen in the video "Removing Fishing Gear from Longline Caught Sea Turtles" at: https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/safe-handling-release-and-identification-workshops#videos.

Updates in this version

This document, which updates the NMFS SEFSC Revised 2010 Careful Release Protocols for Sea Turtle Release with Minimal Injury, has been revised to better inform users of gear removal priorities and the rationale behind making important decisions, such as when to bring an animal on board and when to remove hooks. The protocols have been modified to incorporate additional user feedback after extensive field testing and to incorporate newly approved tools. ***All previously authorized tools and gear removal protocols are still approved for use. Three new tools have been approved for use by the Southeast Fisheries Science Center (SEFSC), the "squeeze handle dehooker," the "NOAA collapsible hoop net," and two models of remote (handle-free) line cutters ("JLC - TL-1" and "JLC - ZC-2"). Check applicable federal regulations for specific fishery requirements.*** Two tools have been renamed for descriptive purposes, but the tools themselves have not changed: the "Roby dehooker" is now referred to as the "cylinder dehooker," and the "NOAA/Bergmann dehooker" is now referred to as the "NOAA/chain-link dehooker."

In an attempt to streamline and focus the release guidelines document here, approved design standards for all currently certified release gears are now available in the Careful Release Tool Design Specifications. Updated lists of approved models can be found at: https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/safe-handling-release-and-identification-workshops and https://www.fisheries.noaa.gov/southeast/endangered-species-conservation/sea-turtle-and-smalltooth-sawfish-release-gear-and. Individual fisheries may have more specific design standards. Check Federal Register notices and applicable regulations as the final authority for required tools and specifications in each fishery.

The Importance of Gear Removal

Because incidental capture in fishing gear has the potential to injure or kill protected species, solutions to reduce the severity of the injury and mortality rate of these interactions is a priority. Post-release survival may be dependent upon the nature of the interactions (hooking location and/or entanglement), how carefully the animals are handled during boating and gear removal, and the amount and location of gear remaining at release

(Ryder et al. 2006). The equipment and techniques described here are intended to reduce injury and to promote post-release survival.

Line Removal is a Priority in All Situations

Removing all fishing line is essential, as even short lengths of ingested or external line can be lethal. In every case, the top priority should be to remove as much line as possible, even when the hook cannot be removed safely. Line can cause severe injuries such as gut strangulation that can lead to serious blockages, infection, and starvation (Bjorndal et al. 1994, Orós et al. 2005, Valente et al. 2007, Casale et al. 2008, Alessandro and Antonello 2010). Any line left trailing or entangled may cause wounds, infection, and even amputation (Orós et al. 2005, Watson et al. 2005).

Deciding Whether to Bring an Animal On Board

Human and animal safety is the top priority, and if the animal cannot be safely boated due to the vessel or animal size, sea state, etc., then the animal should remain in the water while the gear is removed. Live marine mammals, sharks, billfish, and sawfish should never be brought on board for gear removal. Leatherbacks should only be brought onboard using a large turtle hoist.

The decision whether to bring incidentally captured sea turtles on board is dependent on many factors. Generally, all turtles with a shell less than three feet long (straight carapace length) can be boated safely on most vessels if sea conditions permit. Larger turtles should be boated when conditions and equipment permit. Turtles must be brought on board using a dip net or hoist, and turtles should never be boated using fishing gear.

Bringing reasonably sized turtles (up to 3 ft long) on board makes gear removal easier and safer for the both animal and the crew. Removing gear from a boated turtle is safer for the animal, as the hooking location can be more easily seen to determine whether hook removal is safe. It is more likely that all gear will be removed when a turtle is brought on board, which benefits the fishery when mortality estimates are considered.

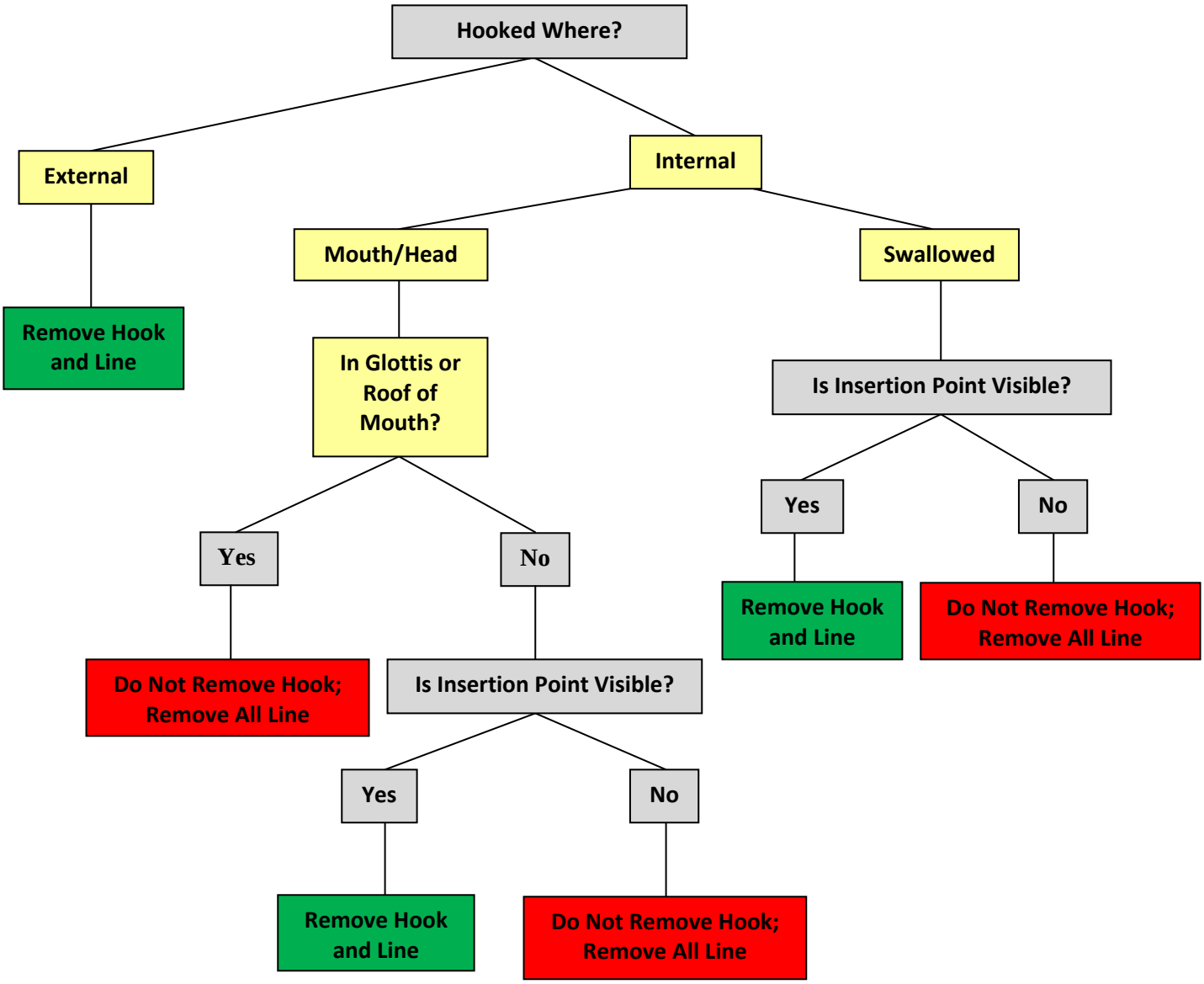
The hook and line are removed more easily without any tension on the line. Also, it is safer for the crew, as a turtle struggling alongside the vessel will create tension on the line, increasing the chances that the line could snap and recoil under the tension, potentially injuring the crew.

If it is determined that the turtle cannot be brought aboard without causing further injury to the turtle, or if conditions are such that the turtle cannot be safely brought aboard, then protocols for turtles not boated should be followed (refer to Chapter 3). In cases where a turtle is not brought on board, it should be controlled alongside the vessel using a pair of turtle control devices (p. 10-11).

Deciding Whether to Remove a Hook

The decision whether or not to remove a hook is essential, as it may directly affect an animal's chances for survival. All externally embedded hooks should be removed in most cases, using caution not to use excessive force, which could result in a bone injury. Hooks in the mouth generally should be removed when they are visible in part or whole, but judgment should be used in each case. See the decision flowchart (Plate 1, p. 3) for a general guide to assist in deciding whether to remove hooks. However, judgment must be used in each individual case to determine whether hook removal is safe. ***If you are unsure whether hook removal will cause further serious injury to the turtle, do not remove the hook. Never attempt to remove a hook that has been swallowed where the insertion point is not visible, as removal may cause more damage to the animal than leaving the hook in place. If the hook is in the roof of the mouth, glottis, or otherwise deeply embedded where you believe removal will cause more damage, do not remove the hook.***

Plate 1. Decision flowchart for determining whether to remove hooks. Judgment must be used in each individual case to determine whether hook removal is safe.



The glottis (Figures 1a and b), located in the middle of the tongue (Figure 1a), consists of the opening to the trachea and the valve to open and close the airway. Hooks embedded in the glottis should not be removed because damage to the cartilage that seals the entrance to the trachea may allow water to leak into the lungs, causing pneumonia and death (Parga 2012). Hooks in the roof of the mouth can penetrate the brain case or eye structures, and removal may cause serious injury.

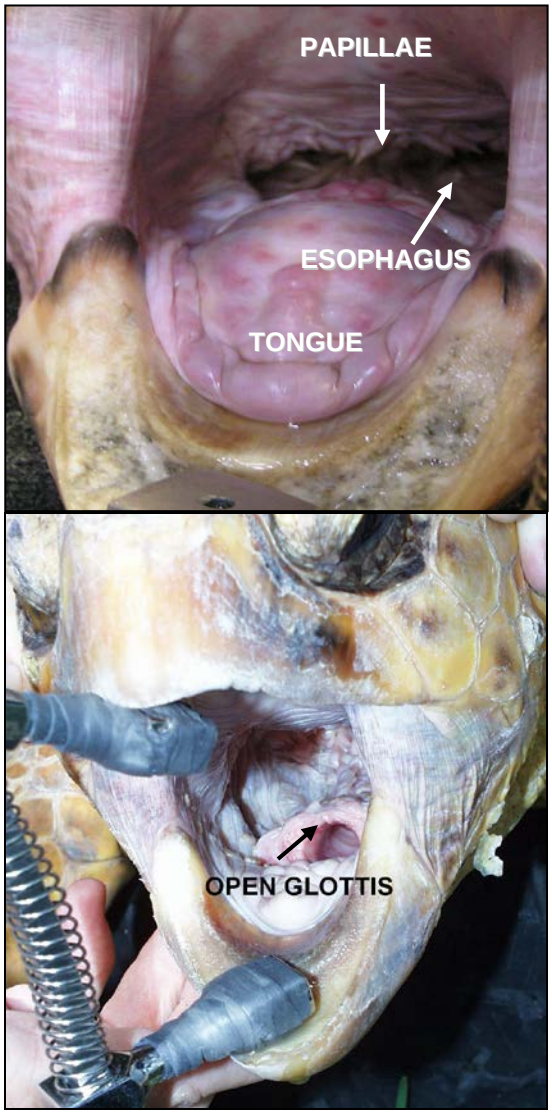


Figure 1 a and b. Oral cavity anatomy (a) closed glottis, tongue, esophagus and papillae; (b) open glottis (NMFS/ SEFSC photos).

The esophagus begins at the back of the mouth and is lined with cone-shaped structures called papillae (Figure 1a). Only remove hooks from the front of the esophagus when the insertion point of the hook is clearly visible, and exercise extreme caution during hook removal, as removing deeply ingested hooks could rupture major blood vessels or damage the heart or other organs. The esophagus of sea turtles is thick, muscular, and resilient (Díaz-Figueroa and Mitchell 2006), so if tension is not applied to the line, the chances of a turtle surviving a swallowed hook interaction may be high (Alegre et al. 2006, Valente et al. 2007). Tearing of the esophagus or papillae through improper handling (e.g., pulling the turtle on board or dragging them on deck by the line) or improper hook removal can lead to perforation, infection (Orós et al. 2004), or death. Perforations from hooks in the caudal (deeply swallowed) portion of the esophagus close to the heart are especially dangerous (Ryder et al. 2006, Casale et al. 2008). ***For these reasons, removing hooks from the esophagus where the insertion point of the hook is not visible is considered dangerous and is not advised under any circumstances.***

When a hook cannot safely be removed, monofilament cutters should be used to cut the line as close as possible to the eye of the hook, as all animals will benefit from having as much line removed from the hook as possible. If part of the hook is accessible but cannot be removed, bolt cutters should be used to cut off and remove the visible part of the hook.

Submitting New Tools for Approval

Many of the careful release tools in this document were developed by or in collaboration with fishermen and fishery partners. The expertise of those using these tools and techniques in the field is invaluable in developing innovative new designs for future use. ***NOAA Fisheries welcomes the submission of new careful release tool designs for testing and approval.*** Laboratory and/or field trials must be conducted by NOAA Fisheries to test

for consistent safety and effectiveness prior to approval for their use. Once approved, a Fishery Bulletin notice will be issued after publication in the Federal Register to announce the availability of a new careful release tool. New design specifications will be incorporated into the Careful Release Tool Design Specifications, and details will be incorporated into future revisions of this document.

In order to submit a new design for testing, please send the device to the address below for testing and approval, or contact the Harvesting Systems Unit for additional information. In addition to the device, please send complete contact information, a brief description on the purpose of the tool, and instructions for its use. The tool will be tested in the laboratory and/or field, photographed, and returned to the developer as quickly as feasible. Address for sending new tools to be tested:

Harvesting Systems Unit
NOAA Fisheries
Southeast Fisheries Science Center
Mississippi Laboratory
202 Delmas Avenue
Pascagoula, MS 39567
228-549-1769
john.mitchell@noaa.gov

Regulations

In addition to the conservation value of reducing incidental injury and mortality, some management actions and incidental take statements may be designed to reward effective gear removal performance. Using these tools and protocols to maximize gear removal efforts may benefit fishermen by reducing the estimated incidental mortality rates in these fisheries. These gear and release protocol requirements will assist fishermen in maximizing their gear removal performance, which may help them to stay within the fishery's requirements (e.g., staying within the mortality estimate levels allowed under the Incidental Take Statement (ITS) in applicable Endangered Species Act (ESA) Biological Opinions), ***a key requirement to keep these fisheries open.***

However, removing hooks when the release guidelines advise against hook removal is detrimental to the animals and to the fishery, as estimated mortality rates are higher when deeply ingested hooks are removed than when these hooks are left in place.

Several fisheries have mandatory release requirements and handling and release guidelines for the handling of incidentally-caught protected species. Requirements and appropriate release tools may vary by fishery. For example, Atlantic pelagic longline regulations (50 CFR 635.21)(c)(3) require fishermen to move one nautical mile before resuming fishing if a sea turtle, marine mammal or sawfish is incidentally captured. A laminated instruction card for sea turtle handling/release guidelines should be prominently displayed in the wheelhouse for instant reference, and this may be required by some fisheries. HMS Atlantic pelagic longline and bottom longline fishery regulations are located in 50 CFR part 635, South Atlantic snapper-grouper and Gulf of Mexico reef fish regulations are located in 50 CFR part 622.

This guidance is intended for lawful activities authorized under the Endangered Species Act (ESA), including conduct of fisheries with incidental take statements and actions to provide assistance to stranded turtles.

A demonstration of the use of many of these tools and techniques can be seen in the video "Removing Fishing Gear from Longline Caught Sea Turtles" at: https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/safe-handling-release-and-identification-workshops#videos.

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Chapter 2 Fishery Specific Handling Protocols

These removal tools and techniques are applicable to a variety of fisheries, but a few gear-specific protocols are introduced here.

Trawl Fisheries

In trawl fisheries, care should be taken not to drop the turtle from the net onto the deck below, not to drop any part of the gear (e.g., otter trawl doors), and not to allow the bag to slam into the side of the vessel, as this can result in serious injury. Turtles incidentally captured in trawl fisheries may have sustained an extended period of forced submergence and may require resuscitation or time to recover before release (Chapter 4).

Gillnet Fisheries (Plate C-2)

If a sea turtle is entangled in gillnet gear, slow the vessel and adjust the vessel direction to move toward the turtle. Once the turtle is brought alongside the vessel, stop and put the vessel in neutral. Slowly retrieve the net, avoiding tugging or yanking motions. Avoid pulling up the turtle by the gear that it is entangled in, as this could injure the turtle. Bring the turtle on board using a dip net or turtle hoist. If the turtle cannot be disentangled easily from the net, carefully cut the net off the turtle using a blunt-sided line cutter and attempt to remove any gear attached to the turtle. If conditions do not permit the turtle to be boated, control the turtle with a pair of turtle control devices if possible, and bring the turtle close to the vessel. Try to work the turtle free from the net, and use long-handled line cutters to cut the net and lines off of the turtle if necessary.

