

DRAFT

Programmatic Environmental Assessment

for

Fisheries and Ecosystem Research Conducted and Funded

by the

Southeast Fisheries Science Center

April 2016

Appendix D

**Southeast Fisheries Science Center Protected Species
Handling, Data Collection, and Reporting Procedures**



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Table 1. Protected Resources Designated Contacts.

Species	Contact Name	Address	Phone Number	Email	Samples/Carcass
Sea Turtles	Gabriela Serra-Valente	NOAA/NMFS/SWFSC 8901 La Jolla Shores Drive La Jolla, CA 92037	(858) 546-5697	Gabriela.Serra-Valente@noaa.gov	Tissue/Genetic samples
Sea Turtles	Dr. Brian Stacy	NOAA/NMFS and University of Florida 2187 Mowry Road, Building 471 Gainesville, FL 32611	(352) 283-3370	Brian.Stacy@noaa.gov	Carcasses
Smalltooth Sawfish <i>*FFWCC researchers/participants</i>	Dr. Gregg Poulakis	Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, Charlotte Harbor Field Laboratory 585 Prineville Street Port Charlotte, FL 33954-1006	(941) 613-0948	Gregg.poulakis@fwc.state.fl.us	Samples/parts/carcasses collected by FFWCC only
Smalltooth Sawfish <i>*All other researchers</i>	Dr. John Carlson	NOAA/NMFS Panama City Laboratory 3500 Delwood Beach Road Panama City, FL 32408	(850) 234-6541	John.carlson@noaa.gov	Samples/parts/carcasses collected by all others
Gulf Sturgeon	Dr. John Carlson	See above	See above	See above	Carcasses
Gulf Sturgeon	Dr. Brian Kreiser	Department of Biological Sciences 118 College Drive Ste.5018 University of Southern Mississippi Hattiesburg, MS 39406	(601) 266-6556	Brian.Kreiser@usm.edu	Tissue/Genetic samples
Atlantic Sturgeon & Shortnose Sturgeon	Dr. Tim King	U.S. Geological Survey Leetown Science Center Aquatic Ecology Branch 11649 Leetown Road Kearneysville, WV 25430	(304) 724-4450	tlking@usgs.gov	Tissue/Genetic samples
Marine Mammals	NOAA Fisheries Marine Mammal Stranding Hotline	Stranding Hotline will direct you to the nearest Stranding Network	877-433-8299		Carcasses/Tissue samples

Incidental Take Response, Handling and Reporting Procedures for Sea Turtles

1. Live Entanglements/Hookings/Trawl Captures:

- a. Upon sighting an entangled or hooked sea turtle, slow the vessel and move in the direction of the sea turtle. Once the animal is alongside the vessel, place the vessel's engines in neutral. Minimize tension on the line and avoid pulling up the sea turtle by the gear.
- b. Do not use gaffs or other sharp objects to retrieve or control the sea turtle, although a gaff may be used to control the line.
- c. When boating the sea turtle, take care not to drop the sea turtle onto the deck or allow it to slam into the side of the vessel. If the sea turtle requires resuscitation, follow the Sea Turtle Resuscitation Guidelines (NOAA Technical Memorandum NMFS-SEFSC-580, Plate 3-1. Available at: http://www.sefsc.noaa.gov/turtles/TM_NMFS_SEFSC_580.pdf).
- d. All researchers should handle incidentally captured sea turtles in a manner consistent with those described in NOAA's Careful Release Protocols for Sea Turtle Release with Minimal Injury (NOAA Technical Memorandum NMFS-SEFSC-580) to remove as much gear from the animal as possible.
- e. If can be done so, immediately without further harming the animal, photograph the hooking/entanglement location prior to gear removal.
- f. If the animal is seriously injured, and could feasibly be returned to shore, call 1-877-942-5343 to coordinate with local sea turtle stranding responders.
- g. Remove all externally embedded hooks. **If the hook cannot be removed, removing as much line as possible should be the highest priority.** If unsure whether hook removal will cause injury to the sea turtle, do not remove the hook.
- h. The easiest way to remove a hook may be to cut off the eye or barb so that the hook can be pushed through or backed out without causing further injury to the sea turtle. If the hook is visible and accessible, but cannot be removed, bolt cutters should be used to cut off as much of the hook as possible. If the hook cannot be cut or removed, cut the line close to the eye of the hook, removing all line if possible.
- i. Only remove ingested hooks if the insertion point of the barb is clearly visible, and exercise extreme caution during hook removal. Never remove a hook that has been swallowed and the hook insertion point is not visible.
- j. Once gear is removed, please photograph the head, carapace, and plastron of all boated sea turtles. Record the information specified on the Protected Species Incidental Take Form and report the encounter within 24 hrs. If research is under a federal research permit, follow reporting requirements described in that permit as well.
- k. Researchers that have been properly trained by a ESA Section 10(a)(1)(A) permit holder for sea turtles should also follow the sea turtle handling and sampling instructions found in the SEFSC Sea Turtle Research Techniques Manual (NOAA Technical Memorandum NMFS-SEFSC-579; http://www.sefsc.noaa.gov/turtles/TM_579_SEFSC_STRTM.pdf) to check the animal for flipper tags, scan for PIT tags, record the information specified on

the Protected Species Incidental Take Form, tag untagged sea turtles and collect tissue samples (skin biopsy).

1. Release the animal by lowering it over the aft portion of the vessel, close to the water's surface. Make sure fishing gear is not in use and the engines are in neutral. Release the turtle in an area where it is unlikely to be recaptured or injured by vessels.

2. In Case of Sea Turtle Mortality:

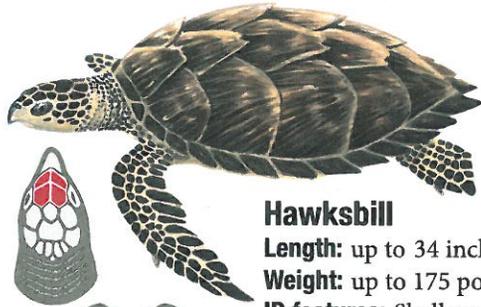
- a. If a sea turtle is dead or fails to respond to resuscitation attempts, the carcass can be retained and returned to shore. First scan the carcass for PIT tags and flipper tags, remove tissue samples (skin biopsy), and photograph the animal. The remaining specimen(s) or body parts should be preserved (iced/refrigerated or frozen if ice/refrigeration not possible) until additional sampling and disposal procedures are discussed with the designated NMFS contact (see Table 1). If it is not possible to retain the carcass, mark the carcass (spray paint and flipper tag), if possible, and discard carcass near original site of capture in the same manner as that of actively moving sea turtles. Report the encounter to HMS within 24 hrs.

3. Reporting:

- a. For entanglements/captures/hookings, please fill out the NOAA Fisheries Southeast Region Protected Species Reporting Form within 24 hours of the incidental take and submit to nmfs.ser.ea_loa.takereport@noaa.gov. Please enter Fisheries Independent Monitoring Protected Species Take (BiOp SER-2009-7541) in the subject line and include the project name and species in the text of the email.

SEA TURTLES OF THE UNITED STATES ATLANTIC COAST

Text color corresponds to identification feature in diagram.



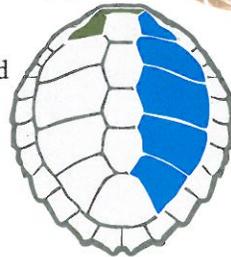
Hawksbill

Length: up to 34 inches

Weight: up to 175 pounds

ID features: Shell oval, mottled brown. Scutes overlapping.

- **Four costal scutes on each side.**
- **First costal scute does not touch nuchal scute.**
- **Two pairs of prefrontal scales.**



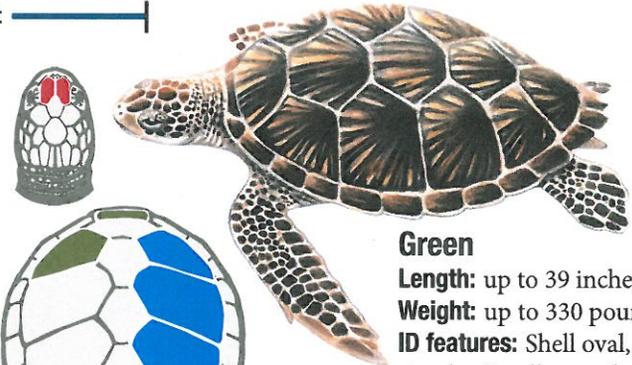
Kemp's ridley

Length: up to 26 inches

Weight: up to 110 pounds

ID features: Shell round, gray.

- **Five costal scutes on each side.**
- **First costal scute touches nuchal scute.**
- **Two pairs of prefrontal scales.**



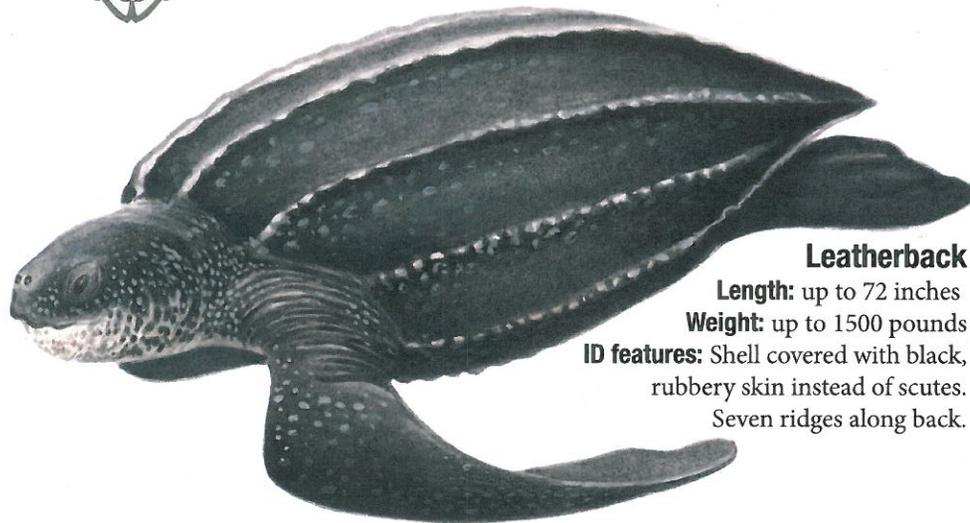
Green

Length: up to 39 inches

Weight: up to 330 pounds

ID features: Shell oval, brown with streaks. Small, rounded head. Serrated beak (mouth) edges.

- **Four costal scutes on each side.**
- **First costal scute does not touch nuchal scute.**
- **One pair of prefrontal scales.**

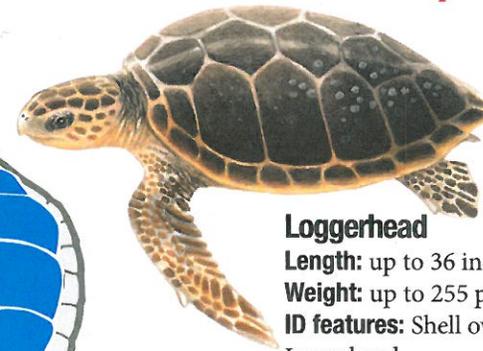


Leatherback

Length: up to 72 inches

Weight: up to 1500 pounds

ID features: Shell covered with black, rubbery skin instead of scutes. Seven ridges along back.



Loggerhead

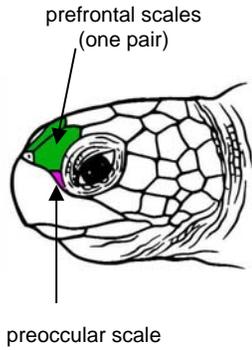
Length: up to 36 inches

Weight: up to 255 pounds

ID features: Shell oval, reddish-brown. Large head.

- **Five costal scutes on each side.**
- **First costal scute touches nuchal scute.**
- **Two pairs of prefrontal scales.**

Sea Turtle Identification Key



Hard carapace (shell) with large scutes (shell plates)

Leathery, no scutes;
Longitudinal dorsal ridges

Two pairs prefrontal scales

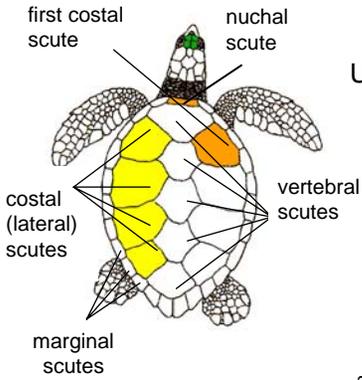
One pair prefrontal scales;
serrated lower jaw

Usually 5 or more costal (lateral) scutes;
first costal scute touches nuchal

Usually 4 costal (lateral) scutes;
first costal scute does not touch nuchal

Usually 4 costal (lateral) scutes;
first costal scute does not touch nuchal;
usually 4 inframarginal scutes without pores

Dorsal View (Carapace)



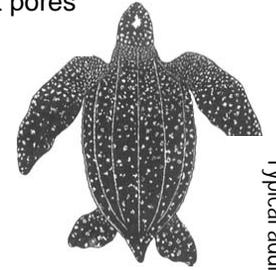
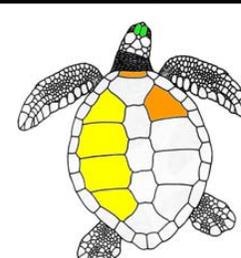
Usually 4 inframarginal scutes with pores

Usually 3 inframarginal scutes without pores

Usually 4 inframarginal scutes without pores

Usually 6 or more costal scutes

Usually 5 costal scutes

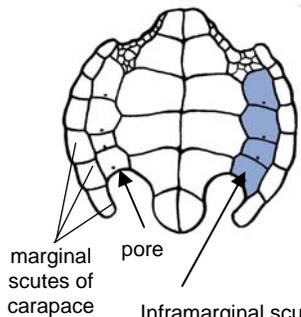


Preocular scales

No preocular scales

Carapace: dark gray/black with white spots; Plastron: white with dark blotches

Ventral View (Plastron)

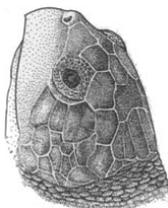


Inframarginal scutes touch both the plastron and marginal scutes of the carapace.