Fixed Gear Fisheries

Sea turtles can become entangled in the vertical lines of fixed gear (e.g., crab pots, whelk pots). ***Disentanglement should only be attempted with the assistance or advice of experts. Do not cut the line, as the line must be carefully unwrapped by trained experts so the animal isn't released with any remaining gear.*** If a turtle is encountered entangled in fixed gear, contact the appropriate NMFS Regional Stranding Hotline listed below or the U.S. Coast Guard on VHF Ch. 16 for further instructions.

- Greater Atlantic (Northeast) Region 1-866-755-NOAA (6622)
- Southeast Region Marine Mammal Stranding Network 1-877-433-8299
- West Coast Region Marine Mammal Stranding Network 1-866-767-6114

Additional information can be found at: https://www.fisheries.noaa.gov/insight/entanglement-marine-life-risks-and-response

Hook-and-line Fisheries (Plates C-3, 4, and 5)

There are three possible sea turtle interactions with hook-and-line fishing gear: (1) entangled but not hooked, (2) hooked but not entangled, and (3) hooked and entangled. Assess the turtle's condition and size, nature of the interaction, location of the hook, and available crew. The vessel must be stopped in order to respond to these interactions and to reduce tension on the line, and a decision must be made whether the turtle can be brought on board safely. Do not use gaffs or other sharp objects in direct contact with the turtle to retrieve or control it, although a gaff may be used to control the line. Follow the instructions for removing gear from turtles not boated (Chapter 3) or turtles brought on board (Chapter 5).

Pelagic and Bottom Longline Fisheries

Captains and crews in hook-and-line fisheries should scan the line as far ahead as possible during gear retrieval to sight turtles in advance and to avoid getting ahead of the line while retrieving gear. Upon sighting a turtle, the vessel and line reel speed should be slowed and the vessel direction adjusted to move toward the turtle, minimizing tension on the line. Gentle, consistent tension should be kept with enough slack to keep the turtle near the vessel but in the water. Once the turtle is brought alongside the vessel, stop and put the vessel in neutral.

Vertical Line Reef Fish Fisheries

The protocols here are written to optimize the success of gear removal, utilizing at least three crew members in some scenarios. In fisheries with smaller vessels where there are not at least three crew members available, such as reef fish fisheries, modifications to the protocols have been suggested where appropriate [e.g., the turtle control devices (p. 10 - 11) can be tied off, some mouth gags (p. 23 - 26) offer hands-free operation]. As well, release tools with smaller wire diameter or working ends (within the range of approved specifications) may be required to effectively remove smaller hooks commonly used in these fisheries.

Pier Captures

Gear removal tools and protocols for turtles incidentally captured on fishing piers are similar for other hook-and-line fisheries. However, care must be used during the retrieval of the animal so that it is never hauled up to the pier from the water using the line, as this could cause serious injury to the esophagus or intestines. If possible, gently walk the turtle down the pier to the shore, where the line can be removed effectively. Only those trained in hook removal should attempt to remove fishing hooks, and the appropriate stranding network personnel should be called immediately for assistance (Appendix A). If a bridge net is available on the pier, the turtle can be brought up to the pier for gear removal.

Chapter 3 Equipment and Techniques for Sea Turtles Not Boated

When a turtle is too large to be boated, or if sea conditions prevent the safe boating of turtles, gear must be removed while the turtle remains in the water. The turtle should be brought as close as possible and allowed a short time to calm down if necessary before being brought fully alongside for gear removal. ***Do not ever enter the water to remove gear from an animal under any circumstances.*** Turtles should be released with as little gear as possible remaining, even if they cannot be brought on board for gear removal. Refer to Plate B-2 (p. B-3) to select the appropriate tools (Figure 2) for gear removal depending on whether the turtle is hooked and/or entangled.

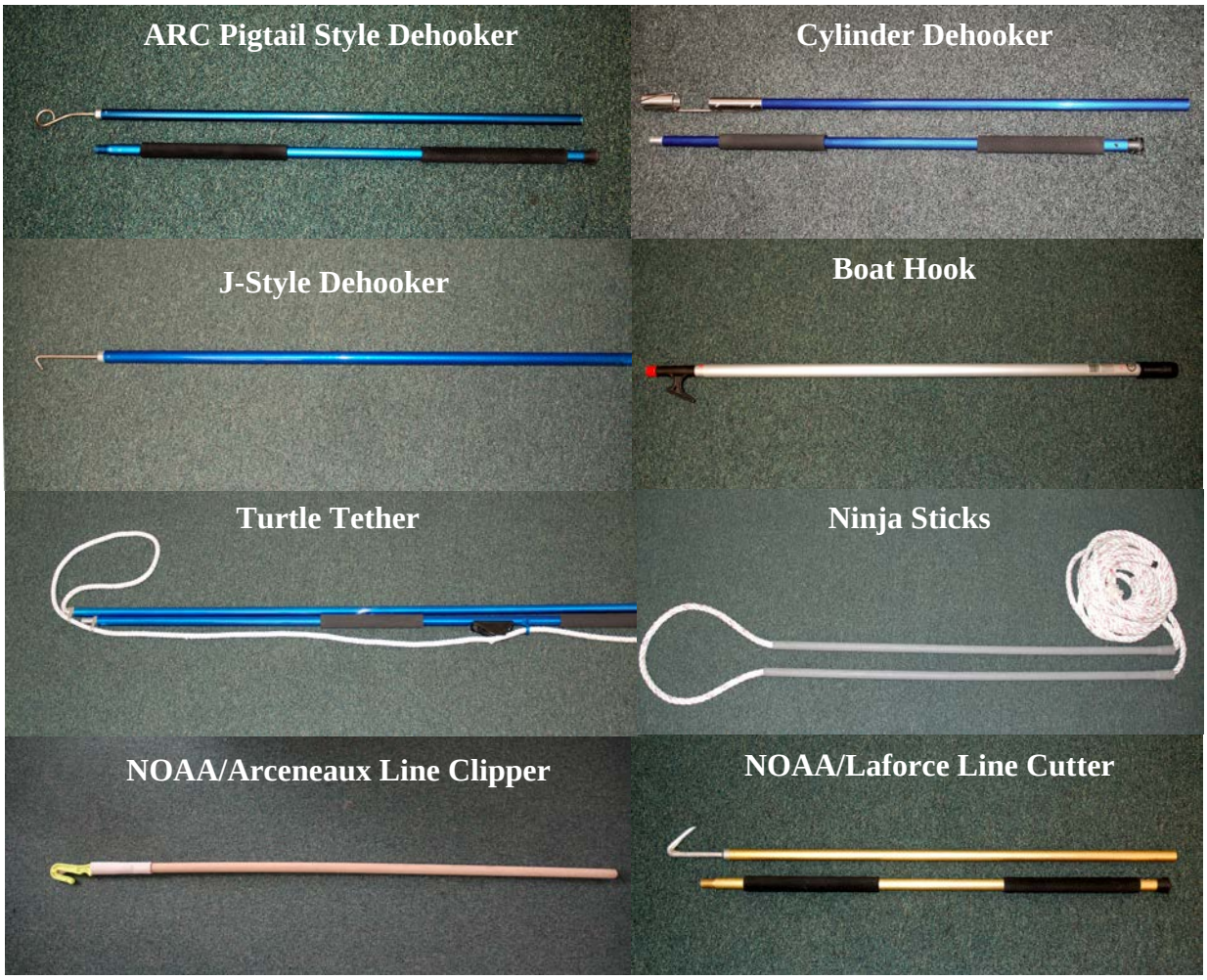

Figure 2. Long-handled tools for sea turtles not boated (NMFS/SEFSC photos).

Turtle Control Devices

Turtle control devices were designed to restrain turtles in response to safety concerns for fishing vessel crew members and for incidentally captured sea turtles, as well as to facilitate the likelihood of maximum gear removal potential. They should be secured around the ***front flippers*** as close as possible to the body for maximum control so that the animal can be restrained at the side of the vessel. They help stabilize and control the animal because the front flippers are used for propelling the turtle and once secured, the turtle becomes docile and unable to swim. These devices should be used in pairs to increase the safety of the crew. ***They should never be used around the turtle's neck, head, or rear flippers.*** The devices facilitate rapid gear removal while reducing the chances that taut line could snap under the strain of the active sea turtle and recoil towards the crew members on deck.

After the animal is secured at the side of the vessel, dehookers and line cutters can be used as needed. Currently, there are two turtle control device styles approved for removing gear from active sea turtles not boated, particularly leatherbacks. Handle length may vary depending on the vessel design and fishery regulations.

(1) Ninja Sticks

The "ninja sticks" consist of two long poles (PVC, fiberglass, aluminum, or similar) with line threaded through or securely affixed to both lengths. The free end of the line should be tethered to the vessel unless an additional tag line is used, leaving enough slack to create a ~24" working section of line between the two poles to secure the front flippers. Holding one pole in each hand, capture the flipper, bring the poles together, and twist the line until the flipper is secured. Repeat the process to secure the other front flipper, restraining the turtle alongside the vessel (Figure 3).

Figure 3. Restraining a leatherback using a pair of ninja sticks (NMFS/SEFSC photo).

Figure 4. Restraining a leatherback using a turtle tether (NMFS/SEFSC photo).

(2) Turtle Tether

The turtle tether is designed to restrain the front flippers using a pole with negatively buoyant line threaded through eyebolts. A tag line threaded through the end of the tether must be attached to the vessel to ensure that the turtle cannot escape with the tether attached. Loop the stiff rope around the front flipper as close as possible to the body, tighten, and cinch the rope in the cleat. Keep a firm hold of the tether pole to keep the animal near the vessel, allowing for dehooking and disentanglement (Figure 4). Two people should each operate a tether to capture both flippers and restrain the turtle alongside the vessel.

Figure 5. Using monofilament cutters (NMFS/SEFSC photo).

Equipment to Remove Line and Netting

Regardless of whether the hook can be removed, it is essential to remove all line from hooked and/or entangled turtles. Care should be taken not to cut the line connecting the turtle to the vessel until all other line has been removed to prevent the animal from escaping with line still attached. Several tools may be used to cut line at the eye of the hook, and the safety of the crew is the primary concern in selecting which line cutter is most appropriate for the circumstances.

(1) Monofilament Cutters

If the turtle is well-controlled close to a vessel with little freeboard, hand-held monofilament cutters may be used to remove line or netting material from hooked and/or entangled turtles (Figure 5).

(2) Long-handled Line Cutter

Line cutters are designed to cut high-test monofilament line, netting material, and line (e.g., braided/twisted rope) from entangled and/or hooked sea turtles. Carefully slide the blunt end of the line cutter under the line or netting that you wish to remove and pull the line cutter to capture it within the recessed blade(s) of the device (Figure 6).

Figure 6. Using line cutter on entangled leatherback (NMFS/SEFSC photo).

(3) JLC-TL-1 and JLC-ZC-2 remote handle-free line cutters

These line cutters should only be used when the animal is not entangled, and they should not be used from fishing piers or other similar situations from large heights directly above the animal unless extreme caution is used to lower the device down slowly. The JLC-TL-1 (Figure 7a) can be used for larger lines, while the JLC-ZC-2 (Figure 7b) works best with monofilament line. Secure line inside the line cutter with the cutting blade towards the vessel. Turn the locking ring if using the JLC-AC-2. Slide the line cutter down the leader (Figure 8), letting the attached tag line play out with no restriction. When the line cutter bottoms out against the eye of the hook, pull back on the tag line sharply. This will cut the leader a couple of inches above the hook and release the animal with minimal gear remaining (Bergmann et al. 2016).

Figures 7 a and b. (a) JLC-TL-1 and (b) JLC-ZC-2 remote line cutters (NMFS/SEFSC photos).

Figure 8. JLC-TL-1deployed on a monofilament leader (NMFS/ SEFSC photo)

Equipment to Remove Hooks

Lightly embedded hooks can be removed using long-handled dehookers if conditions allow for safe hook removal. However, overly aggressive attempts to remove hooks may result in serious injury or mortality. If the hook cannot be removed in two or three attempts without using excessive force, then it is best to cut the leader as close to the hook as possible and leave the hook in place.

(1) Long-handled Dehooker for Internal Hooks

These dehookers are designed for removing internal hooks that are lodged in the mouth, throat or front of the throat where the insertion point of the hook is clearly visible. ***Do not remove the hook if you cannot clearly see the insertion point of the hook, as improper hook removal will do more harm than good.*** They are mounted to a long handle for use on turtles not boated. Tension must be maintained on the leader when using all of these dehookers to control the hook and prevent the hook from re-engaging during the hook removal process.

(a) Long-handled Chain-link Dehooker (Plate 3, p. 30)

This design, which incorporates two rounded chain link sections, grasps the hook very securely, facilitating the twisting motion necessary to remove circle hooks. Place the dehooker on the leader and follow the leader down until the dehooker bottoms out on the bend of hook. Once the hook is secured, use a twisting motion of approximately 180° while thrusting the dehooker downward to release the hook.

(b) Long-handled Pigtail Style (ARC) Dehooker (Plate 7, p. 35)

The device engages and secures the leader within the "pigtail" curl, allowing the hook to be secured within an offset loop during the removal process (Figure 9). Engage the leader with the open end of the dehooker curl facing up, and rotate ¼ turn clockwise to capture the leader within the curl. Follow the leader down until the dehooker bottoms out on the bend of hook. Once the hook is secured, use a twisting motion of approximately 180° before thrusting the dehooker downward to release the hook if removing a circle hook.

Figure 9. Removing hook with a long-handled pigtail (ARC) dehooker (NMFS/SEFSC photo).

(2) Long-handled Dehooker for External Hooks

These dehookers are approved for removing external hooks, and they are mounted to a long handle for use on turtles not boated. However, overly aggressive attempts to remove hooks from the flippers may result in unseen bone injuries. In cases where the hook is deeply embedded and cannot be removed without excessive force, the line should be cut at the eye of the hook, and the hook should be left in place.

(a) Long-handled Chain-link Dehooker (Plate 3, p. 30)

Refer to the previous description of the device on this page.

(b) Long-handled Cylinder Dehooker (Plate 4, p. 31)

The design, which incorporates four notches at 90° angles at the base of a cylinder, grasps the hook very securely (Figures 10 and 32), facilitating the twisting motion necessary to remove circle hooks. Engage the line by feeding it through the diagonal slit in the side of the cylinder, and then secure the hook in the notches. Once the hook is secured, use a twisting motion of approximately 180° while thrusting the dehooker downward to release the hook.

(c) Long-handled J-Style Dehooker (Plate 5, p. 32)

Place the dehooker on the leader and follow the leader down until it bottoms out on the bend of hook. With tension on the leader, the ideal position for dehooking is to lower the hand with the leader to the 8 o'clock position and raise the hand with the dehooker to the 2 o'clock position; depending on the positioning, a smaller angle may be appropriate. Twist the dehooker slightly and pull until the hook is dislodged. Be cautious not to allow the hook to re-engage once removed.

Figure 10. Long-handled cylinder dehooker (NMFS/ SEFSC photo).

(d) Long-handled Pigtail Style (ARC) Dehooker (Plate 7, p. 35)

Refer to the description of this device beginning on p. 13.

Possible Scenarios Encountered for Sea Turtles Not Boated in Hook-and-line Fisheries

At least three crew members are recommended for dehooking and disentangling entangled turtles, but smaller vessels with fewer crew members can modify these procedures for the available crew.

(1) Entangled but not hooked (recommended equipment: turtle control devices, long handled dehooker, line or monofilament cutter)

Restrain the turtle at the side of the boat using a pair of turtle control devices (p. 10-11). If there are not at least three crew members available, the turtle control devices should be tied off to the vessel. Slide the blunt end of the line cutter under the line, and pull the line cutter to capture and cut the line within the recessed blade(s) of the device. A long-handled J-style dehooker, boat hook, or gaff may be carefully used to manage the line while cutting with the line cutters if enough crew members are available. Monofilament cutters may also be useful if the turtle is close to the side of the vessel. Do not use a remote handle-free line cutter on entangled turtles.

(2) Hooked but not entangled (recommended equipment: turtle control devices, long-handled dehooker, line cutter).

Restrain the turtle at the side of the boat using a pair of turtle control devices. If there are not at least three crew members available, the turtle control devices should be tied off. The choice of dehooker will depend on the location and depth of the hook. If the hook cannot be removed, remove as much line as possible with a long-handled line cutter.

(3) Hooked and entangled (Figure 11) (recommended equipment: turtle control devices, long-handled dehooker, line cutter, long-handled device to pull an "Inverted V")

Restrain the turtle at the side of the boat using a pair of turtle control devices. For turtles wrapped in line or hooked in the armpit or shoulder with the line running underneath the turtle, not over the turtle, the "Inverted V" technique (Figure 12) is necessary for release. Remove the hook first prior to line removal. Follow the instructions on p. 11-14 for removing hooks and line.

Long-handled Device to Pull an "Inverted V" during Disentanglement

A standard boat hook, long-handled J-style dehooker, or standard fishing gaff may be used to

assist in disentanglements and to pull an "inverted V" for dehooking entangled sea turtles.

"Inverted V" Dehooking Technique

1) Once at the surface, the animal may have a tendency to entangle itself more. Allow the turtle to calm down for a short period of time, and then gently draw it to the boat using turtle control devices when practical to restrain the animal.

2) Engage the leader closest to the embedded hook with a gaff, boat hook or long-handled J-style dehooker. If using a gaff, take care to ensure that the point of the gaff does not ever contact the turtle. Pull the line upward into an "Inverted V" to enable engagement of the dehooking device on the line closest to the hook.

3) Follow the instructions on p. 12-14 to remove the hook using a long-handled dehooking device.

4) After the hook is removed and secured by the dehooker, carefully remove all line with the line cutter to disentangle the animal (p. 11-12).

Figure 11. A hooked and entangled leatherback (NMFS/ SEFSC photo).

Figure 12. Pulling an Inverted V (NMFS/SEFSC photo).

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Chapter 4 Sea Turtle Handling Guidelines

Holding the Turtle While on Board

The decision whether to bring incidentally captured sea turtles on board is dependent on many factors. Refer to p. 2 for more details on deciding whether to bring turtles on board. Generally, all turtles with a shell less than three feet long (straight carapace length) can be boated safely on most vessels if sea conditions permit.

Turtles should be lifted and carried by holding the front and back of the carapace (shell) or by holding the shell by both sides. Cradle the turtle while holding the shell and base of the flippers. ***Properly carrying the turtle will prevent injuries to humans and turtles. Never lift or drag a turtle by the flippers when bringing it on board, handling it on the deck, or releasing it.***

A turtle must be kept moist and in the shade, maintaining its body temperature above 60° F, similar to water temperatures at capture. It must be safely isolated and immobilized on a cushioned surface, such as an automobile tire without a rim (Figure 13), or for smaller vessels a boat cushion or coil of rope. ***The primary purpose of the cushioned surface is to elevate the turtle from the deck to assist in restraining it.*** The turtle must be immobilized on the deck and not on a raised platform, such as a hatch cover, to prevent injury from falling during periods of activity or rough seas. The turtle may be very active and difficult to control when first brought on board. One effective technique to calm the turtle is to gently place a palm on top of the turtle's head, not over the eyes or nostrils. ***Do not turn the turtle over onto its carapace (back), as this can cause stress and interfere with breathing. The lungs are directly under the carapace, and if there is water in the lungs, inverting the turtle could cause it to drown. Never invert a leatherback, as this can cause severe injury or death.***

If you encounter a turtle with a tag, note the tag number and species and report to the address on the tag. ***All fishing gear should be removed immediately if it has been determined that the hook can be removed safely without causing further injury, as the hook and line can be more deeply ingested over time.***

Figure 13. Loggerhead supported using an automobile tire without a rim (NMFS/SEFSC photo).

Comatose Turtles and Resuscitation Techniques

If a turtle appears to be comatose (unresponsive, unconscious), attempt to revive it before release using the resuscitation guidelines on Plate 2 (p. 19), per 66 FR 67495, December 31, 2001. Turtles can withstand lengthy periods without breathing; a comatose sea turtle may not move, breathe voluntarily, or show reflex responses or other signs of life. In other cases, a lightly comatose turtle may show shallow breathing or reflexes such as eyelid or tail movement when touched. Sea turtles may take some time to revive; do not give up too quickly. Regulations (66 FR 67495, December 31, 2001; 50 CFR 223.206) allow a fisherman to keep a turtle on deck up to 24 hours for resuscitation purposes without a permit. Even turtles that are successfully resuscitated benefit from being held on deck as long as possible (up to 24 hours) to fully recover from the stress of accidental forced

submergence. Do not cover the turtle's nostrils with a wet towel, as this could prevent draining of water and obstruct breathing. Refer to the instructions on Plate 2 (p. 19) for specific sea turtle resuscitation guidelines.

We strongly discourage an old, alternative method of resuscitation, known as plastral pumping. This practice involved placing the turtle on its carapace and pumping the plastron with hand or foot. ***However, we no longer approve this technique, as further study determined that it may actually do more harm than good and should not be attempted during resuscitation (per 66 FR 67495, December 31, 2001).*** Plastral pumping may cause the airway to block and cause the internal organs to compress the lungs which are located on top of the other organs, which could hinder breathing.

Releasing the Turtle

Once gear is removed (Chapters 3 and 5) and the turtle has recovered if necessary, boated turtles should be released in waters of similar temperature as at capture, when fishing or scientific collection gear is not in use, the engine is in neutral, and in an area where they are unlikely to be recaptured or injured by vessels. Release the turtle by gently lowering it over the aft portion of the vessel (or through a door or the lowest point depending on vessel design), close to the water's surface, when gear is not in use and the engines are in neutral. Allow time for the turtle to leave the area before re-engaging the engines. The turtle's behavior and swimming and diving abilities should be observed and recorded upon release. A turtle that has shown no sign of life after 24 hours on deck may be considered dead and returned to the water in the same manner.

Plate 2 **Sea Turtle Resuscitation Guidelines**

Sea Turtle Resuscitation Guidelines

If a turtle appears to be unconscious or comatose, attempt to revive it before release. Turtles can withstand lengthy periods without breathing; a living comatose sea turtle may not move, breathe voluntarily, or show reflex responses or other signs of life. In other cases, a lightly comatose turtle may show shallow breathing or reflexes such as eyelid or tail movement when touched. Use the following method of resuscitation in the field if veterinary attention is not immediately available:

- **Place the turtle on its plastron (lower shell) and elevate the hindquarters approximately 15 - 30 degrees to permit the lungs to drain off water for a period of 4 up to 24 hours. A board, tire or boat cushion, etc. can be used for elevation.**

- **Periodically, rock the turtle gently left to right and right to left by holding the outer edge of the carapace and lifting one side about 3 inches, then alternate to the other side.**

- **Keep the turtle in the shade, at a temperature similar to water temperature at capture. Keep the skin (especially the eyes) moist while the turtle is on deck by covering the animal's body with a wet towel, periodically spraying it with water, or by applying petroleum jelly to its skin and carapace. Do not put the turtle into a container with water.**

- **Do not put the turtle on its carapace (top shell) and pump the plastron (breastplate) or try to compress the turtle to force water out, as this is dangerous to the turtle and may do more harm than good.**

- **Periodically, gently touch the corner of the eye or eyelid and pinch the tail near the vent (reflex tests) to monitor consciousness.**

- **Sea turtles may take some time to revive; do not give up too quickly. Turtles that are successfully resuscitated benefit from being held on deck as long as possible (up to 24 hours) to fully recover from the stress of accidental forced submergence.**

- **Release successfully resuscitated turtles over the stern of the boat, when fishing or scientific collection gear is not in use, the engine is in neutral, and in areas where they are unlikely to be recaptured or injured by vessels. A turtle that has shown no sign of life after 24 hours on deck may be considered dead and returned to the water in the same manner.**

NMFS/SEFSC Photos

References:

Federal Register, December 31, 2001. Government Printing Office, Washington DC 66 (250), pp. 67495- 67496.

July 2009

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Chapter 5 Removing Hook-and-Line Gear from Boated Sea Turtles

Boating the Turtle

It is very important that the turtle is never pulled out the water, even partially or for a short distance, using the fishing gear. This could cause serious injury to the turtle, especially when the turtle has swallowed a hook, as it can cause tears where the hook is lodged (Parga 2012). A dip net, hoop net, or turtle hoist must be used, except in rare cases on small vessels where the freeboard is so low that the turtle can be picked up by the front and back of the carapace and lifted on board if the crew's safety can be ensured. Do not use a gaff or other sharp objects to bring a turtle on board. Do not pull turtles out of the water by the flippers, turtle control devices, entangling line, or any other unapproved gear or methods. Refer to Plate B-2 (p. B-4) for selecting the appropriate tools for boating and removing gear from boated turtles.

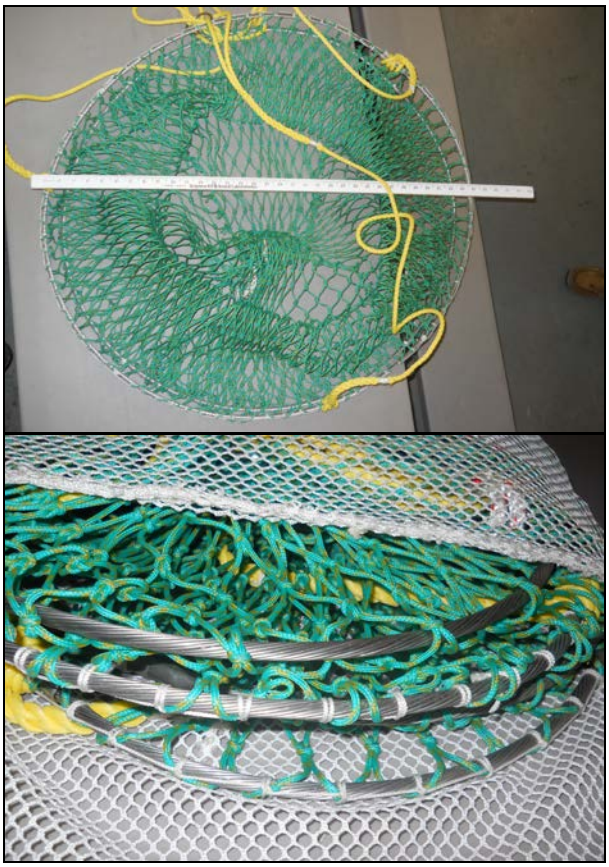
Figure 14. Bringing a turtle on board using a dip net (NMFS/SEFSC photo).

(1) Dip Net

If the turtle is small enough and conditions are such that it can be brought aboard the vessel safely, use a dip net (Figure 14) meeting standards specified in NMFS regulations to carefully bring the turtle aboard. Place the net under the turtle, and safely lift the turtle vertically out of the water and onto the deck. If the vessel is equipped with "cut out doors," use this door to minimize the distance from the water for the turtle to be retrieved.

(2) Collapsible Hoop Net

Similar to a small turtle hoist (p. 22), and dip net, the collapsible hoop net (Figures 15a and b) must meet standards specified in NMFS regulations. There is no rigid handle, and the frame is constructed of stiff wire cable which can be coiled to compress the size for storage (Figure 15b).



Figures 15a and b. NOAA collapsible hoop net (NMFS/ SEFSC photos).

(3) Turtle Hoist

A small turtle hoist (Figure 16) is recommended to bring turtles on board that cannot be boated using a traditional dip net with an extended reach handle. This is particularly useful when removing gear from sea turtles while on a vessel with a high freeboard or when storage space is extremely limited. Once the hoist is in the water, the turtle can be guided into the device using the attached gear and/or turtle control device. Use the attached lines to guide the frame under the turtle, and haul the lines evenly to capture the turtle and bring it on board, using care to maintain the net parallel to the water's surface so that the turtle cannot slip out. A pulley system or hydraulic lift can be used to hoist the frame out of the water if available. Once all gear has been removed, the hoist and turtle are lowered back into the water deep enough for the turtle to swim out of the frame, releasing tension on the outer lines if necessary to tip the frame. Orient the hoist so that the turtle is facing away from the boat upon release. For large vessels equipped with a hydraulic lift, a large turtle hoist is approved for use (see "Leatherbacks Aboard" at https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/safe-handling-release-and-identification-workshops#videos; Epperly and Hataway 2004).

Figure 16. Small turtle hoist (Photo courtesy Alvaro Segura, World Wildlife Fund).

Equipment and Techniques for Opening the Mouth of Boated Turtles

Opening the Mouth

When an internally hooked turtle is brought on board, it may have its mouth open. Some turtles may appear agitated and active, and others may be calm regardless of their condition following the interaction. If it is active and agitated, first allow the turtle to calm down. A palm placed on the top of the turtle's head (not touching the eyes or nostrils) may help to calm the animal prior to mouth opening. ***Never tap or hit the turtle in the beak or on the head with a mouth gag or opener.***

Figure 17. Opening the mouth (NMFS/SEFSC photo).

If the animal is not voluntarily opening its mouth, there are a few mouth-opening techniques you can apply:

1) First, place both fingers on either side of the nose without blocking the nostrils so that you have a good grip on the beak (Figure 17). This often triggers the opening of the mouth immediately, but if not, gently rock the beak from side to side for a response.

2) Tickle the throat or pull outward on the throat skin.

3) Block the turtle's nostrils to encourage the turtle to open its mouth. Only use this method on turtles that are active and responsive.

4) Cover the nostrils and carefully apply light pressure to the anterior corner of the eye socket (not the eye itself) with one hand and apply firm pressure in the throat area with your other hand.

5) If you still cannot open the mouth, use a mouth opener, such as a wooden brush handle or an avian speculum.

Mouth Openers and/or Gags

A variety of devices (Figure 18) can be used to open the mouth and/or hold the mouth open. Use caution with these methods, as injury can result if these tools slip. The mouth openers will enable you to access the turtle's mouth, while the mouth gags will keep the turtle's mouth open so you can remove any hooks and/or line. Keep in mind that various mouth gags will block your view inside the mouth in different ways. Therefore, select which mouth gag will best suit the dehooking or disentanglement procedure that you need to perform. You can improve your visibility at the back of the turtle's mouth and upper esophagus by using the needle-nose pliers. After securing the mouth open, gently slide the pliers in the closed position forward into the upper esophagus and separate the pliers' jaws to open the esophagus.

(1) Block of Hard Wood (mouth opener and mouth gag)

A convenient and effective mouth opener/gag is a wooden wire brush handle with the bristles removed, especially one with a tapered end. Any durable wood (e.g., maple) of sufficient thickness (at least 3/4" wide) not to break or splinter is acceptable. Soak the wood block/handle first if possible to soften it and decrease damage to the beak. The tapered end can be used to pry open the beak if necessary. Once the mouth is open, position the wooden handle in the posterior corner of the mouth to keep the mouth open (Figure 19).

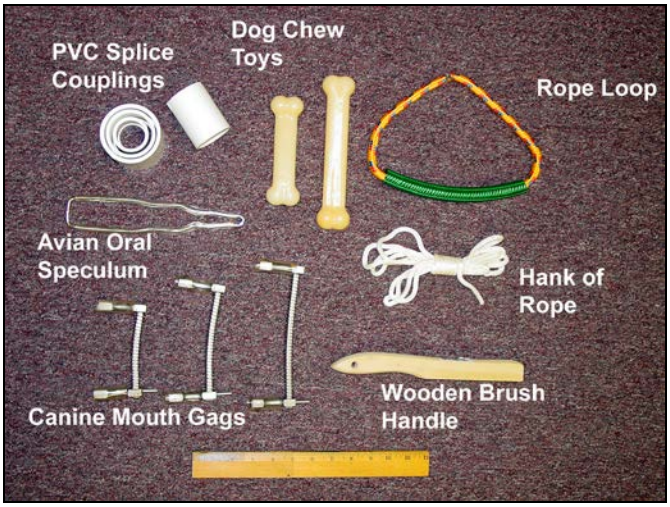


Figure 18. Mouth openers and gags (NMFS/SEFSC photo).

Figure 19. Wooden brush handle (NMFS/SEFSC photo).

(2) Hank of Rope (mouth gag)

Position the lanyard (a 2 - 4" thick hank of soft-braided nylon rope or similar) in the posterior corner of the jaw to keep the mouth open (Figure 20). Alternatively, you can place the rope across the entire width of the mouth and block both sides of the jaw, but this blocks your view of the back of the mouth.

Figure 20. Hank of rope mouth gag (NMFS/SEFSC photo).

(3) Set of Two Sturdy Dog Chew Bones (mouth gag)

Position the proper size dog chew bone in the posterior corner of the mouth to keep the mouth open. The larger bones (Figure 21a) are easy to hold, but block access to much of the mouth. Smaller bones do not reduce your view inside the turtle's mouth and work equally well for smaller turtles.

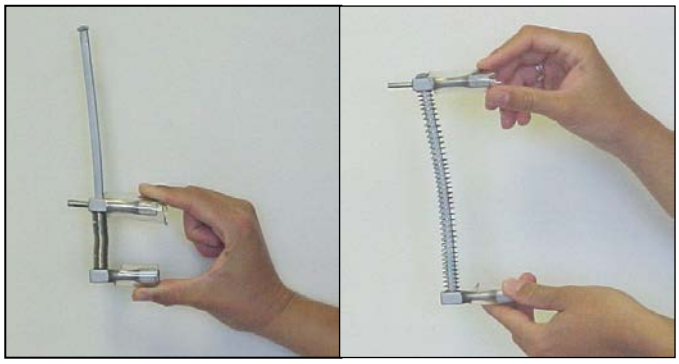
(4) Set of Four PVC couplings (mouth gag)

Insert the appropriate size PVC coupling or suitable length of PVC (chosen by considering both the size of the turtle and the tools to be used) inside the turtle's mouth (Figure 22). Hold it with a pair of pliers to stabilize it inside the mouth. In order to prevent the coupling from interfering with the dehooking devices, thread the line through the coupling before inserting it. Consider hook placement before choosing this tool, as the coupling could block the view unless the hook is in the corner of the mouth or along the edge of the beak.