Carapace: gray to olive green;
number of costal scutes may be asymmetrical; Plastron: white/yellow

Olive Ridley

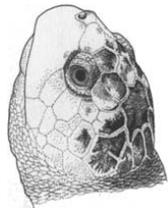
Lepidochelys olivacea



Carapace: gray to light olive green;
round; Plastron: white/yellow

Kemp's Ridley

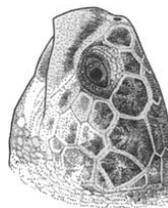
Lepidochelys kempii



Carapace: red brown/dark brown; first costal scute is very small; Plastron: yellow/orange

Loggerhead

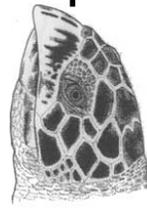
Caretta caretta



Carapace: tan, brown and black with random streaks; overlapping scutes; Plastron: cream with dark blotches

Hawksbill

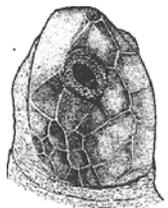
Eretmochelys imbricata



Carapace: olive gray; carapace has upturned edges on adults; Plastron: yellow

Flatback

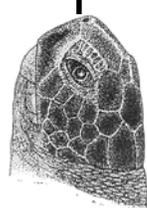
Natator depressus



Carapace: black or gray with black markings;
Plastron: gray

Black

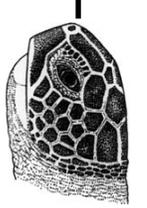
Chelonia mydas



Carapace: brown with radiating streaks; Plastron: white to yellow

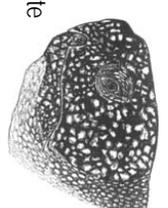
Green

Chelonia mydas



Leatherback

Dermochelys coriacea



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

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)).

Upon Sighting a Turtle

- **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**.)

Guidelines for Turtles Boated

- **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.



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 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

Incidental Take Response, Handling and Reporting Procedures for ESA-listed Fish

1. Live Entanglements/Hookings/Trawl Captures – Smalltooth Sawfish:

- a. Leave the sawfish, especially the gills, in the water as much as possible.
- b. Do not remove the saw (rostrum) or injure the animal in any way.
- c. Remove as much fishing gear as safely possible from the body of the animal.
- d. If can be done safely, untangle any net or line from the animal's rostrum. Remove gear with a boat hook or line-cutting pole. To remove gear tangled around the rostrum, cut the gear along the lateral edge of the rostrum. Once gear is cut, work it free with a boat hook or linecutting pole.
- e. If can be done without further harming the animal, photograph the hooking/entanglement location prior to release. Take multiple photographs of the body, if possible. Record the information specified on the Protected Species Incidental Take Form and send form via email to nmfs.ser.ea_loa.takereport@noaa.gov within 24 hrs.
- f. Researchers that have been trained by an ESA Section 10(a)(1)(A) permit holder for smalltooth sawfish should collect biological samples and tag captured animals. Tissue samples in the form of fin clips (approximately 1 gram of tissue) should be collected in from the trailing edge of the second dorsal fin. Samples should be preserved in ethanol if available, otherwise the samples should be frozen.
- g. Use extreme caution when handling and releasing sawfish as the rostrum can thrash violently from side to side.

2. Live Entanglements/Hookings/Trawl Captures - Sturgeon:

- a. Ensure animals are handled rapidly, but with care and kept underwater to the maximum extent possible during handling.
- b. If can be done without further harming the animal, photograph the hooking/entanglement location prior to release. Take multiple photographs of the body, if possible. Record the information specified on the Protected Species Incidental Take Form send form via email to nmfs.ser.ea_loa.takereport@noaa.gov within 24 hrs.
- c. Researchers should also collect a tissue sample from any sturgeon handled onboard if the animal appears healthy. Requirements for the handling and collection of biological and tissue/genetic data on incidentally taken sturgeon are described in A Protocol for Use of Shortnose, Atlantic, Gulf, and Green Sturgeons (NOAA Technical Memorandum NMFS-OPR-45, pages 12-19, attached). PIT tags should be applied (as described in NOAA TM NMFS-OPR-45) to previously untagged fish, if tags are available.
- d. Release the animal as soon as possible, near the capture area, but in a manner that minimizes the likelihood of recapture if sampling continues.

- e. If the fish has air in its bladder, efforts must be made to return the fish to neutral buoyancy prior to release. Release air by gently applying pressure to the animal's stomach, moving from the tail toward the head.
- f. Before releasing the animal hold it underwater while gently moving the tail fin back and forth to aid water passage over the gills.
- g. The fish should be released when it shows signs of increased activity and is able to swim away under its own power.
- h. The fish should be watched to make sure 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 4-7 above.
- i. For help with any questions relating to sturgeon, researchers should contact Stephanie Bolden, Protected Resources, Southeast Regional Office, NMFS, at (727) 824-5312 (Fax: 727-824-5309).

3. In Case of ESA-listed Fish Mortality:

- a. Smalltooth sawfish and Gulf sturgeon – Dead smalltooth sawfish or Gulf sturgeon should be retained. First remove a tissue sample (fin clip), scan the carcass for PIT tags, and photograph the animal. The remaining specimen(s) or body parts should be preserved (iced/refrigerated or frozen if ice/refrigeration not possible) until additional sampling and disposal procedures are discussed with the designated NMFS contact (see Table 1). If it is not possible to retain the carcass, spray paint the carcass, if possible, and discard carcass near original site of capture. Report the encounter to HMS within 24 hrs.
- b. Atlantic or Shortnose sturgeon – In the event of a mortality, scan the entire carcass for PIT tags and obtain a tissue sample (fin clip). Spray paint the carcass, if possible, and discard at or near the capture location. Please report the incident via the sturgeon reporting hotline at 1-844-STURG-911 (1-844-788-7491) or via email at nmfs.ser.sturgeonnetwork@noaa.gov. Samples should be sent to contact identified in Table 1.

4. Reporting:

- a. For entanglements/captures/hookings, please fill out the NOAA Fisheries Southeast Region Protected Species Reporting Form within 24 hours of the incidental take and submit to nmfs.ser.ea_loa.takereport@noaa.gov. Please enter Fisheries Independent Monitoring Protected Species Take (BiOp SER-2009-7541) in the subject line and include the project name and species in the text of the email.

Sawfish Handling and Release Guidelines

Keep as much of the sawfish in the water as possible.