Figures 21a and b. Dog chew bone (NMFS/SEFSC photos).

Figure 22. PVC coupling mouth gag (NMFS/SEFSC photo).

(5) Set of Three Canine Mouth Gags (mouth gag)



Figures 23a and b. Canine mouth gag (a) fully compressed and (b) fully open (NMFS/SEFSC photos).

This type of gag locks into the open position and allows for hands free operation once it is in place. The canine mouth gag's arms are compressible when they are perpendicular to the main axis. The rubber feet on the gag lock nicely into the groove on the upper and lower beak. When the turtle bites down on the extremity of the arms, they will shift from being perpendicular and therefore will lock. Use the smallest one possible that will not bend. Compress the gag (Figure 23a) and insert it in the turtle's mouth. As the turtle opens its mouth, the gag will expand (Figure 23b). Maintain your hold on the gag until it has locked in place. Do not force the turtle's mouth open all the way; let the spring tension on the gag and turtle's own mouth movement set the maximum open position. Position the mouth gag at the front center of the jaw with the axis off to one side to provide the maximum open working area in the mouth and the surest footing for the gag (Figure 24). ***If the gag is knocked, it may slip out of the turtle's mouth, so exercise caution once the mouth gag is set in place.***

Figure 24. Canine mouth gag (NMFS/SEFSC photo).

(6) Large Avian Oral Speculum (both a mouth opener and mouth gag)

Slide the avian speculum wrapped in protective tubing flat inside the turtle's mouth and rotate it (Figure 25). Notice that the speculum is stepped and can be used for different sized turtles by selecting for its different widths. This mouth opener can be used only on the smallest of animals (up to 35 cm SCL), as larger turtles can easily crush the avian speculum.

Figure 25. Avian oral speculum (NMFS/SEFSC photo).

(7) Set of Two Rope Loops with Protective Tubing (both a mouth opener and mouth gag)

Slide the ropes with protective tubing in between the jaws and move them away from the front of the mouth to gain the greatest leverage (Figure 26). Care should be taken to avoid contact with the eyes. With the free ends of the rope knotted together to form a loop, you can hold the lower rope loop with your foot and the other with one hand, leaving one free hand. ***If not used correctly, the rope loops can slip and cause a safety hazard, so exercise extreme caution if this tool is used.***

Figure 26. Opening the mouth using rope loops (Photo courtesy of ARC).

Equipment and Techniques for Removing Gear from Boated Turtles

When dehooking is possible (see p. 2 to determine if dehooking is advisable), several devices may be used to remove hooks, depending on the depth and location. Some hooks that are lightly hooked externally may be easily removed using your hand if you can safely access the hook without risking injury.

In many cases, needle-nose pliers and/or bolt cutters (Figure 27) provide the most convenient and least invasive method for hook removal.

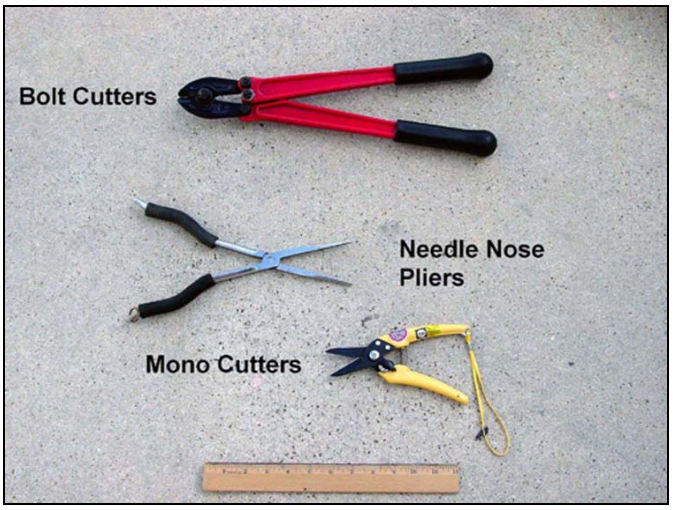


Figure 27. Bolt cutters, needle-nose pliers, and monofilament cutters (NMFS/SEFSC photo).

Needle-nose Pliers

Long (minimum of 11” in length) needle-nose pliers can be used to remove hooks that are lightly hooked in the mouth (Figure 28) or deeply hooked externally in the animal’s flesh and must be twisted during removal. They are also useful in holding PVC splice couplings in place when used as mouth openers, and they can be used to remove hooks in the mouth in some situations.

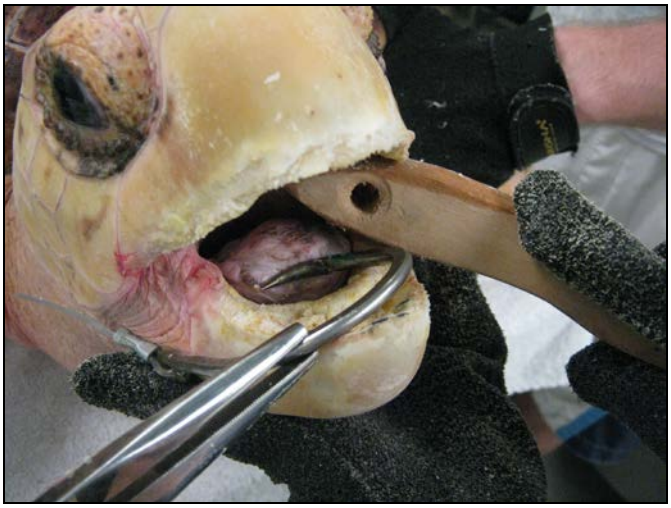


Figure 28. Removing a hook using needle-nose pliers (NMFS/SEFSC photo).

Bolt Cutters

Bolt cutters of a size sufficient to cut the largest hardened hooks in use (up to ¼" diameter) are essential for removing hooks. ***The easiest way to remove a hook may be to cut off the eye or point of hook (Figure 29) so that the hook can be pushed through or backed out without causing further injury to the sea turtle. Never pull the point or eye of the hook back through the insertion hole when removing the hook; the hook must be cut in these cases.*** If the hook cannot be removed completely, bolt cutters should be used to cut off as much of the hook as possible.

Figure 29. Bolt cutters and a hook cut at the point or the eye (NMFS/SEFSC photo).

Equipment to Remove Line and Netting

Removing all fishing line is essential, as even short lengths of ingested or external line can be lethal. In every case, the top priority should be to remove as much line as possible, even when the hook cannot be removed safely. Refer to description of monofilament line cutters in Chapter 3.

Short-handled Dehookers

If the hook cannot be removed by hand, with needle-nose pliers, or bolt cutters, then a dehooker should be used. If the hook is in the back of the mouth or front of the esophagus where the insertion point of the hook is clearly visible, a short-handled dehooker for internal hooks can be used. If the hook is external or in the front of the mouth or beak with the insertion point of the hook clearly visible, a short-handled dehooker for internal hooks or external hooks may be used (Figure 30).

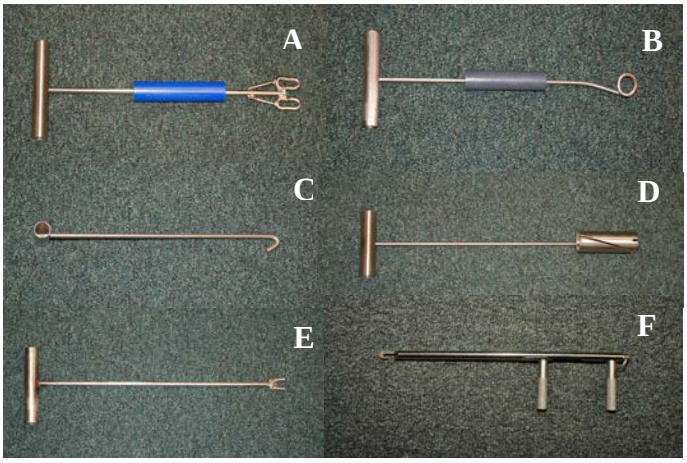


Figure 30. Short-handled dehookers: (a) chain-link, (b) bite-block pigtail (ARC), (c) J-Style, (d) cylinder, (e) Scotty's, and (f) Fish Hook Extractor® (NMFS/SEFSC photos).

Short-handled Dehookers for Internal Hooks

(1) Chain-link Dehooker (Plate 3, p. 30)

The design of this dehooker, similar to that of the Scotty's dehooker (p. 29), employs a pushing and twisting method to remove hooks (Figure 31). Because it grasps the hook securely, it also facilitates the twisting motion necessary to remove circle hooks. Unlike the Scotty's dehooker, it has rounded terminal ends, enabling its use for internal hooks in addition to external hooks. ***However, because the point of a J-hook may not be protected, this device should not be used to remove internal J-hooks.***

This dehooker works by pushing and twisting the hook out of the turtle; consider hook location and placement prior to use. When removing a circle hook, a twisting motion of approximately 180°

while thrusting the dehooker is required to remove the circle hook. Be cautious not to allow the hook to re-engage once removed. The point of the circle hook should rest against the center of the dehooker with proper line tension to prevent reengagement.

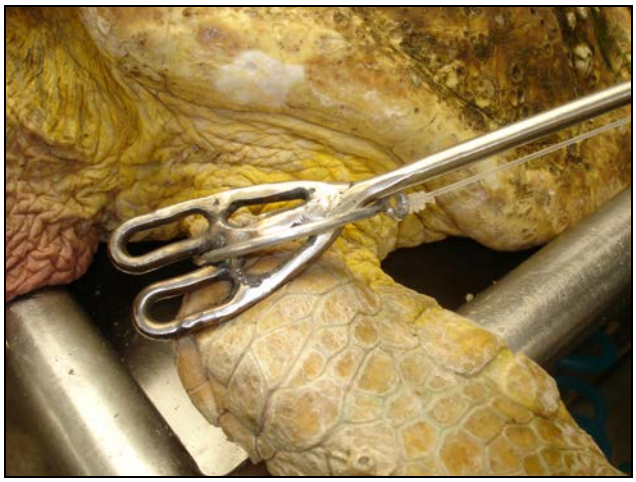


Figure 31. Chain-link dehooker (NMFS/SEFSC photo).

Refer to Plate 3 (p. 30) for detailed instructions on using this device.

(2) Bite-Block Pigtail (ARC) Dehooker (Plate 6, p. 33)

This dehooking device has been designed to function during internal hook removal even if a turtle bites down on the PVC bite block, which will reduce damage to the turtle's beak (Figure 32). It works best internally with J-hooks. If used with circle hooks, a twisting motion of up to 180° is required, as circle hooks are harder to remove with this device than J-hooks. Consider hook type, hook placement, and room to maneuver when selecting this device. Refer to Plate 6 for detailed instructions on using this device.

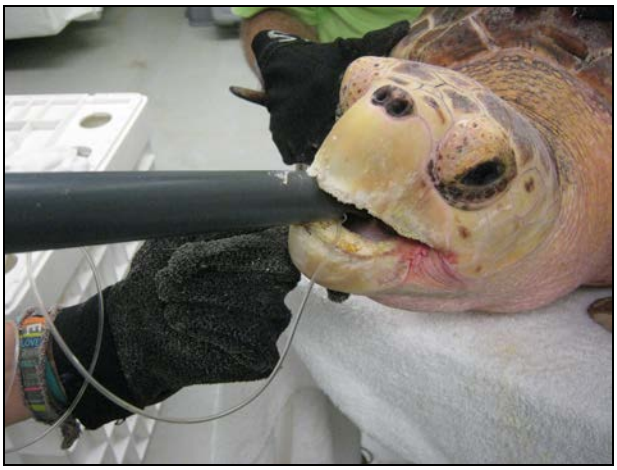


Figure 32. Short-handled bite-block pigtail (ARC) dehooker (NMFS/SEFSC photo).

Short-handled Dehookers for External Hooks

(1) Chain-link Dehooker (Plate 3, p. 30)

Refer to description beginning on p. 27.

(2) Cylinder Dehooker (Plate 4, p. 31)

The short-handled cylinder dehooker (Figure 33), suitable for removing external hooks, works by pushing and twisting the hook out of the turtle; consider hook location and placement prior to use. The design, which incorporates four notches at 90° angles at the base of a cylinder, grasps the hook very securely, facilitating the twisting motion necessary to remove circle hooks. Refer to Plate 4 (p. 31) for detailed instructions on using this device.

Figure 33. Cylinder dehooker (NMFS/SEFSC photo).

(3) J-Style Dehooker (Plate 5, p. 32)

The J-Style dehooker is designed for use only when the hook is visible in the front of the mouth or beak, or if it is external (Figure 34). This dehooker works by rotating and pulling the hook out of the turtle; consider hook type and placement prior to use. When removing a J-hook, the hook can be pulled straight out; when removing a circle hook, the hook must be rotated in the opposite direction from the insertion point until the hook can be pulled out without causing further damage. Refer to Plate 5 for detailed instructions on using this device.

Figure 34. J-Style dehooker (NMFS/SEFSC photo).

(4) Squeeze handle dehooker

Squeeze handle dehookers (e.g., Fish Hook Extractor®, "hook out" and "squeeze out" type models) (Figure 35),which rotate the hook out are effective in removing small, lightly embedded hooks **up to 10/0 in size**. Use only when the hook is visible in the front of the mouth or beak, or if it is external. Grasp the hook and place the pointed slot of the extractor on the back on the hook shank, and rotate the hook out, pushing or twisting if necessary.

Figure 35. Squeeze handle dehooker (e.g., Fish Hook Extractor®) (NMFS/SEFSC photo).

(5) Scotty's Dehooker (Plate 3, p. 30)

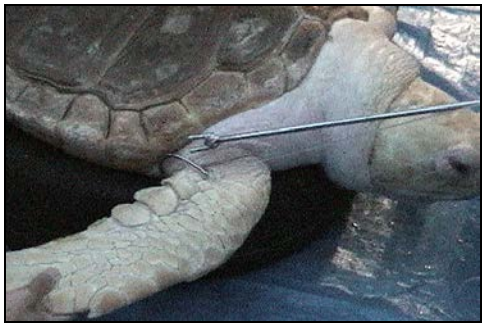
The Scotty's dehooker is designed for use only when the hook is visible in the front of the mouth or beak, or if it is external (Figure 36). This dehooker works by pushing or pushing and twisting the hook out of the turtle; consider hook location and placement prior to use. Be cautious not to allow the hook to re-engage once removed. Refer to Plate 3 for detailed instructions on using this device.

Figure 36. Scotty's dehooker (NMFS/SEFSC photo).

(6) Bite-Block Pigtail (ARC) Dehooker (Plate 6, p. 33)

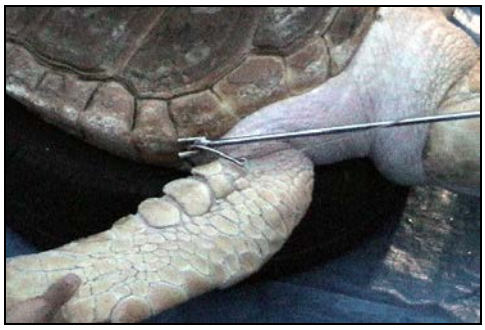
Refer to description on p. 28.

Plate 3 **Instructions for the Chain-link and Scotty's Dehookers**



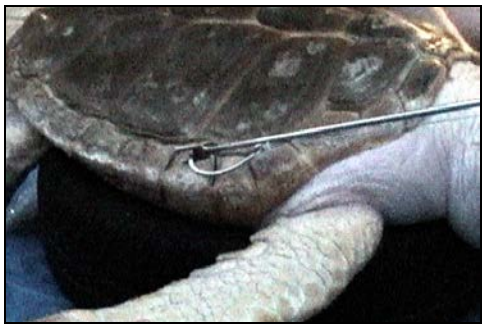
Step 1

Step 2



Step 3

Step 4



Step 5

(1) Hold leader with tension in one hand and hold the dehooker in the other hand.

(2) Position the dehooker so that it is firmly seated against the bend of the hook.

(3) Bring both hands together (leader and dehooker parallel with each other) while maintaining tension on the leader. With the leader and dehooker together, give a short, sharp push to dislodge the hook and remove it from the animal. When removing circle hooks, you will need to rotate the hook up to 180° prior to dislodging the hook.

(4) Maintain line tension at an angle if necessary to prevent the hook from re-engaging after removal.

Plate 4 **Instructions for the Cylinder Dehooker**

Step 1

Step 2

Step 3

Step 4

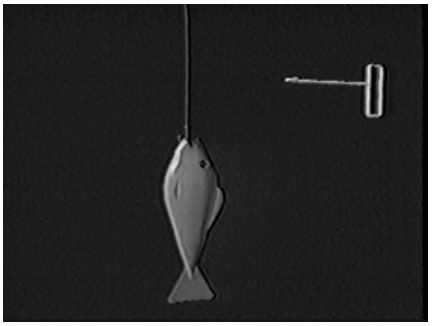
(1) Hold leader with tension and feed the leader through the diagonal slit in the cylinder of the cylinder dehooker.

(2) Position the dehooker so that it is firmly seated against the bend of the hook, secured in the notches.

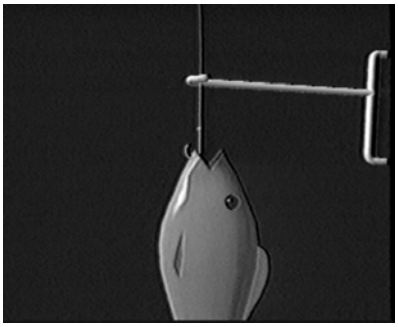
(3) Bring both hands together (leader and dehooker parallel with each other) while maintaining tension on the leader.

(4) With the leader and dehooker together, give a short, sharp push to dislodge the hook and remove it from the animal. Rotate or twist up to 180° if necessary to remove the hook. Maintain line tension and take care to prevent the hook from re-engaging after removal.

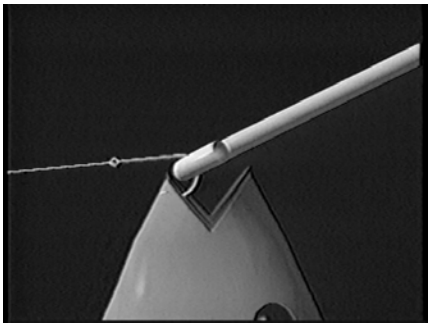
Plate 5 **Instructions for the J-Style Dehooker**



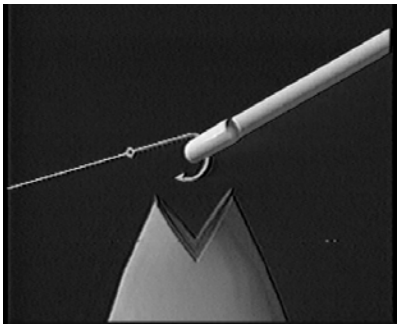
Step 1



Step 2



Step 3



Step 4

Figures provided by Aquatic Release Conservation

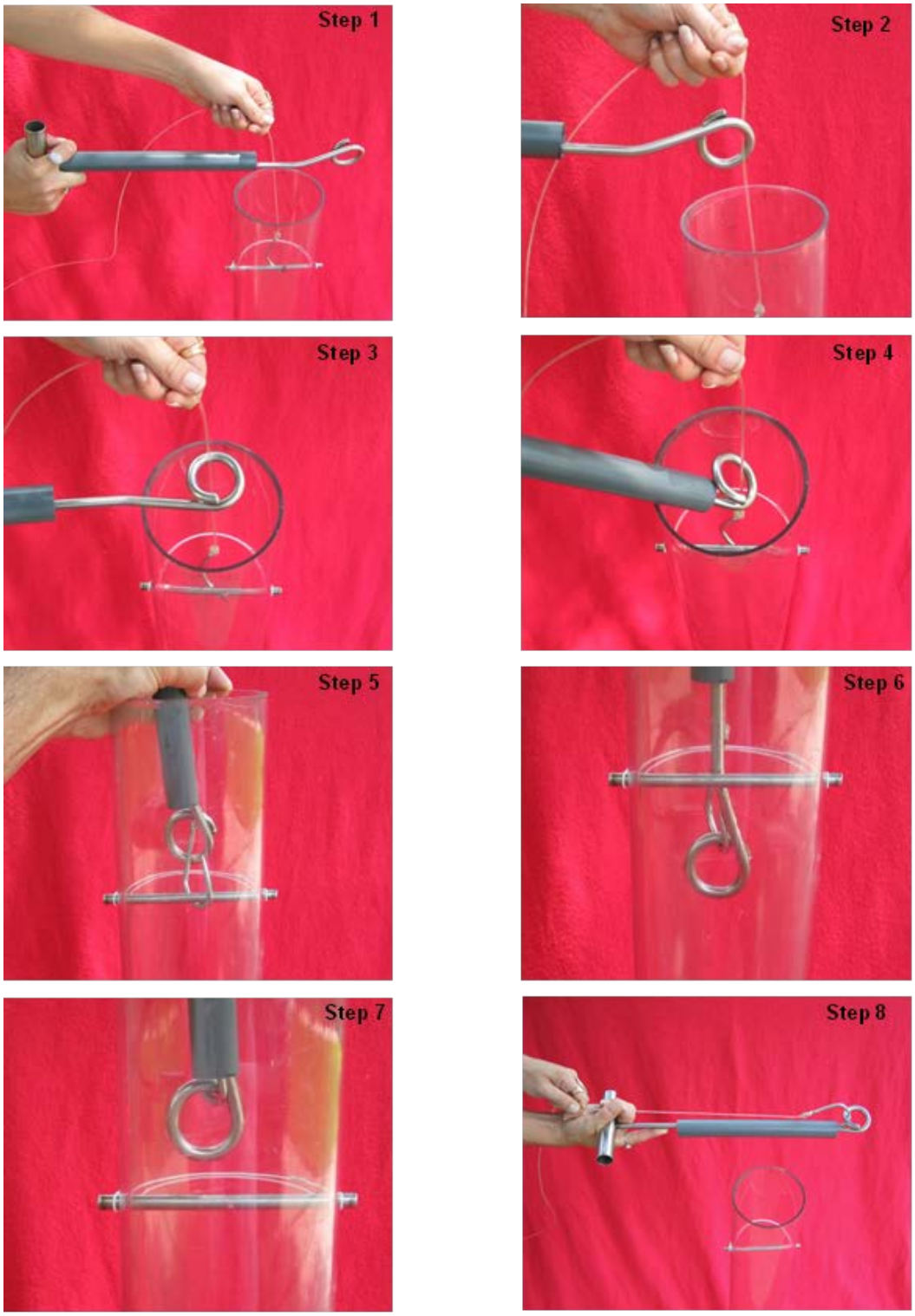
(1) Grab the leader with one hand and hold the dehooking device with your other hand with the end facing toward you.

(2) Place the dehooking device on the leader.

(3) Follow the leader down until you engage the hook.

(4) Pull the dehooking device and leader apart with constant pressure and raise the hand with the dehooking device to the two o'clock position and lower the hand with the leader to the eight o'clock position. With a slight twist and shake the hook will be disengaged.

Plate 6 Instructions for the Bite-Block Pigtail (ARC) Dehooker



Figures provided by Aquatic Release Conservation

Plate 6 Instructions for the Bite-Block Pigtail Dehooker (continued)

(1) Keep the PVC bite block pulled up along the handle when engaging the leader to allow for proper leader and hook engagement.

(2) Maintain leader tension and place the dehooker on the leader at a 90° angle with the open end of the curl up.

(3) Pull the dehooker towards you (like a bow & arrow) until the open end of the curl engages/captures the leader. Turn the dehooker 1/4 turn clockwise. The leader is now in the center of the pigtail.

(4) Release the bite block, allowing it to slide to the bottom of the dehooker. Following the leader, insert the curl and PVC end into the mouth as far as the animal will allow. Should the sea turtle bite down, the dehooker will slide up to 5” in and out.

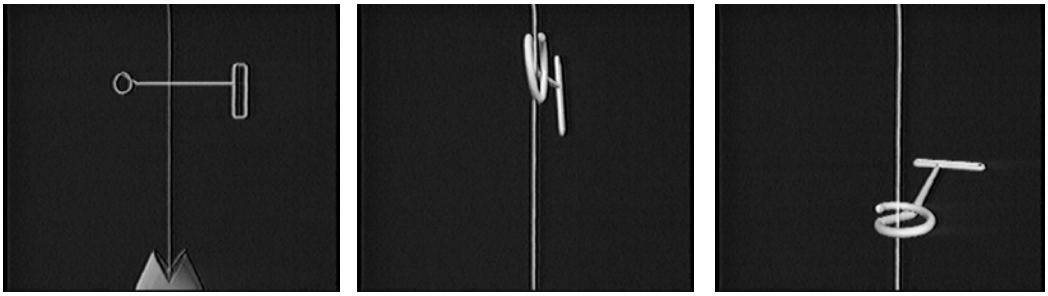
(5) Follow the leader down until the end of the dehooker is seated on bend of the hook.

(6) Keep the leader tight and give a sharp, short push downward with the dehooker, twisting up to 180° before pushing when removing circle hooks. As the hook is removed, the point of the hook will rotate and stop on the offset angle of the dehooker, protecting the point and preventing re-engagement of the hook

(7) After the hook is dislodged, keep the leader tight and pull the dehooker out until it stops at the PVC bite block. The bite block will cover the hook and further prevent re-engagement.

(8) Wait for the turtle to open its mouth and remove the entire dehooking device and hook.

Plate 7 Instructions for the Long-handled Pigtail (ARC) Dehooker



Figures provided by Aquatic Release Conservation

(1) Carefully bring the animal alongside the vessel, and control it using a turtle control device. Do not stand between the leader and the dehooking device in case the line breaks or the hook dislodges.

(2) Place the dehooker on the leader at a 90° angle with the open end of the curl facing them, and the tail end of the curl facing up. Pull until the curl of the dehooking device captures the line (like a bow and arrow), and rotate the device 1/4 turn clockwise. When placed correctly, the leader will be in the center of the pigtail curl.

(3) Slide the dehooker down the leader until it engages the hook and bottoms out.

(4) Bring the dehooking device together with the leader, parallel to the line. If the line is not parallel with the dehooking device, the point of the hook will turn out and allow for possible re-engagement after release.

(5) Keep the line taut until the exact moment that the person using the dehooker disengages the hook with a short, sharp push downward. The leader person must give a little slack when the person with the dehooker is pushing downward. A twisting motion of approximately 180° prior to the downward motion is necessary to facilitate circle hook removal.

(6) After the hook is removed, the point of the hook will rotate and stop on the offset bend of the dehooker (Figure 37), protecting the point and preventing re-engagement of the hook as long as the line remains taut.

Figure 37. Point of hook is shielded to prevent re-engagement (NMFS/SEFSC photo).

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Chapter 6 Handling Recommendations for Fish, Marine Mammals and Seabirds

Although these release protocols have been developed primarily for sea turtles, many of the devices and techniques also are effective for fish, marine mammals and seabirds. Although bringing sea turtles on board for gear removal is recommended whenever feasible, ***other species (e.g., marine mammals, medium and large sharks, sawfish, billfish, sturgeon) must not be brought on board for gear removal.*** Deeply ingested (where the insertion point of the hook is not visible) hooks should not be removed from any species; however, all animals would benefit from having as much line removed as possible.

Fish

Non-targeted fish should be returned to the water as quickly as possible, handled minimally, and treated for barotrauma only if necessary.

Barotrauma and descending technologies

Barotrauma is damage caused by a rapid change in pressure when fish caught at depth are brought to the surface, and treatments should only be used if necessary when a fish is showing symptoms of barotrauma (e.g., bulging eyes, protruding stomach, distended abdomen). For further information on reef fish release, including discussions on hook removal and devices to address barotrauma (e.g., release sinkers, fish descenders, inverted weighted milk crates), see Bartholomew and Bohnsack 2005, Scyphers et al. 2013, Hannah and Matteson 2007, Wilde 2009, Sumpton et al. 2010 and http://myfwc.com/fishing/saltwater/recreational/fish-handling/

Venting is subject to scientific debate (Scyphers et al. 2013, Burns et al. 2009, Wilde 2009), and improper venting can cause increased mortality due to damage and increased handling times. ***Venting is no longer required in any U.S. reef fish fisheries*** (78 FR 46820, August 2, 2013). More information may be found at:

https://www.flseagrant.org/fisheries/venting/.

Sharks

Caution must be exercised when handling sharks (Figure 38a), and the use of long-handled dehookers is advised. Regulations require sharks to be released with no more than 3 ft of line remaining, and efforts should be made to minimize the amount of line remaining.

Figures 38a and b. (a) Recovering a billfish, and (b) Dehooking a shark (Photos courtesy of ARC).

Billfish and tuna

Billfish (Figure 38b) and tuna often benefit from dehooking and resuscitation or recovery before release; see release guidelines for large saltwater pelagic fish handling and recovery https://www.fisheries.noaa.gov/resource/outreach-and-education/careful-catch-and-release-brochure and Prince et al. 2002.

Sawfish (see Plate C-6 and 7 for more information)

Sawfish are listed as endangered under the Endangered Species Act, and sighting reports are

valuable. Keep sawfish in the water at all times, and untangle the line or net or use a long-handled dehooker to remove hooks, removing as much gear as safely possible; never remove the saw. Specific guidelines for releasing smalltooth sawfish have been established (71 FR 45428, August 9, 2006). Regulations (635.21(d)(2)(ii) require that sawfish are examined for research tags and if tags are found, the information should be recorded and the tag left in place. Additional information on sawfish facts, handling, release, and reporting procedures, and a convenient wallet card can be found at:

https://www.fisheries.noaa.gov/resource/outreach-and-education/endangered-smalltooth-sawfish-fact-sheet

https://www.fisheries.noaa.gov/resource/outreach-and-education/endangered-sawfish-handling-release-and-reporting-procedures

https://www.fisheries.noaa.gov/resource/outreach-and-education/help-save-smalltooth-sawfish-wallet-card

Sturgeon (see Plate C- 8 for more information)

Sturgeon bycatch, including several Endangered Species Act (ESA) listed species, has been documented in several coastal and estuarine fisheries that use gill nets, trawls, pots, traps, weirs, pound nets and hook-and-line. In some instances, the fish may benefit from resuscitation. If a sturgeon is removed from fishing gear and appears non-responsive, attempt to resuscitate the fish by flushing water over the gills for several minutes (~ five to ten minutes) or "swim" the fish by gently moving it through the water to flush water over the gills. Regulations at 50 CFR 635.21(d)(2)(ii) also require that fishermen examine sawfish for research tags. Do not remove any tags found on sawfish, but the information should be recorded.

More information on sturgeon conservation and resuscitation can be found at:

https://www.fisheries.noaa.gov/resource/outreach-and-education/atlantic-sturgeon-safe-handling-and-release-guidelines

https://www.fisheries.noaa.gov/species/atlantic-sturgeon

https://www.fisheries.noaa.gov/southeast/endangered-species-conservation/help-noaa-help-sturgeon

https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-mammal-protection/protecting-marine-life-greater-atlantic-region

https://www.fisheries.noaa.gov/species/shortnose-sturgeon

Marine Mammals (See Plate C-9 for more information)

Summarized from: Marine Mammal Handling/Release Guidelines: A quick reference for Atlantic pelagic longline gear, which is required to be placed both in the wheelhouse and on the working deck of all pelagic longline vessels.

Available from:

https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/safe-handling-release-and-identification-workshops

Figure 39. Harbor porpoise (NMFS/NEFSC photo)

Marine mammal interactions are a relatively rare event in most fisheries; however, due to the protected status and small population sizes of most marine mammal species, each event is significant. Therefore, it is important that fishermen provide as much documentation as possible about these interactions and work to carefully remove gear from marine mammals when conditions and safety considerations allow.

When an interaction with a marine mammal occurs, the fishermen should document the appearance and size of the animal, the types of injuries that occurred, efforts to release the animal, and the characteristics of any gear remaining on the animal after release. These data on each marine mammal interaction must be reported to the NMFS Office of Protected Resources on the Marine Mammal Injury/Mortality Reporting Form (see reporting address and form availability information below) within 48 hours after the end of the fishing trip if there is an incidental mortality or injury to a marine mammal during commercial fishing activities. ***Detailed documentation is critical to determine if an animal is considered not injured or seriously injured, which is important for understanding population impacts.***

Small Cetaceans

Small cetaceans (e.g., dolphins and pilot whales) entangled in fishing gear or hooked should be disentangled as conditions and human safety allows. The vessel crew should:

(1) Avoid abrupt actions or vessel movements that may panic the animal;

(2) Stop alongside the animal, attempt to recover gear, and gently work to bring the animal alongside the vessel;

(3) Work to minimize the amount of tension on the animal from gear remaining in the water, and ensure that the animal has access to the surface to breathe;

(4) Cut wraps or other entangling gear from the animal's body using a gaff or long-handled line cutter, being careful to avoid direct contact between the animal and sharp objects;

(5) If the animal is hooked, cut the point off the hook using long-handled bolt cutters and/or use a NMFS approved de-hooking device to remove the hook.

(6) If a hook remains attached to the animal, cut any attached line as close to the hook as possible.