Use extreme caution when handling and releasing sawfish as the saw can thrash violently from side to side

For sawfish caught on longline gear:

- ◆ Use line cutting poles, boltcutters, long-handled dehookers and boat hooks to aid in removing gear, including hooks, from the sawfish
- ◆ If the sawfish is hooked and not entangled, cut the line as close to the hook as possible. Remove the hook with a dehooker, if possible
- ◆ If the sawfish is hooked and line is tangled around the saw (rostrum), remove all line with a boat hook or line cutting pole, then cut the line as close to the hook as possible. Remove the hook with a dehooker, if possible
- ◆ If hooked internally, do NOT attempt to remove the hook, use line cutting pole or boat hook to remove as much line as possible

For sawfish caught in trawl or gill net gear:

- ◆ **DO NOT REMOVE THE FISH'S SAW (ROSTRUM)**
- ◆ Leave the sawfish, especially the gills, in the water as much as possible
- ◆ Use line cutting pole or knife to cut any net tangled around the saw by cutting the mesh along the length of the saw
- ◆ Once mesh is cut, work it free with a boat hook or line cutting pole

In your logbook, document as much information as possible including:

- ◆ Date and time of encounter
- ◆ Location (GPS coordinates)
- ◆ Habitat (water depth, bottom type)
- ◆ Estimated total length of sawfish including saw
- ◆ Description of gear that could not safely be removed from the animal
- ◆ Markings, scars, wounds
- ◆ If present, record tag number and type (shape and color) (tags are found on or below the dorsal fins), but do not remove the tag
- ◆ Details of capture (bait, hook size/type, mesh size, length of gear)
- ◆ Sex of sawfish, if known (male sawfish, like sharks, have two claspers at the base of the pelvic fins)

Do not remove the saw or injure the sawfish in any way.

With a little extra effort, and the proper use of required tools, endangered smalltooth sawfish can be returned to the water with little or no damage.

Smalltooth sawfish are listed as endangered under the Endangered Species Act and "take" of listed species is prohibited under section 9 of the Endangered Species Act. Any sawfish caught while fishing must be released as quickly as possible. More information can be found at <http://www.nmfs.noaa.gov/pr/species/fish/smalltoothsawfish.htm>



Sawfish Handling and Release Guidelines

Smalltooth sawfish are listed as endangered under the Endangered Species Act and “take” of listed species is prohibited under section 9 of the Endangered Species Act. “Take”, as defined by the Endangered Species Act means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. If a sawfish is hooked or netted it should be released immediately. Remove as much fishing gear as safely possible without harming the animal. Sawfish are large, powerful animals that can cause serious injury. For your safety, and the safety of the sawfish, use extreme caution if you hook or net one.

General guidelines:

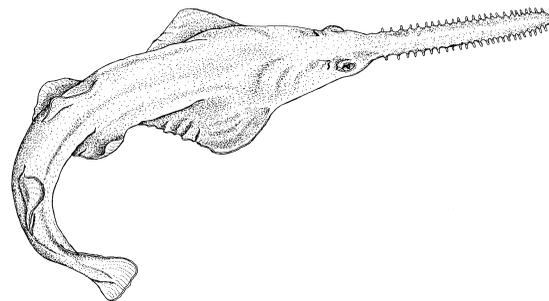
- ◆ Keep the sawfish in the water as much as possible
- ◆ Do not remove the saw (rostrum) or injure the animal in any way.
- ◆ Use extreme caution when handling and releasing sawfish as the saw can thrash violently from side to side

For sawfish caught in trawl or gill net gear:

- ◆ Do not remove the fish’s saw
- ◆ Leave the sawfish, especially the gills, in the water as much as possible
- ◆ Use line cutting pole or knife to cut any net tangled around the saw by cutting the mesh along the length of the saw
- ◆ Once mesh is cut, work it free with a boat hook or line cutting pole

For sawfish caught on longline gear:

- ◆ Keep the sawfish in the water at all times
- ◆ Use line cutting poles, boltcutters, long-handled dehookers and boat hooks to aid in removing gear, including hooks, from the sawfish
- ◆ If the sawfish is hooked and not entangled, cut the line as close to the hook as possible. Remove the hook with a dehooker, if possible
- ◆ If the sawfish is hooked and line is tangled around the saw (rostrum), remove all line with a boat hook or line cutting pole, then cut the line as close to the hook as possible. Remove the hook with a dehooker, if possible
- ◆ If hooked internally, do NOT attempt to remove the hook, use line cutting pole or boat hook to remove as much line as possible



Sawfish sketch courtesy of Mote Marine Laboratory

This pamphlet was produced by Mote Marine Laboratory’s Sawfish Research Project for National Marine Fisheries Service Office of Protected Resources, under Solicitation # WC133F-06-RQ-0656, in compliance with Section 212 of the Small Business Regulatory Enforcement Fairness Act.

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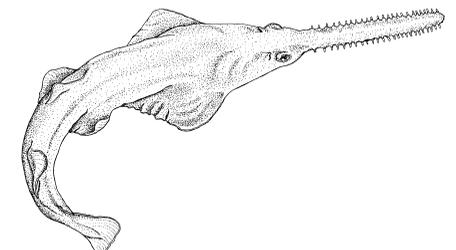
Smalltooth Sawfish Management Information



National Marine Fisheries Service

Protected Resources Division

This pamphlet provides information on the biology, population history, safe handling and release guidelines, and encounter reporting details for the endangered smalltooth sawfish.



Background

In November 1999, National Marine Fisheries Service (NMFS) received a petition from The Ocean Conservancy (formerly the Center for Marine Conservation) requesting that this species be listed as endangered under the Endangered Species Act (ESA). NMFS completed a status review in December 2000 and on April 1, 2003 announced its final determination to list smalltooth sawfish as an endangered species under the ESA. Under the ESA, it is illegal to catch, possess, harass or harm an endangered sawfish. However, some fishermen catch sawfish incidentally while fishing for other species. NMFS has developed these guidelines for fishermen on how to safely handle and release any sawfish they catch.

Conservation Efforts

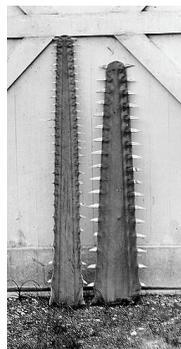
After listing under the ESA, NMFS convened the Smalltooth Sawfish Recovery Team comprised of scientists, fisheries managers, and environmental managers, to develop a plan to recover the U.S. population of smalltooth sawfish. The plan recommends specific steps to recover the population, focusing on reducing fishing impacts, protecting important habitats, and educating the public.

Species Description

Sawfish, like sharks, skates and rays, belong to a class of fish called elasmobranchs, whose skeletons are made of cartilage. Sawfish are modified rays with a shark-like body, and gill slits on their ventral, or under, side. Sawfish get their name from their "saws"- long, flat snouts edged with teeth which are used to locate, stun, and kill prey. Their diet includes mostly fish and some crustaceans. Smalltooth sawfish commonly reach 18 ft in length and may grow to 20 ft. Little is known about the life history of these animals but they may live up to 50 years, maturing after about 10 to 20 years. Like many elasmobranchs, smalltooth sawfish are ovoviviparous, meaning the mother holds the developing young inside of her until they are ready to be born live, in litters of up to 20 pups.

Smalltooth vs. Largetooth Sawfish

The smalltooth sawfish is one of two species of sawfish that inhabit U.S. waters. However, the largetooth sawfish has not been definitively recorded in US waters for several decades. Several characteristics make the two species easy to distinguish.



Smalltooth sawfish (left)
Largetooth sawfish (right)

Photo courtesy of Florida
Museum of Natural History

Smalltooth Sawfish <i>Pristis pectinata</i> (left)	Largetooth Sawfish <i>Pristis perotteti</i> (right)
Saw slightly tapers to tip	Saw much wider at base than tip
22-34 teeth per side of saw	14-21 teeth per side of saw
First dorsal fin over origin of pelvic fins	First dorsal fin well in front of origin of pelvic fins
Caudal fin lacks a lower lobe	Caudal fin contains distinct lower lobe

Habitat

Sawfish species inhabit shallow coastal waters of tropical seas and estuaries throughout the world. They are usually found in shallow waters very close to shore over muddy and sandy bottoms. They are often found in sheltered bays, on shallow banks, and in estuaries or river mouths. Certain species of sawfish are known to ascend inland in large river systems, and they are among the few elasmobranchs that are known from freshwater systems in many parts of the world.

Distribution

Historically, the U.S. population of smalltooth sawfish was common throughout the Gulf of Mexico from Texas to Florida, and along the east coast from Florida to New York. The current range of this species has contracted to peninsular Florida, and smalltooth sawfish are relatively common only in the Everglades region at the southern tip of the state. No accurate estimates of abundance trends over time are available for this species. However, available records, including museum records and anecdotal fisher observations, indicate that this species was once common throughout its historic range and that smalltooth sawfish have declined dramatically in U.S. waters over the last century.

Population Trends

There are few reliable data available for this species, and no robust estimates of historic or current population size exist. However, available data indicate that the species' geographic range has been reduced by about 90%, and that the population numbers have declined dramatically, perhaps by 95% or more.

Threats

Sawfish are extremely vulnerable to overexploitation because of their propensity for entanglement in fishing gear, their restricted habitat, and low rate of population growth. The decline in smalltooth sawfish abundance has been caused primarily by bycatch in various fisheries, especially in nets. Because adults can grow very large, and potentially damage fishing gear or even pose a threat to fishermen, many incidentally captured sawfish were killed before they were removed from fishing gear. The loss of habitat also likely contributed to the decline of this species. Important habitats, such as mangrove forests, have been modified or lost due to development of the waterfront throughout their range.

Encounter Reporting Requirements

In your logbook, document as much information as possible including:

- ◆ Date and time of encounter
- ◆ Location (GPS coordinates)
- ◆ Habitat (water depth, bottom type)
- ◆ Estimated total length of sawfish including saw
- ◆ Tooth counts on left and right side of saw (rostrum) if possible to obtain safely
- ◆ Description of gear that could not safely be removed from the animal
- ◆ Markings, scars, wounds
- ◆ If present, record tag number and type (shape and color) (tags are on or below the dorsal fins), but do not remove the tag
- ◆ Details of capture (bait, hook size/type, mesh size, length of gear)
- ◆ Sex of sawfish, if known (male sawfish, like sharks, have two claspers at the base of the pelvic fins)

More information and recovery documents can be found at <http://www.nmfs.noaa.gov/pr/species/fish/smalltoothsawfish.htm>

Protected Sturgeon of the Eastern United States

Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)



Species Description

Weight: up to 800 pounds (370 kg)
Length: 14 feet (4.3 m)
Appearance: bluish-black or olive brown with paler sides and a white belly; they have 5 major rows of bony plates (scutes): one along the back, one on either side, and two along the belly. No scales, long, hard snout with an upturned tip, mouth relatively narrow, 4 sensory barbels on the underside of the snout.

Sturgeon are generally found in rivers from March - November and in bays, estuaries, and the marine environment during the winter (November to late February) months.

Shortnose Sturgeon (*Acipenser brevirostrum*)



Species Description

Weight: up to 50 pounds (23 kg)
Length: up to 4.5 feet (1.4 m)
Appearance: Brown, tan or bluish-black body, whitish belly, 5 rows of scutes covering the head and body: one along the back, one on either side, and two along the belly, no scales, snout is short, broad and blunt, wide mouth, 4 sensory barbels on the underside of the snout.

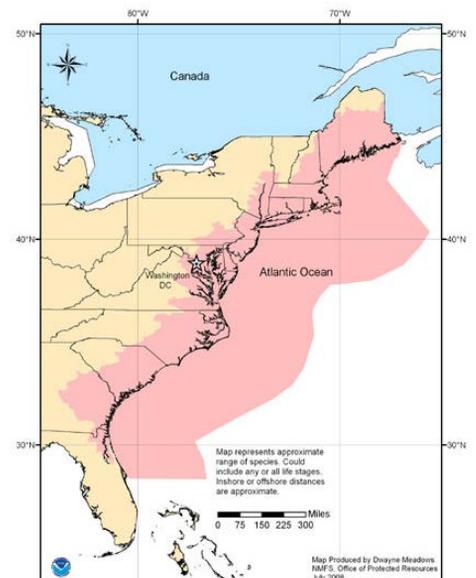
All sturgeon are either endangered or threatened.

It is illegal to fish for, catch or keep them or their parts commercially or recreationally. A permit is required for scientific research, handling and possession.

Atlantic sturgeon (left) are similar in appearance to shortnose sturgeon (right) but can be distinguished by their larger size, smaller mouth, different snout shape, and scutes.



Atlantic and Shortnose Sturgeon Range



Additional sturgeon information:
http://sero.nmfs.noaa.gov/protected_resources/

Protected Sturgeon of the Gulf of Mexico

Gulf Sturgeon (*Acipenser oxyrinchus desotoi*)



USM/GCRL

Species Description

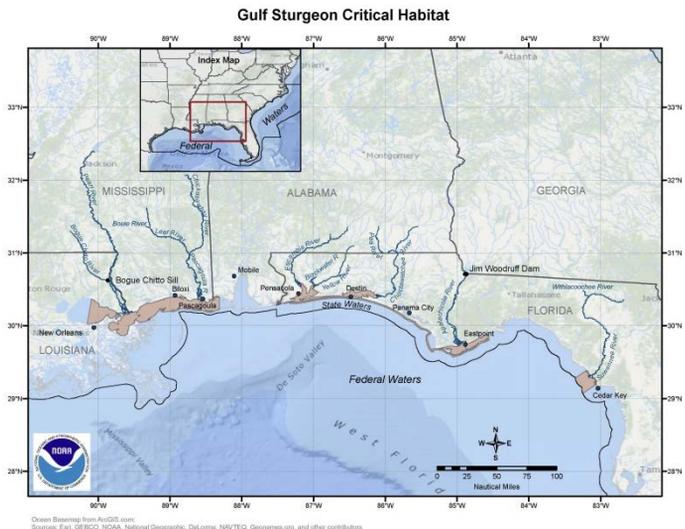
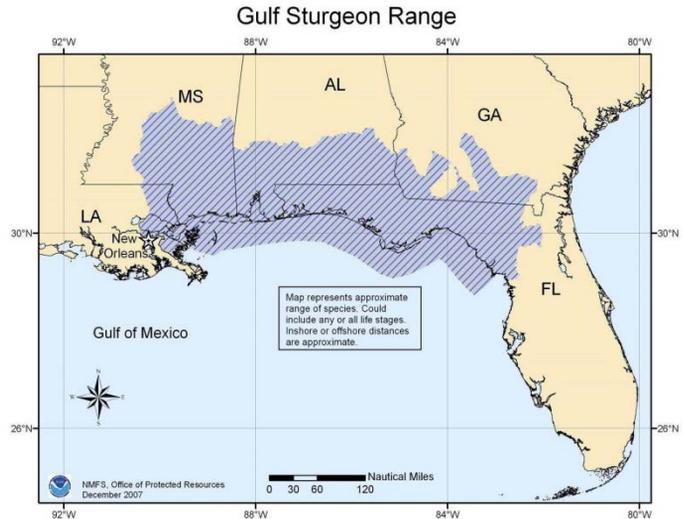
Weight: up to 200 lbs. (90 kg)
Length: 4-8 feet (1-2.5 m)
Appearance: Light neutral color to dark brown, white under belly, they have 5 major rows of bony plates (scutes): one along the back, one on either side, and two along the belly. No scales, long, hard snout with an upturned tip, mouth relatively narrow, 4 sensory barbels on the underside of the snout.