Large Whales

Fishers should never attempt to disentangle large whales (e.g., humpback, right, or sperm whales) without assistance. The vessel should be maneuvered in such a way as to minimize tension on the line, and the fishers should follow instructions from the USCG or the Disentanglement/Stranding Network. It is strongly recommended that disentanglement is only attempted with the assistance or advice of these experts. ***Never enter the water to attempt disentanglement under any circumstances.***

If a marine mammal interaction occurs, it is likely that another will occur if fishing is continued in the same area. Following an interaction, fishermen should notify other vessels working in the area that the interaction occurred and move to another area (at least 1 nautical mile) or wait 48 hours before continuing fishing operations.

Reporting Marine Mammal Mortality/Injury

Please report any live or dead marine mammal entanglements immediately to the USCG on VHF Ch. 16 or call 1-800-900-3622 in the Northeastern U.S. (Center for Coastal Studies Disentanglement Hotline) or 1-877-942-5343 (Southeast U.S. Marine Mammal Stranding Network) in the Southeastern U.S.

You must, regardless of your category, report to NOAA Fisheries every incidental mortality and injury of marine mammals that occurs as a result of commercial fishing operations. Reporting options include:

Online:

Submit the online MMAP mortality/ injury reporting electronic form ***within 48 hours*** of the end of a fishing trip in which the mortality or serious injury occurred, or, for non-vessel fisheries, within 48 hours of the occurrence.

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-authorization-program

Email/fax/mail:

Complete the MMAP mortality/ injury reporting form ***within 48 hours*** of the end of a fishing trip in which the mortality or serious injury occurred, or, for non-vessel fisheries, within 48 hours of the occurrence and return to NOAA Fisheries by:

- email to nmfs.mireport@noaa.gov as an attachment;
- fax to (301-713-0376); call (301) 713-2322 or
- mail postage-paid form to:

National Marine Fisheries Service
Office of Protected Resources

1315 East-West Highway
Silver Spring, MD 20910

Dolphin & Whale 911 App:

In the Southeastern U.S., the Dolphin & Whale 911 App is available for iPhone use that will allow you to report dead, injured or entangled marine mammals by connecting you to the nearest stranding response hotline.

More information can be found at:

https://www.fisheries.noaa.gov/southeast/about-us/protecting-marine-life-southeast

Seabirds (See Plate C-10 for more information)

If a seabird is hooked, do not cut the line, as it could drown if injured or entangled. Use a dip net to bring the bird on board, and restrain the bird's beak before removing it from the net. Use bolt cutters to carefully cut the barb and point of the hook so it can be backed out, and cut and remove any tangled line. Release the sea bird carefully.

Figure 40. Sea birds (NMFS/NEFSC Observer Program photo)

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Appendix A

SEA TURTLE AND MARINE MAMMAL STRANDING AND DISENTANGLEMENT NETWORK CONTACTS

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Sea Turtle and Marine Mammal Stranding and Disentanglement Network Contacts

Additional information can be found at: https://www.fisheries.noaa.gov/report; https://www.fisheries.noaa.gov/state-coordinators-sea-turtle-stranding-and-salvage-network; https://www.fisheries.noaa.gov/contact-directory/marine-mammal-stranding-network-coordinators

Greater Atlantic (Northeast Region)

- **Marine Mammal and Sea Turtle Stranding and Entanglement Hotline 866-755-6622**
- Connecticut – Mystic Aquarium 860-572-5955 x 107
- Delaware – MERR Institute, Inc. 302-228-5029
- Maine – Maine Marine Animal Reporting Hotline 800-532-9551
- Maryland – Stranding Hotline 800-628-9944
- Massachusetts – NOAA Fisheries GARFO 978-281-9300 or Massachusetts Audubon 508-349-2615
- New Hampshire –New England Aquarium 617-973-5247
- New Jersey – Marine Mammal Stranding Center 609-266-0538
- New York – Atlantic Marine Conservation Society 631-369-9829
- Rhode Island – Mystic Aquarium 860-572-5955 x 107
- Virginia – Virginia Aquarium & Marine Science Center 757-385-7575
- Washington D.C. – Smithsonian Institute 202-633-1260

Southeast Region

- **NMFS Southeast Marine Mammal Stranding Hotline 877-942-5343**
- Alabama- Marine Mammals 1-877-942-5343; Sea Turtles 1-866-732-8878
- Florida – Marine Mammals and Sea Turtles FWCC 1-888-404-3922
- Georgia – Marine Mammals 912-269-7587; Sea Turtles 1-800-272-8363; 912-280-6892
- Louisiana – Marine Mammals 504-235-3005; Sea Turtles 337-962-7092; 225-765-2377
- Mississippi – Marine Mammals 888-767-3657 or 228-369-4796; Sea Turtles 228-369-4796
- North Carolina – Marine Mammals NCDMF 252-241-5119; Sea Turtles 252-241-7367
- Puerto Rico – Marine Mammals 787-538-4684 or 787-645-5595
- South Carolina – Marine Mammals and Sea Turtles 800-922-5431
- Texas – Marine Mammals 800-962-6625; Sea Turtles 1-866-887-8535; 361-949-8173 x 226
- U.S. Virgin Islands 340-713-2422

West Coast Region

- **West Coast Region Stranding Hotline 866-767-6114**
- California – Northcoast Marine Mammal Center 707-951-4722; The Marine Mammal Center 415-289-7325 (marine mammals and sea turtles); Channel Islands Marine and Wildlife Institute 805-567-1505; California Wildlife Center 310-458-9453; Marine Animal Rescue 1-800-399-4253; Marine mammal Care Center Los Angeles 310-548-5677; Pacific Marine Mammal Center 949-494-3050; SeaWorld of California 1-800-541-7325 (marine mammals and sea turtles)
- Oregon – Portland State University/Seaside Aquarium 503-738-6211; OSU Marine Mammal Institute 541-270-6830
- Puget Sound – Whatcom County 360-966-8845; San Juan County 800-562-8832; Centra Puget Sound 866-ORCANET; Sno-King 206-695-2277; Seal Sitters 206-905-7325; MaST Center 206-724-2687; Vashon Hydrophone Project 206-463-9041; Washington DFW 253-589-7235; Cascadia Research Collective 360-791-9555; Port Townsend Marine Science Center 360-385-5582 x 103; Dungeness National Wildlife Refuge 360-457-8451; Feiro Marine Life Center 360-417-6254
- Washington – NOAA Olympic Coast National Marine Sanctuary 360-457-6622; Olympic National Park 360-565-3155

Pacific Islands Region

- **Pacific Islands Region Marine Mammal Stranding and Entanglement Hotline 888-256-9840**
- Hawaii – Marine Mammals and Sea Turtles DOCARE 808-643-3567; NOAA OLE 800-853-1964
- Guam – NOAA OLE 671-472-7200; 671-735-0281; Guam Department of Agriculture 671-735-0281 or 671-735-0294
- American Samoa – American Samoa Department of Marine and Wildlife Resources 684-633-4456
- Northern Mariana Islands – CNMI DFW 670-287-8537 or NOAA CNMI 670-285-2287

Alaska Region

- NOAA Fisheries 24-hour Stranding Hotline Marine Mammals 877-925-7773
- Protected Resources Office, Juneau 907-586-7235 or Anchorage 907-271-5006
- Alaska SeaLife Center 24-hour Stranding Hotline 888-774-7325

Appendix B

EQUIPMENT SELECTION FLOWCHART FOR THE CAREFUL RELEASE OF INCIDENTALLY CAPTURED SEA TURTLES

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Plate B-1

Sea Turtles Not Boated

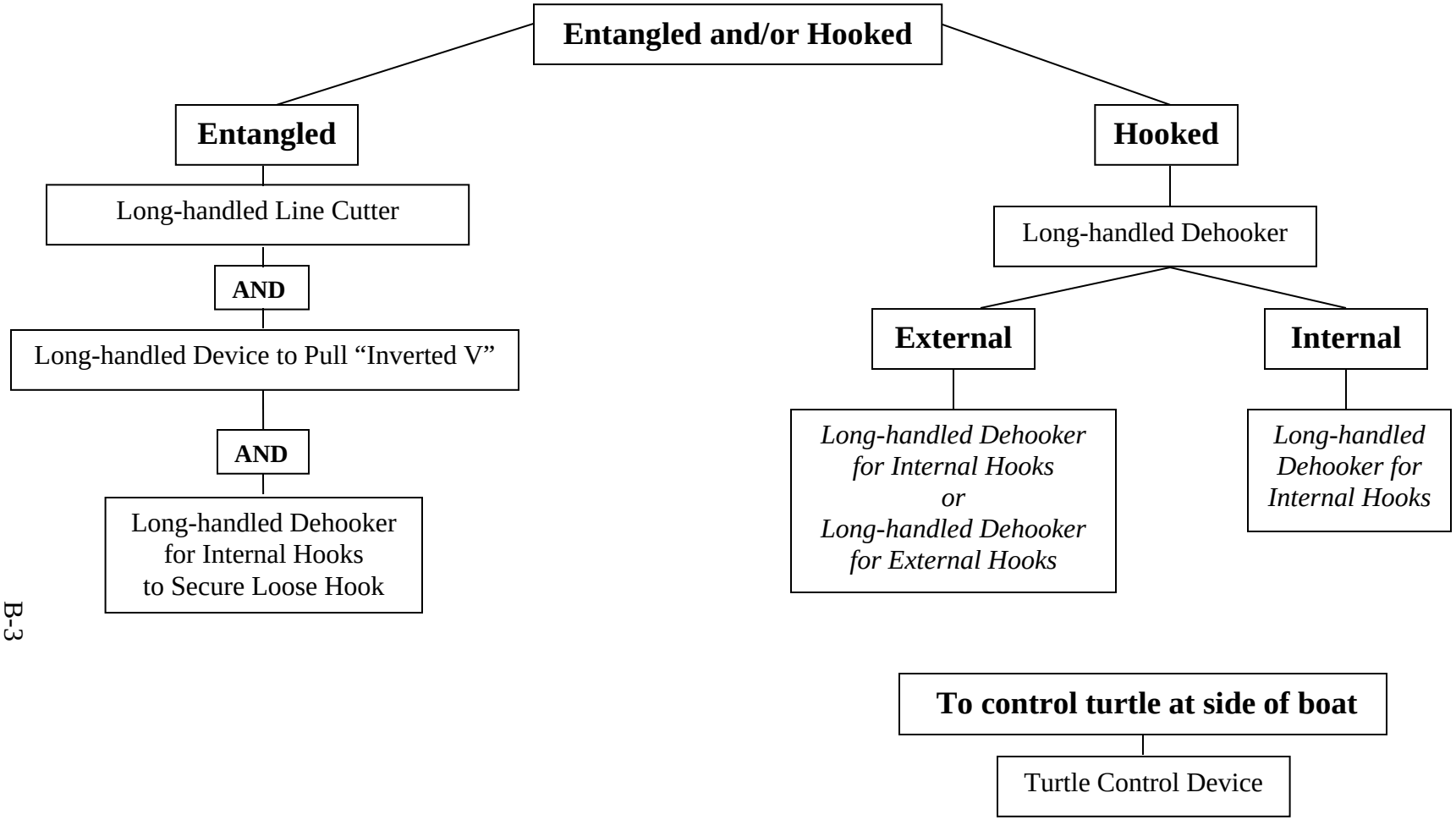
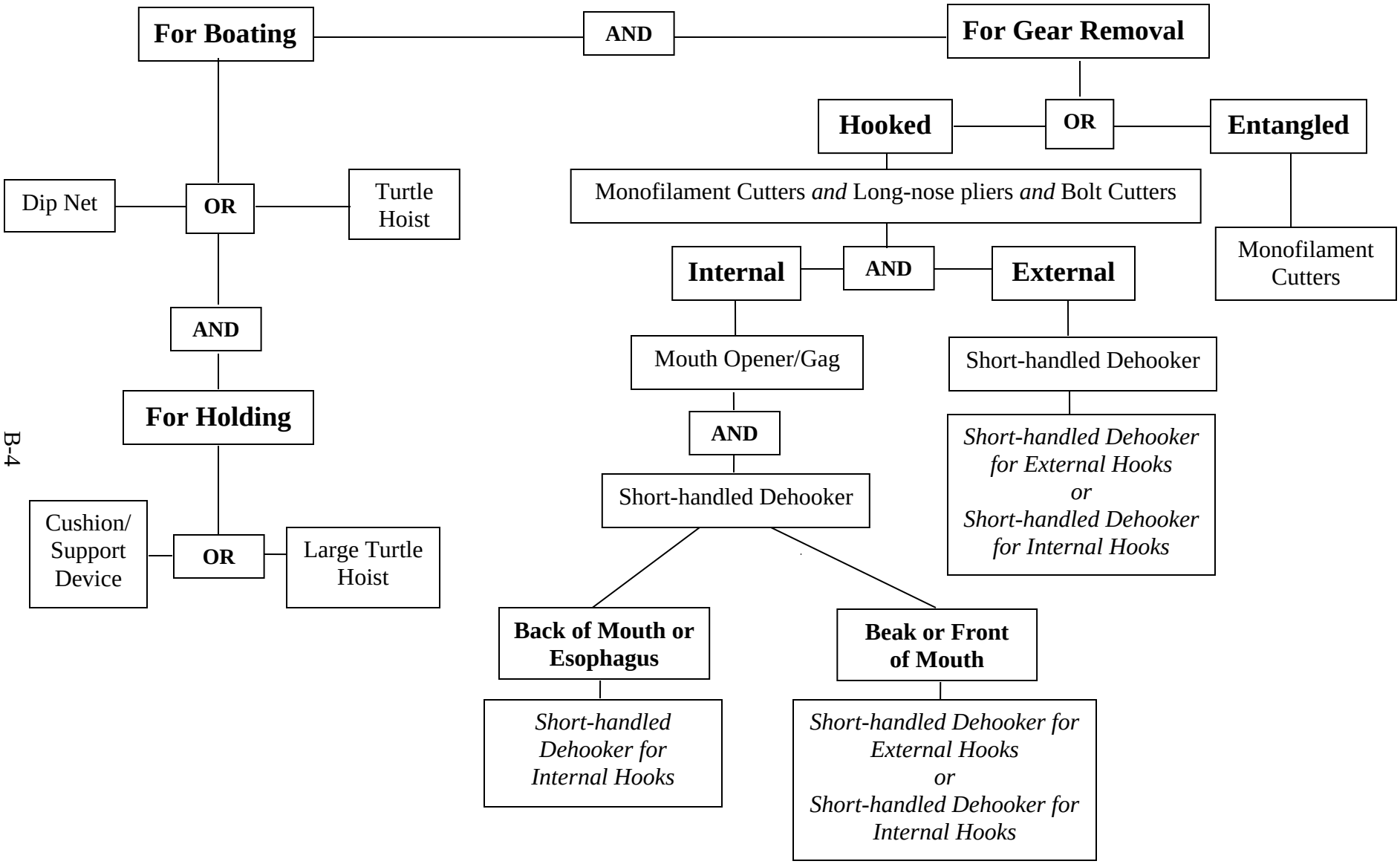


Plate B-2

Sea Turtles Boated



Appendix C

SAFE HANDLING AND CAREFUL RELEASE PLACARDS

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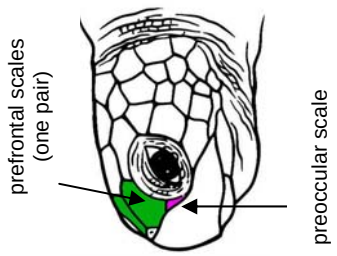
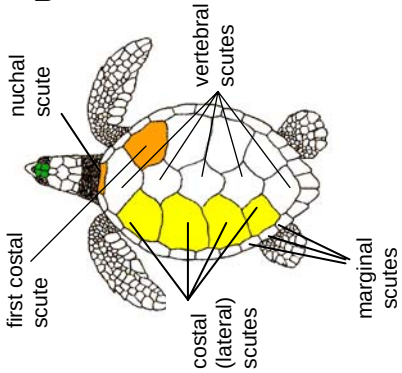
Sea Turtle Identification Key

Typical adult colors are described here; colors may differ, particularly in hatchlings and juveniles

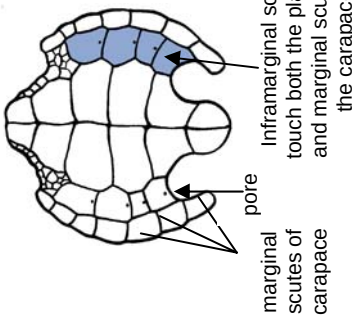
- Leathery, no scutes; 5 long ridges
  - **Leatherback** *Dermochelys coriacea*
    - Carapace: dark gray/black with white spots; Plastron: white with dark blotches
- Hard carapace (shell) with large scutes (shell plates)
  - One pair prefrontal scales; no preocccular scales; serrated lower jaw
    - Usually 4 costal (lateral) scutes; first costal scute does not touch nuchal; usually 4 inframarginal scutes without pores
      - **Green** *Chelonia mydas*
        - Carapace: brown with radiating streaks; Plastron: white to yellow
  - Two pairs prefrontal scales
    - Usually 4 costal (lateral) scutes; first costal scute does not touch nuchal
      - Usually 4 inframarginal scutes without pores
        - **Hawksbill** *Eretmochelys imbricata*
          - Carapace: tan, brown and black with random streaks; overlapping scutes; Plastron: cream with dark blotches
    - Usually 5 or more costal (lateral) scutes; first costal scute touches nuchal
      - Usually 3 inframarginal scutes without pores
        - **Loggerhead** *Caretta caretta*
          - Carapace: red brown/dark brown; first costal scute is very small; Plastron: yellow/orange
      - Usually 4 inframarginal scutes with pores
        - Usually 5 costal scutes
          - **Kemp's Ridley** *Lepidochelys kempii*
            - Carapace: gray to light olive green; round; Plastron: white/yellow
        - Usually 6 or more costal scutes
          - **Olive Ridley** *Lepidochelys olivacea*
            - Carapace: gray to olive green; number of costal scutes may be asymmetrical; Plastron: white/yellow



Dorsal View (Carapace)



Ventral View (Plastron)



Sea Turtle Handling/Release Guidelines: Quick Reference for Atlantic Shark GILLNET Gear

October 2006

Guidelines for Handling Gear

- Gillnet gear should be set and/or fished to achieve maximum net **tautness**. This will prevent turtles from becoming entangled in the net in the case of an encounter.
- Scan net as far ahead as possible to sight turtles in advance and reduce the risk of jerking turtles out of the water.
- Vessel operators are required to check nets every 0.5 to 2 hours (50 CFR§ 635.21 (e) (3) (vi)).

- **Slow vessel** and adjust direction to move towards the turtle. Once turtle is alongside, place the vessel in **neutral**.
- Slowly retrieve the net, avoiding tugging or yanking motions.
- Considering the size of the turtle, sea conditions, and safety of crew, determine whether the turtle can be boated. (All turtles should be **boated if possible**.)

- **Boat the turtle** using a dipnet or large turtle hoist. Avoid pulling up the turtle by the gear it is entangled in, as this could injure the animal. Gaffs may only be used to control the fishing gear, **DO NOT USE GAFFS OR SHARP OBJECTS** to retrieve the turtle.
- **Support the turtle** on a cushioned surface, such as a tire, while it is onboard.
- If the turtle cannot easily be disentangled from the net, **carefully cut the net** off the turtle. **Blunt-sided** line cutters such as first-aid clippers are preferred. If one-sided cutters/clippers are used, carefully slide the blunt end under the line or net you want to cut. Attempt to remove any lines or net attached to the turtle.
- **Identify** the species of turtle and record when and where the interaction occurred.

Guidelines for Turtles NOT Boated

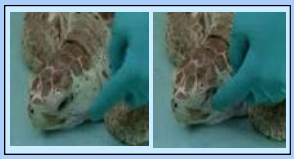
- If the turtle is too large to be boated, control the turtle with a turtle tether if possible and bring the turtle close to the vessel.
- **Identify** the species of turtle and record when and where the interaction occurred.
- Try to work the turtle free from the net while the turtle is next to the boat. Use line cutters/clippers with a handle extension or first-aid clippers to cut the net off the turtle if necessary. Carefully slide the **BLUNT END** of the line cutter under the line or net you want to remove. Attempt to remove any lines or net attached to the turtle.

Guidelines for UNCONSCIOUS Turtles

- Place the turtle on its lower shell and **elevate** its hindquarters approximately 6 inches to permit the lungs to drain off water (Figure A).
- Keep the **skin and eyes moist** by covering the turtle with a moist towel or periodically spraying it with water while it is onboard. Place the turtle in the shade if necessary, while maintaining its body temperature above 60°F.
- Check for muscle **reflexes** approximately every 3 hours by touching the eyelid or tail (Figure B). An unconscious, but live turtle may or may not respond to touch.
- Be patient. Sea turtles caught and held underwater are stressed and may take some time to revive. If the turtle has shown no sign of life before returning to port, or after 24 hours on deck, it may safely be considered dead. Release the turtle in the water in a non-fishing area.

A

B



Contact Information

More information on releasing sea turtles is available on the on the web at: http://www.nmfs.noaa.gov/sfa/hms and in the publication, *Careful Release Protocols for Sea Turtle Release with Minimal Injury,* which is available on this website. Call (301) 713-2347 to obtain a copy of the report or for additional copies of this placard.

Stop!

GUIDELINES FOR RELEASING A TURTLE

(1) **STOP VESSEL** and place in **NEUTRAL**;
(2) **Ease turtle** gently into the water, head first, through cut-out door if so equipped;
(3) Observe that turtle is safely **away from the vessel** before engaging the propeller and move 1 nmi before continuing fishing operations.

Sea Turtle Handling/Release Guidelines: Quick Reference for Hook and Line Fisheries

Guidelines for all turtles

- Scan as far as possible to sight turtles in advance and reduce likelihood of jerking turtles out of the water.
- Longline Vessels: Do not get ahead of the line while picking up gear. This reduces the chance of fouling or running over gear and turtle.

  Upon sighting a turtle:
  - Slow vessel and line reel speed
  - Adjust direction of the vessel to move toward turtle
  - Minimize tension on the line with the turtle

  Holding the line with the turtle on it, continue to move toward the turtle at a slow speed. **STOP VESSEL** and **PUT IN NEUTRAL** once turtle is brought alongside.
- Slowly retrieve line with turtle, keeping a gentle, consistent tension on the line. Avoid tugging or yanking line quickly. **DO NOT USE GAFFS OR SHARP OBJECTS** in direct contact with the turtle to retrieve it; a gaff may be used only to control the line during line removal.
- Ensure that enough slack is left in the line to keep turtle near the vessel, yet in water, until it can be determined whether or not it is possible to release turtle in the water, or safely bring it aboard.
- If turtle can be safely brought aboard and vessel is equipped with "cut-out doors," use this cut-out area to bring turtles aboard to minimize the distance from the water.
- Resuscitate comatose boated turtles as needed, holding them for up to 24 hours (keep moist and in the shade) if necessary.
- More information on releasing sea turtles is available in the *Careful Release Protocols for Sea Turtle Release with Minimal Injury* and on the web at: https://www.fisheries.noaa.gov

Guidelines for turtles not boated

- Control turtle by maintaining pressure on line, or preferably, with a type of turtle tether, and bring the turtle as close to the vessel as possible. DO NOT lift turtles clear of the water.
- If entangled and not hooked, use dehooking tools to secure unattached hooks. Use clippers to cut the line. DO NOT leave line attached.
- If hooked and entangled, remove the hook first. Then, after the hook is removed, proceed to remove all line.
- All externally embedded hooks should be removed. If hook removal is not possible, cut the line at the eye of the hook (or as close as possible).
- Internal hooks should be removed only if an internal dehooker is being used. Do not attempt to remove hook if the hook has been swallowed beyond where the insertion point of the barb is visible, or when it appears that the hook removal will cause further injury. Remove as much of the line and/or hook as possible.

Guidelines for boated turtles

- If possible, bring turtle on board using a suitable dip net or other approved lifting device. Support turtle on a cushioned surface, such as a tire, while onboard.

  DO NOT LIFT THE TURTLE OUT OF THE WATER USING THE LINE, GAFF, OR OTHER SHARP OBJECTS

  Remove all externally embedded hooks.

  Internal hooks should be removed when the insertion point of the barb is clearly visible and only if an approved internal dehooker is being used. Do not remove the hooks that have been swallowed when the insertion point is not visible, or when it appears hook removal will cause further damage (e.g., in the brain case or glottis). Remove as much of the line and/or hook as possible.

Stop!

To release turtle (1) STOP VESSEL and place in neutral;
(2) Ease turtle gently into the water, head first, through cut-out door if so equipped;
and (3) Observe that turtle is safely away from the vessel before engaging the propeller and continuing operations.

Revised 4/2019

PAUTAS PARA LA MANIPULACIÓN Y LIBERACION DE TORTUGAS MARINAS: HOJA DE CONSULTA PARA APAREJOS DE PALANGRE DEL ATLÁNTICO

Abril 2019

Pautas para todas las tortugas

- Observe el cordel principal hasta la mayor distancia posible a fin de reconocer la presencia de tortugas con anticipación y limitar la posibilidad de sacarlas del agua bruscamente.
- Al recuperar los aparejos, no se adelante al cordel principal. De esta manera es menos probable que el pesquero atropelle la tortuga o enmarañe los aparejos.
- Una vez vista la tortuga:
  - Reduzca la velocidad de la embarcación y del carrete del cordel principal.
  - Ajuste la dirección de la embarcación para que se acerque a la tortuga.
  - Reduzca la tensión del cordel principal y del ramal donde está trabada la tortuga.
- Mientras sujeta con una mano el conector de presión del ramal donde está la tortuga, siga acercándose a la tortuga a baja velocidad. **DETENGA LA EMBARCACIÓN y PONGA EL MOTOR EN NEUTRO** una vez que la tortuga está al costado.
- Recupere lentamente el ramal donde está la tortuga, aplicando una tensión suave y uniforme. Evite los movimientos bruscos. Para acercar la tortuga a la embarcación **NO DEBE USAR CLOQUES NI OTROS OBJETOS PUNTIAGUDOS** que puedan tocar directamente al animal; sólo use el cloque para sujetar el ramal mientras se desprende la tortuga.
- Deje floja una longitud de cordel suficiente para asegurarse de que la tortuga permanezca en el agua cerca de la embarcación hasta que se decida si es preferible soltarla al mar o si se la puede subir a bordo sin peligro.
- Si se puede embarcar la tortuga sin peligro, y la embarcación tiene una puerta al mar próxima a la línea de flotación, utilícela para sacar la tortuga del agua; de esta forma se reduce al mínimo la distancia que separa la tortuga de la cubierta.
- Procure resucitar las tortugas embarcadas en estado comatoso, reteniéndolas húmedas y a la sombra durante un período de hasta 24 horas, si es necesario.
- Para tener más información sobre la suelta de tortugas marinas, consulte los *Careful Release Protocols for Sea Turtle Release with Minimal Injury* (versión en español, "Procedimientos casi inocuos para la liberación de tortugas marinas") o en Internet, https://www.fisheries.noaa.gov.

Pautas para las tortugas no embarcadas

- Para controlar el movimiento de la tortuga, mantenga tenso el ramal o aún mejor, use una traba para tortugas hasta conseguir que el animal se acerque lo más posible a la embarcación.
- Si la tortuga está enmallada en el cordel pero no enganchada por un anzuelo, use un sacanzuelos para apartar los anzuelos sueltos y evitar que se enganchen en la tortuga; emplee tijeras, cizallas o cortacabos para cortar el cordel. NO deje trozos de cordel adheridos a la tortuga.
- Si la tortuga está a la vez enmallada en el cordel y enganchada por un anzuelo, empiece por extraer éste por medio del sacanzuelos. Una vez que se ha extraído el anzuelo, quite todo el cordel.
- Los anzuelos enganchados externamente se deben extraer sin necesidad de sacar la tortuga del agua. Cuando no sea posible extraer el anzuelo, corte el cordel por el ojo del anzuelo o lo más cerca de éste que pueda.
- Cuando la tortuga se haya tragado el anzuelo tan profundamente que no se pueda ver el lugar donde se ha clavado, o cuando se considere que la extracción del anzuelo agravaría la lesión del animal, no intente sacar el anzuelo. Extraiga la mayor parte posible del cordel o del anzuelo o de los dos.

Pautas para las tortugas embarcadas

- Cuando sea posible, suba la tortuga a bordo por medio de un salabardo u otro dispositivo aprobado para alzarla. Cuando el animal esté sobre cubierta, colóquelo en una superficie mullida, por ejemplo, una llanta neumática de automóvil.

NO SAQUE LA TORTUGA DEL AGUA POR MEDIO DEL RAMAL NI DE UN CLOQUE (BICHERO) U OTRO OBJETO PUNTIAGUDO

- Extraiga todos los anzuelos que se hayan clavado externamente. Los anzuelos tragados deben extraerse cuando el lugar donde estén clavados sea muy visible. No extraiga los anzuelos que se hayan tragado y cuyo punto de inserción no pueda verse o cuando se considere que la extracción del anzuelo agravaría la lesión (por ejemplo, si estuviera clavado en el cráneo o en la glotis). Extraiga la mayor parte posible del cordel o del anzuelo o de los dos.

Alto!

PARA SOLTAR UNA TORTUGA:

1) **DETENGA LA EMBARCACIÓN y ponga el motor en neutro.**
2) **Meta la tortuga en el agua con cuidado, la cabeza hacia adelante, con preferencia a través de una puerta que dé al agua cerca de la línea de flotación, si la hay.**
3) **Compruebe que la tortuga se ha alejado de la embarcación lo bastante para que no peligre** por el funcionamiento de la hélice y se pueda reanudar la faena.

Hướng Dẫn Xử Lý/Thả Rùa Biển:Tham Khảo Nhanh về Thiết Bị Dây Câu Dài Đại Tây Dương

Hướng dẫn cho mọi con rùa

- Canh chừng dây câu chính càng xa càng tốt để phát hiện rùa sớm và giảm thiểu cơ hội giật phắt rùa lên khỏi mặt nước.
- Đừng chạy trước dây câu chính trong khi thu hồi thiết bị. Làm như thế để giảm cơ hội làm rối hoặc chạy đè lên thiết bị hoặc.
- Khi thấy rùa:
  - Giảm tốc độ của tàu và cuộn dây câu chính
  - Điều chỉnh hướng tàu đi để tiến về phía rùa
  - Giảm thiểu độ căng giữa dây câu chính và dây nhánh với rùa
- Giữ nút bật mở của dây nhánh nối với rùa, tiếp tục tiến về phía rùa với tốc độ chậm. NGỪNG TÀU và CÀI SỐ KHÔNG một khi đã kéo rùa ngang thành tàu.
- Từ từ kéo dây nhánh nối với rùa, giữ dây ở một độ căng đều và nhẹ nhàng. Đừng để sào móc hay vật nhọn sắc đụng vào rùa khi bắt rùa; chỉ dùng sào móc để điều khiển dây trong khi gỡ dây.
- Thả đủ dây để rùa ở gần tàu nhưng vẫn nằm trong nước cho đến khi xác định được là có thể thả rùa trong nước hay là mang lên tàu một cách an toàn.
- Nếu có thể đưa rùa lên tàu một cách an toàn và tàu có trang bị cửa tiếp cận, dùng cửa này để giảm khoảng cách đến mặt nước khi mang rùa lên tàu
- Hồi sinh rùa bị ngất trên tàu nếu cần, giữ chúng cho đến tối đa 24 tiếng đồng hồ (giữ ẩm ướt và trong bóng râm) nếu cần thiết.
- Có thêm thông tin về thả rùa biển trong phần *Phương Thức Cẩn Thận Thả Rùa Biển Gây Tối Thiểu Thương Tích* và trên mạng tại: https://www.fisheries.noaa.gov.

Hướng dẫn cho rùa không được đưa lên tàu

- Chế ngự rùa bằng cách giữ áp lực trên dây nhánh, hoặc hay hơn nữa là bằng cách dùng dây buộc rùa, và đưa rùa lại càng gần tàu càng tốt.
- Nếu rùa chỉ bị vướng dây câu mà không mắc câu, dùng dụng cụ gỡ lưỡi câu để giữ các lưỡi câu không bị vướng. Dùng kéo cắt dây. ĐỪNG ĐỂ dây còn dính buộc .
- Nếu rùa vừa bị vướng dây câu vừa bị mắc câu, hãy gỡ lưỡi câu trước. Sau khi đã gỡ lưỡi câu, mới tháo bỏ dây câu.
- Nên gỡ tất cả các lưỡi câu móc vào thân ngoài của rùa mà không nhấc rùa lên khỏi mặt nước. Nếu không gỡ lưỡi câu được, hãy cắt dây tại lưỡi câu (hoặc càng gần lưỡi câu càng tốt).
- Nếu rùa bị mắc lưỡi câu bên trong: đừng cố gỡ lưỡi câu nếu lưỡi câu đã bị nuốt quá chỗ nhìn thấy ngạnh, hoặc khi có vẻ như gỡ lưỡi câu sẽ gây thêm thương tích cho rùa. Gỡ bỏ càng nhiều dây câu và/hoặc lưỡi câu càng tốt.

Hướng dẫn cho rùa được đưa lên tàu

- Nếu có thể được, mang rùa lên tàu bằng một lưới vớt thích hợp hoặc dùng một vật dụng nào khác để nhấc rùa lên. Để rùa lên một mặt phẳng êm trên tàu, chẳng hạn một lớp xe hơi.