Gulf sturgeon are almost impossible to visually differentiate from Atlantic sturgeon, however, their ranges do not overlap.

Gulf sturgeon are endangered throughout their range. Designated critical habitat includes 14 geographic areas from FL to LA, encompassing spawning rivers and adjacent estuarine areas.



K. Kimmel/USFWS



Additional sturgeon information:
http://sero.nmfs.noaa.gov/protected_resources/



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.



A Protocol for Use of Shortnose, Atlantic, Gulf, and Green Sturgeons

Jason Kahn and Malcolm Mohead



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

NOAA Technical Memorandum NMFS-OPR-45
March 2010



Atlantic sturgeon (Robert Michelson, Photography by Michelson, Inc.)



Gulf sturgeon (Oscar Sosa, *New York Times*)



Green sturgeon (Thomas Dunklin)

Cover: shortnose sturgeon (credit: Robert Michelson)

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A copy of this report may be obtained from:

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Handling and Holding

Handling of sturgeon refers to the time period actual research activities are conducted on live fish and does not refer to the time a fish is held in live cars before and after research activities. Holding is the period of time a sturgeon is in possession but kept in live cars either waiting to be handled or recovered from handling prior to being released.

Proper Handling of Sturgeon

Improper handling can result in lethal or sub-lethal impacts to sturgeon. In some cases, sturgeon may display altered behavior after being released, for example, swimming towards the ocean rather than remaining in the river, or, in some instances, aborting spawning runs completely (Moser and Ross 1995, Schaffter 1997, Kelly *et al.* 2007, Benson *et al.* 2007, Moser and Lindley 2007). There are no other alternatives to handling sturgeon during research; however, the researcher's primary focus should be the well-being of the sturgeon.

NMFS strongly recommends standard handling procedures performed on all sturgeon captured including measuring, weighing, PIT tagging, and tissue sampling. The total time required to complete routine research procedures should not exceed 15 minutes. Additional procedures such as internal tagging, lavage, boroscopy, etc. will take more time for handling and recovery. However, only one additional discretionary procedure to the standard handling procedures should be performed on each sturgeon, thus minimizing handling time prior to release. For example, if a sturgeon is fitted with a telemetry tag, it should not also undergo gastric lavage. And when water temperatures are above 23°C for green sturgeon or 25°C for Gulf, shortnose, or Atlantic sturgeon, the extent of research should be limited to the standard handling procedures of measuring, weighing, PIT tagging, and tissue sampling.

Fish should be handled rapidly, but with care and kept in water to the maximum extent possible during handling. During handling procedures, each fish should be immersed in a continuous stream of ambient water passing over the sturgeon's gills. Many sturgeon researchers provide sturgeon with supplemental compressed oxygen, thereby reducing stress and ensuring DO does not fall below acceptable saturation levels.

Researchers should also attempt to support larger sturgeon in slings preventing struggle during transfer. Sturgeon should be weighed using hand held sling scales or a platform scale for larger sturgeon. Also, because sturgeon are sensitive to direct sunlight, they should be covered and kept moist.

Short-Term Holding

All captured sturgeon should be removed from the capture gear and immediately transferred to short-term holding. When multiple fish are captured, those not processed immediately should be held in a net pen or live car while waiting to be transferred by hand or sling to a processing station on board. Net pens measuring three feet wide, six feet long, and three feet deep can safely hold about 20 adult shortnose sturgeon or comparably sized juvenile Atlantic, Gulf or green sturgeon when temperatures are below

15°C (Doug Peterson, University of Georgia, pers. comm.). Larger net pens (8 feet long) are required for holding adult Atlantic, green, and Gulf sturgeon or they should be processed as quickly as possible (or scheduled first) instead of subjected to confined holding conditions. When water temperature is between 15° and 25°C, fewer fish should be held in the same enclosure because overcrowding animals amplifies short term stress, particularly at higher temperatures (Safi *et al.* 2006). If the fish are being held on-board a vessel in a holding tank, compressed oxygen should be added to increase DO in the water. If the researcher observes a visually stressed sturgeon, efforts should be made to revive the fish and release it in a healthy condition. In some cases, recovery can be achieved by allowing a sturgeon to rest in an appropriately sized net pen for several hours prior to release.

Sturgeon should never be held in gillnets if there isn't enough room to safely hold them in net pens. In some rivers with large populations of sturgeon, catches can exceed the number of fish that can possibly be held safely in live cars or net pens. In such cases, researchers should have multiple holding bins at their disposal. If more fish are captured than can be processed and released within two hours, those excess fish may need to be released to minimize stress or lethal injury.

When sturgeon are held on-board research vessels, they should be placed in flow through tanks where the total volume of water is replaced every 15 to 20 minutes. Traditionally, some species of sturgeon have been held for research purposes by tethering with ropes looped around tails to the sides of research vessels until they can be handled. In a study of lake sturgeon (Axelsen and Mauger 1993 cited in Dick *et al.* 2006), tethered fish experienced greater stress and higher mortality than sturgeon kept in uncrowded cages. Therefore, NMFS recommends only using on-board holding tanks or net pens large enough to hold a large sturgeon. NMFS does not recommend holding any sturgeon by tethering its caudal peduncle to the research vessel. However, while a rope should never be tied around the caudal peduncle, it may be necessary to use a rope placed under the sturgeon immediately posterior to the pectoral fins when moving large sturgeon from net pens onto the boat.

Following handling procedures, fish should be returned to the net pen for observation and to ensure full recovery prior to release. Total holding time in the net pens would be variable depending on water temperature and the condition of each fish, however, the maximum amount of time a fish should be held after removal from capture gear is approximately two hours, unless more time is needed to recover from the effects of an anesthetic or because prolonged holding would benefit a sturgeon. When water temperature is above 25°C for Gulf, shortnose, and Atlantic sturgeon, or 23°C for green sturgeon, they should be held for as little time as possible. Holding time includes the time to remove any other captured sturgeon, time to process other fish, and time necessary for recovery ensuring the safety of the fish.

Prior to release, sturgeon should be examined and, if necessary, recovered by holding fish upright and immersed in river water, gently moving the fish front to back, aiding freshwater passage over the gills to stimulate it. The fish should be released when

showing signs of vigor and able to swim away under its own power. A spotter should watch the fish, making sure it stays submerged and does not need additional recovery.