ĐỪNG NHẤC RÙA LÊN KHỎI MẶT NƯỚC BẰNG CÁCH DÙNG DÂY NHÁNH, SÀO MÓC, HAY NHỮNG VẬT NHỌN SẮC

- Gỡ bỏ tất cả các lưỡi câu móc vào thân ngoài của rùa. Gỡ các lưỡi câu bên trong thân rùa khi còn nhìn thấy rõ chỗ móc ngạnh. Đừng gỡ lưỡi câu nào đã nuốt không còn thấy chỗ móc ngạnh hoặc khi có vẻ việc tháo gỡ sẽ gây thêm thương tích cho rùa (ví dụ: trong óc hoặc thanh môn). Gỡ bỏ càng nhiều dây câu và/hoặc lưỡi câu càng tốt.

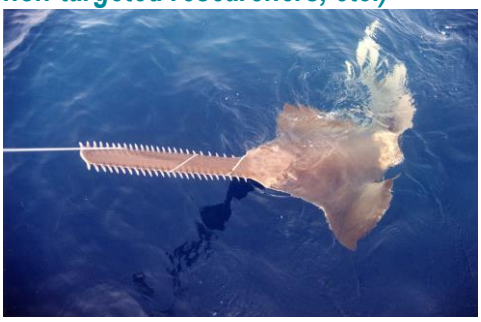
Stop!

Để thả rùa (1) NGỪNG TÀU LẠI và cài số không;
(2) Nhẹ nhàng thả rùa xuống nước, đầu trước, qua cửa tiếp cận nước nếu có, và
(3) Để ý thấy rùa được an toàn rời tàu trước khi cho máy chạy và làm việc tiếp.

NOAA FISHERIES

Endangered Sawfish Handling, Release, and Reporting Procedures

for Individuals with Permitted Incidental Sawfish Take (commercial fishermen, non-targeted researchers, etc.)



An Endangered Species:

- Smalltooth sawfish are listed as endangered under the Endangered Species Act (ESA)
- Federal law prohibits injuring or harming sawfish
- Captured sawfish should be released immediately

Materials Needed:

- Measuring tape
- Net pick or boat hook
- Knife, line cutter, scissors
- Ropes
- Water quality meter (if available)
- Datasheets
- GPS
- Camera
- PIT reader (if available)

Reporting:

Adam Brame
Sawfish Recovery Coordinator
727-209-5958
Adam.Brame@noaa.gov

1-844-4SAWFISH

General Handling and Release Guidelines

- Work quickly to free and release the sawfish as soon as possible
- Keep sawfish in the water as much as possible
- Keep sawfish wet if it must be removed from the water
- Leave sawfish in net or on line until ready for release
- Do NOT stand or sit next to the rostrum
- Tie rope around tip of saw or tail only if needed to control sawfish for safety

Line Gear (longline, rod and reel, etc.) Specifics

- Keep the sawfish, especially the gills, in the water as much as possible
- Use line-cutting poles, long-handled dehookers, and/or boat hooks to remove line or gear
- DO NO attempt to remove the hook, just cut the line as close to the hook as possible
- If line is tangled around the body or saw, untangle and remove as much of the line from around the sawfish as possible and then cut the line close to the hook

Net Gear (trawls, gillnets, etc.) Specifics

- Keep the sawfish, especially the gills, in the water as much as possible
- Use line-cutting pole, scissors, and/or knife to cut free any net tangled around the saw by cutting the mesh along the length of the saw
- Once the mesh is cut, work it free with a boat hook or line-cutting pole

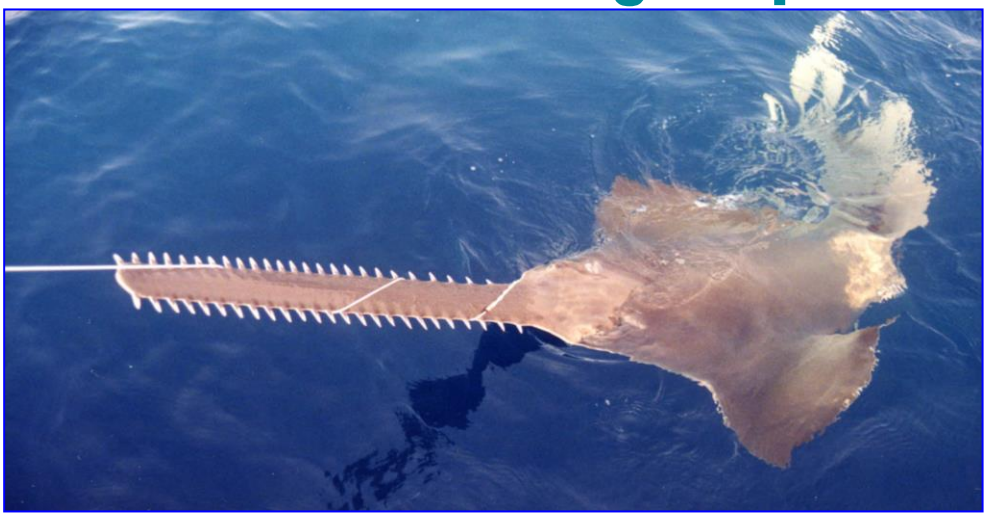
Data Recording

Please record as much information as you can quickly and safely including:

- Date and time
- Latitude and longitude (or detailed location description)
- Habitat description (water depth, temperature, salinity, dissolved oxygen)
- Photographs (in/on gear, body, rostrum)
- Markings, scars, wounds
- Tag number and type if applicable
- Lengths (saw and total, estimate if necessary)
- Sex
- Release condition including any remaining gear

Hãy thật cẩn thận khi xử lý và thả cá đao răng nhọn vì răng cá có thể va mạnh bên này sang bên kia.

Hướng Dẫn Xử Lý và Thả Cá Đao Răng Nhọn



Gắng sức thêm một chút, cá đao răng nhỏ có thể được thả xuống nước mà ít bị hoặc không bị tổn thương.

Báo Cáo Các Hoạt Động Tương Tác Với Cá Đao Răng Nhọn:

Chúng tôi khuyến khích tất cả ngư dân đánh bắt cá thương mại và giải trí nên báo cáo thông tin bên dưới bằng cách gửi email đến takereport.nmfsser@noaa.gov hoặc qua điện thoại số 941-255-7403.

Nếu có tham gia Chương Trình Dữ Liệu Loại Bỏ Bổ Sung (Supplementary Discard Data Program), hãy nhớ ghi nhận thông tin bên dưới.

Báo Cáo Thông Tin Sau Đây:

- Ngày giờ gặp.
- Địa điểm (tọa độ GPS).
- Nơi cư trú (độ sâu nước, loại đáy).
- Tổng chiều dài ước tính của cá đao răng nhọn bao gồm hàm răng.
- Bất kỳ dụng cụ nào không thể gỡ an toàn ra khỏi con vật.
- Ghi nhận các dấu vết, sẹo, vết thương, dấu hiệu.
- Chi tiết bắt (mồi, kích thước và loại lưỡi câu, kích thước lưới, chiều dài dụng cụ).
- KHÔNG được tìm cách cân con vật.

Cố Gắng Hết Sức Để Gỡ Dây Câu

- Nếu có thể, dùng cây cắt dây, kìm cắt bu lông, dụng cụ gỡ lưỡi câu cán dài và sào kéo thuyền để giúp gỡ dây câu ra khỏi cá.
- Nếu có thể thực hiện một cách an toàn, gỡ lưới hoặc dây câu ra khỏi hàm răng cá. Gỡ dây câu bằng sào kéo thuyền hoặc cây cắt dây. Cắt dây quấn quanh hàm răng cá bằng cách cắt dọc chiều dài hàm răng cá. Một khi đã cắt dây câu, gỡ nó ra bằng sào kéo thuyền hoặc cây cắt dây.
- Nếu có thể thực hiện một cách an toàn, dùng dụng cụ gỡ lưỡi câu cán dài để gỡ lưỡi câu ra khỏi hàm răng/miệng cá.
- Nếu không thể gỡ lưỡi câu, hãy cắt dây càng gần lưỡi câu càng tốt.
- Nếu bị lưỡi câu vào bên trong, KHÔNG được cố tháo lưỡi câu, hãy cắt dây càng gần con cá càng tốt..

Những Điều Cần Ghi Nhớ:

- **KHÔNG ĐƯỢC GỠ RĂNG CÁ.** Gỡ răng cá hoặc làm tổn thương cá đao răng nhọn dưới bất kỳ hình thức nào đều là phi pháp
- Luôn để cá đao răng nhọn trong nước.
- Thả cá càng nhanh càng tốt.

Để biết thông tin, hãy truy cập: http://sero.nmfs.noaa.gov/protected_resources/sawfish/index.html

NOAA FISHERIES

Atlantic Highly Migratory Species

Atlantic Sturgeon are Protected By Federal Law Due to their Endangered Status

Atlantic Sturgeon Safe Handling and Release Guidelines

If you accidentally hook an Atlantic Sturgeon, take the following actions to release it with care

1. Rapidly handle the fish with care, and keep it underwater to the maximum extent possible during handling.

2. If the fish has air in its bladder, return the fish to neutral buoyancy prior to, and during, release. Gently apply pressure to the stomach of the animal by moving from the tail toward the head to release the air from the bladder.

3. Before releasing the fish, hold it underwater, and gently move the tail fin back and forth to aid water passage over the gills.

4. Release the fish when it shows signs of increased activity and is able to swim away under its own power.

5. Watch the fish to ensure it stays underwater and does not float to the surface. If it does resurface, make one additional attempt to recapture the animal and repeat steps 1-4 above.

MARINE MAMMAL
HANDLING/RELEASE GUIDELINES
A Quick Reference for Atlantic Pelagic Longline Gear

GUIDELINES FOR ALL MARINE MAMMALS

- Have an identification guide, paper, and camera ready at all times in case of an interaction.
- Document as much information as possible to describe the marine mammal, particularly physical appearance and potential injuries:
  - Animal's length
  - Animal's features to be used for species identification (color pattern, dorsal fin shape, head shape)
  - Any gear remaining on the animal (type, placement, color, size, etc.)
  - Any existing tags on the animal (description, tag number)
- Take photographs from different angles. Pictures of the head, dorsal fin, and tail are most helpful in species ID. Fishermen should submit these photos to NMFS Office of Protected Resources, along with the NMFS Marine Mammal Injury/Mortality Reporting Form (see below).
- Attempt to release the animal with minimal injury (see below).
- After an interaction with a marine mammal:
  - Remove remainder of the gear from the water
  - Move at least one nautical mile away to avoid further interactions
  - Alert other fishermen in the area to the presence of marine mammals
  - Record all injuries and mortalities of marine mammals within 24 hours of returning to shore on the NMFS Marine Mammal Injury/ Mortality Reporting Form
- Reporting Requirement: Submit the Marine Mammal Injury/Mortality Reporting Form by fax to (301) 427-2522, or by mail: NMFS Office of Protected Resources Attn: MMAP, 1315 East West Highway, Silver Spring, MD 20910. Additional copies of the reporting form may be requested from the same address, or found online at: http://www.nmfs.noaa.gov/pr/pdfs/interactions/mmap_reporting_form.pdf.

GUIDELINES FOR SMALL MARINE MAMMALS

- Ensure the crew is ready to assist.
- Avoid abrupt actions or vessel movements that may panic the animal.
- As soon as the opposite side of the mainline is available, use two long gaffs to recover it. DO NOT USE GAFFS OR SHARP OBJECTS in direct contact with the animal. A gaff should be used only to control the line.
- Move the vessel cautiously, STOP THE VESSEL within range of the marine mammal.
- Gently bring the marine mammal alongside the vessel.
- If a tangle exists:
  - Gaff the other side of the mainline and attach it to the vessel or float ball to isolate the vessel and marine mammal from any tension on the remaining gear in the water
  - Work the tangle off the marine mammal as smoothly and quickly as possible
- If the animal is hooked:
  - Use a NMFS-approved dehooking device
  - Cut the barb off the hook with long-handled bolt cutters
  - Cut the line with line cutters as close to the hook as possible
- Remove as much line as possible from the animal.
- DO NOT use a tether, ninja sticks, or sea turtle dehooking or disentangling devices to control the animal.

GUIDELINES FOR LARGE WHALES

- If a large whale is alive and entangled in fishing gear, contact the Provincetown Center for Coastal Studies Disentanglement Hotline at (800) 900-3622 or immediately contact the U.S. Coast Guard at VHF Ch. 16 for instructions.
  - Maneuver the vessel in such a way as to minimize tension on the line
- If a large whale is dead and on the line, immediately contact the U.S. Coast Guard at VHF Ch. 16 for instructions.

SAFETY FIRST!

Hooked or entangled marine mammals can be unpredictable. There are inherent human safety concerns associated with handling/disentangling marine mammals. Be prudent and safe on the water. Human safety is paramount.

GET A MOVE ON!

If you have one marine mammal interaction, there is a high likelihood that you will have additional encounters if you continue fishing in the same area. Alert other fishermen via radio communication and MOVE, or wait 48 hours to reset gear rather than risk further interactions.

This placard meets the regulatory requirements of 50 CFR 229.36(c).

(727) 824-5312 • www.nmfs.noaa.gov

Seabird Protection & Avoidance Tips

NOAA FISHERIES SERVICE

Office of Sustainable Fisheries

Photo: Claire Fackler

How Can I Help Seabirds?

Do

- Scan the surrounding sky, land, and water before casting your line to keep seabirds from stealing your bait.
- Use barbless fishing hooks, artificial lures and weighted fishing lines to avoid hooking seabirds
- Recycle or dispose of fishing hooks and line in the trash and keep the water and surrounding areas free of debris. Learn more about the Monofilament Recovery & Recycling Program (MRRP) effort at www.fishinglinerecycling.org
- Avoid disturbing resting or feeding seabirds by steering your boat around the flock rather than through them.

Don't

- Don't feed seabirds or other wildlife.
- Don't begin chumming the water if seabirds are near your fishing boat.
- Don't fish near seabird roosting and nesting areas as disruptions may often cause birds to abandon their nest.
- Don't leave fishing poles unattended with bait dangling from the hook.

Photo by: Josh Keaton / NOAA

Seabirds live in a variety of habitats in and around shallow water and coastal environments. They represent a vital part of marine ecology and are protected under the Migratory Bird Treaty Act. In fact, most of the 312 species of seabirds you may encounter while fishing are likely to be protected by law, with some classified as endangered or threatened under the Endangered Species Act. Depending on the geographic region, fishermen in the U.S. can observe species of Albatross, Cormorants, Gannet, Loons, Pelicans, Puffins, Sea Gulls, Storm-Petrels, Shearwaters, and Terns, among others.

Be Aware of Seabird Behavior

Seabirds feed on smaller fish that most anglers use for bait, so they typically won't challenge a fisherman for his catch, however, the seabird's hunting methods still put them in danger of getting hooked or entangled in a fisherman's line.

Many seabirds feed on krill, fish, squid or other prey items at the ocean's surface, while some, such as Cormorants, are known to dive to depths of more than 100 ft below the waves to catch a fish. In another technique, seabirds in flight will "plunge dive" into the water in pursuit of a fast-moving fish. Brown Pelicans, for example, can make vertical dives from more than 70 feet above the water when chasing their prey. Young seabirds, especially young pelicans, are particularly susceptible to being ensnared by fishing line.

What If I Accidentally Hook a Seabird?

In the unfortunate event of a hooked seabird, don't cut or break the line. If the bird is injured or severely tangled, the bird could easily drown, die of starvation or succumb to a predator attack. If you do accidentally hook a seabird while fishing, use the following tips to avoid further injury to the bird or yourself:

- Reel the bird in slowly and gently. Don't lift the bird by the line, instead use a dip net if available. If you are on a pier walk the line to shore, or use a hoop net positioned under the bird to lift it.
- Get control of bird's bill or beak before taking it from the net to prevent pecking of your face and hands. Cover its head and eyes with a cloth to calm it (do not obstruct breathing), and keep the wings folded in their normal closed position. Always maintain control of the bird's head and body.
- When removing the hook from a seabird, never simply grab the hook and yank it out! Grasp the hook and carefully snip off the barb, then you can easily back the hook out without causing further injury. Cut off and remove any tangled fishing line.
- Carefully, release the seabird. Call the local Game Warden if the bird is seriously injured or deeply hooked. Keep the bird calm and restrained until assistance arrives.

How Can I Help Seabirds?

There are numerous threats to seabirds and the need for protection continues to increase. People often unwittingly disturb seabirds in their nesting or roosting sites through the introduction of loud noises, toxic chemicals, excessive artificial light, and other stresses.

Humane and respectful treatment of seabirds is critical to the future of fishing. Anglers must work to reverse negative public opinion of the Angler/Seabird relationship to prevent fishing closures or other limits. If you witness the mistreatment of a seabird, please notify your area's local Game Warden immediately.