Recommendations

Proper Handling of Sturgeon

- NMFS strongly recommends standard handling procedures performed on all sturgeon captured including measuring, weighing, PIT tagging, and tissue sampling.
- Only one additional discretionary procedure to the standard handling procedures should be performed on each sturgeon, thus minimizing handling time prior to release.
- When water temperatures are above 23°C for green sturgeon or 25°C for Gulf, shortnose, or Atlantic sturgeon, the extent of research should be limited to the standard handling procedures of measuring, weighing, PIT tagging, and tissue sampling.
- During handling procedures, each fish should be immersed in a continuous stream of ambient water passing over the sturgeon's gills.
- Researchers should attempt to support larger sturgeon in slings preventing struggle during transfer.
- If the researcher observes a severely stressed sturgeon, efforts should be made to revive the fish and release it in a healthy condition.

Short-Term Holding

- Sturgeon should never be held in gillnets while waiting to be handled, but should instead be transferred to a net pen for holding.
- NMFS recommends only using on-board holding tanks or net pens large enough to hold a large sturgeon. NMFS does not recommend tethering sturgeon to the boat by its caudal peduncle.
- The maximum amount of time a fish should be held after removal from capture gear is approximately two hours, unless more time is needed to recover from the effects of an anesthetic or because prolonged holding would benefit a sturgeon.
- Adult Atlantic, green, and Gulf sturgeon over six feet in length should be processed as quickly as possible (or scheduled first) instead of subjected to confined holding conditions.

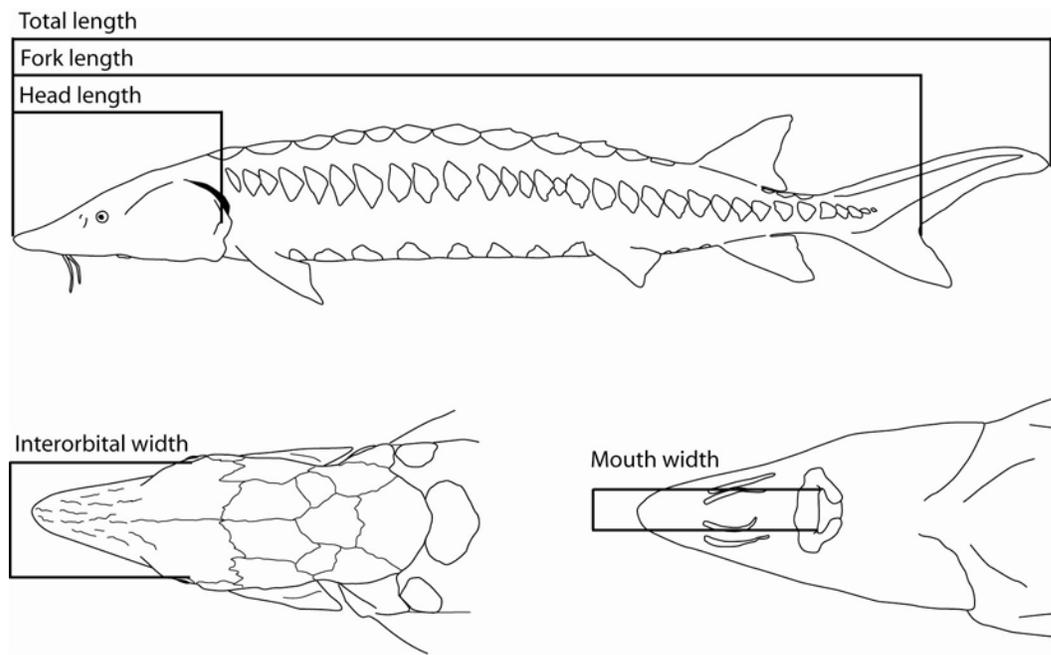
Standard Research Methods

Upon capturing a green, Gulf, shortnose, or Atlantic sturgeon, there are several research procedures strongly recommended on all sturgeon. First, the captured fish is to be measured. The sturgeon should also be weighed if possible. It can also be photographed, if possible. Then, their entire bodies should be scanned for previously inserted PIT tags; and, if none are found, one should be properly inserted. Finally, a small sample of the soft tissue of the pelvic fin should be removed for genetic identification.

Measuring

Standardized length measurements for all sturgeon should be taken from the snout to the fork in the tail (i.e., fork length – FL). The measuring device should be a solid ruler or board, so the measurement does not measure the curvature of the body. Additional length measurements should be taken at the researcher's discretion for total length (TL) or head length (Figure 1). While the heterocercal tail of larger fish may be damaged or shortened, the total length can still be obtained by pressing down the tail at the caudal peduncle and measuring to the tip of the tail. Girth measurements should also be taken at the widest part of the body. While not mandatory, measurements of the ratio of mouth width to interorbital width can also be obtained to differentiate between shortnose and Atlantic sturgeon (Dadswell *et al.* 1984). Interorbital width is measured as the distance between the lateral margins of the bony skull at the midpoint of the orbit and mouth width is measured as the distance between the left and right inside corners of the closed mouth (i.e., excluding the lips) (Figure 1).

Figure 1. Diagram of different types of measurements for sturgeons. Drawings by Eric Hilton, Virginia Institute of Marine Science.



Weighing

All captured sturgeon should be weighed if possible. Weights allow a better understanding of the conditioning of captured sturgeon during various seasons of the year or life span of the fish. For weighing sturgeon, animals should be supported with a sling or net and handling should be minimized throughout the procedure.

Boats used for researching green, Gulf, and Atlantic sturgeon should accommodate larger fish with scales available to safely weigh a 200 pound fish. When targeting shortnose sturgeon (or juvenile green, Gulf, or Atlantic sturgeon), hand-held sling scales are acceptable. When using a bench scale or platform scale to weigh large sturgeon, a five to six foot flat platform will be necessary to support the fish.

Photographing

When handling sturgeon, optional photography is often used to document the health of fish, research methods, and any identifying marks on the sturgeon potentially useful in the future. Although it is recommended to take as many pictures as needed, researchers should do so without interfering with other research activities.

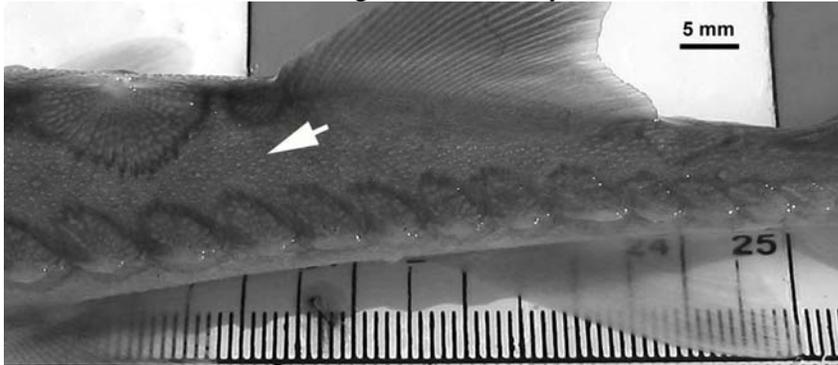
PIT Tags

Every sturgeon should be scanned for PIT tags along its entire body surface ensuring it has not been previously tagged. Untagged sturgeon should then be appropriately PIT tagged (Figure 2) and the identifying number recorded. Each PIT tag consists of integrated circuitry and an antenna encapsulated in glass. PIT tags are “passive” because they contain no batteries; their internal code is activated and transmitted to the receiver when exposed to the transceiver’s electromagnetic signal. The newest PIT tags, and those recommended by NMFS, use a frequency of 134.2 kHz.

Standardized PIT tag placement for Gulf, green, Atlantic, and shortnose sturgeon would enable subsequent researchers to locate prior PIT tags quickly and consistently. Sturgeon, are large fish growing a considerable amount from the time they’re first PIT-tagged until they reach their adult size. If muscles grow over the PIT tag as they mature, the tag can become increasingly more difficult to read.

For this reason, NMFS strongly recommends PIT tag placement in all four sturgeon species to be located to the left of the spine, immediately anterior to the dorsal fin, and posterior to the dorsal scutes (Figure 2). This positioning would optimize PIT tag readability over the animal’s lifetime as sturgeon experience the least new muscle growth in this location during their lifetimes (Berg 2004, Simpson and Fox 2006). After the tag is inserted, it should be scanned to ensure it is readable before the fish is released. If necessary, to ensure tag retention and prevent harm or mortality to small juvenile sturgeon of all species, the PIT tag can also be inserted at the widest dorsal position just to the left of the 4th dorsal scute.

Figure 2. Standardized location for PIT tagging all green, Gulf, Atlantic, and shortnose sturgeon. (Photo by James Henne, USFWS)



PIT tags have the highest reported retention rate of all identification tags, though they are not visible to the researcher or fisherman upon capture. Clugston (1996) found PIT tags implanted in gulf sturgeon have approximately a 90% retention rate. Musick and Hager (2007) tagging 445 Atlantic sturgeon reported a 99% retention rate of PIT tags after 96 hours. Smith *et al.* (1990) noted 100% retention after 60 days in wild shortnose sturgeon. In the Penobscot River, retention rates for PIT tags in Atlantic sturgeon were 93% after as much as 8.8 years (Gayle Zydlewski, University of Maine, pers. comm.). Nelson *et al.* (2007) report approximately 100% retention of PIT tags in recaptured white sturgeon.

Other researchers have had different results. Researchers with EDI Environmental Dynamics (2006) reported recapturing three white sturgeon, with 66% retention of PIT tags. DeHaan *et al.* (2008) recorded 51 to 95% retention when PIT-tagging juvenile pallid sturgeon, which is similar to rates observed by Henne *et al.* (unpublished).

As with all research procedures, there is a risk of injury or mortality either directly or indirectly related to PIT tagging. When PIT tags are inserted into animals having large body sizes relative to tag size, empirical studies generally conclude they have no adverse effect on the growth, survival, reproductive success, or behavior of individual animals (Brännäs *et al.* 1994, Elbin and Burger 1994, Keck 1994, Jemison *et al.* 1995, Clugston 1996, Skalski *et al.* 1998, Hockersmith *et al.* 2003). However, smaller sturgeon may experience mortality within the first 24 hours, usually as a result of inserting the tags too deeply or from pathogenic infection. When analyzing mortality of small sturgeon caused by PIT tags, Henne *et al.* (2008) found 11 and 14 mm tags inserted into shortnose sturgeon longer than 300 mm was safe. In this study, they found that when fish are under 300 mm, factors other than length, such as weight or condition, most influence the likelihood of mortality. Therefore, NMFS recommends only sturgeon over 300 mm should receive PIT tags.

A negative aspect of using PIT tags in sturgeon research is the difficulty for NOAA observers or non-researchers to detect tags in recaptured sturgeon without the benefit of a PIT tag reader. Rien *et al.* (1994) and Nelson *et al.* (2004) recommend removal of the second left lateral scute indicating the presence of a PIT tag in white sturgeon. This methodology has been subsequently used for green sturgeon as well. While removal of

scutes rarely results in bleeding, and is not considered deleterious, there are other, safer means for externally marking sturgeon. NMFS believes a standardized PIT tag location is less stressful to animals and is easily located. If an external mark is necessary, NMFS recommends using other external tags identified in this document. Those external tags are not only obvious to other researchers, but also to the general public for identifying recaptured animals to alert researchers of their recapture. NMFS therefore recommends using external tags to identify the presence of a PIT tag, if necessary, but researchers should not remove scutes from sturgeon for any reason.

Genetic Tissue Sampling

Tissue sampling is a common practice in fisheries science characterizing the genetic “uniqueness” and quantifying the level of genetic diversity within a population. NMFS strongly recommends genetic tissue samples be taken from every sturgeon captured unless, due to marks or tags, the researcher knows a genetic sample has already been obtained. Tissue samples should be a small (1.0 cm²) fin-clip collected from soft pelvic fin tissues using a pair of sharp scissors. Tissue samples should be preserved in individually labeled vials containing 95% ethanol. There is no evidence that this procedure harms any species of sturgeon.

Recommendations

Strongly Recommended

- Researchers should measure all captured green, Gulf, Atlantic, and shortnose sturgeon. The sturgeon should also be weighed, if possible.
- Researchers should scan captured sturgeon for previously inserted PIT tags; and, if none are found, one should be properly inserted.
- Researchers should remove a small tissue sample by clipping the soft tissue of the pelvic fin.

Measuring

- Standardized length measurements for all sturgeon should be taken from the snout to the fork in the tail.
- NMFS recommends measuring the ratio of mouth width to interorbital width to differentiate shortnose and Atlantic sturgeon.

PIT Tags

- NMFS recommends PIT tag placement in all four sturgeon species to be located to the left of the spine, immediately anterior to the dorsal fin, and posterior to the dorsal scutes.
- NMFS recommends using 134.2 kHz PIT tags.
- If necessary, to ensure tag retention and prevent harm or mortality to small juvenile sturgeon of all species, the PIT tag can also be inserted at the widest dorsal position just to the left of the 4th dorsal scute.
- NMFS recommends only sturgeon over 300 mm should receive PIT tags.
- NMFS recommends using external tags to identify the presence of a PIT tag, if necessary, but researchers should not remove scutes from sturgeon for any reason.

Handling and Holding

Handling of sturgeon refers to the time period actual research activities are conducted on live fish and does not refer to the time a fish is held in live cars before and after research activities. Holding is the period of time a sturgeon is in possession but kept in live cars either waiting to be handled or recovered from handling prior to being released.

Proper Handling of Sturgeon

Improper handling can result in lethal or sub-lethal impacts to sturgeon. In some cases, sturgeon may display altered behavior after being released, for example, swimming towards the ocean rather than remaining in the river, or, in some instances, aborting spawning runs completely (Moser and Ross 1995, Schaffter 1997, Kelly *et al.* 2007, Benson *et al.* 2007, Moser and Lindley 2007). There are no other alternatives to handling sturgeon during research; however, the researcher's primary focus should be the well-being of the sturgeon.

NMFS strongly recommends standard handling procedures performed on all sturgeon captured including measuring, weighing, PIT tagging, and tissue sampling. The total time required to complete routine research procedures should not exceed 15 minutes. Additional procedures such as internal tagging, lavage, boroscopy, etc. will take more time for handling and recovery. However, only one additional discretionary procedure to the standard handling procedures should be performed on each sturgeon, thus minimizing handling time prior to release. For example, if a sturgeon is fitted with a telemetry tag, it should not also undergo gastric lavage. And when water temperatures are above 23°C for green sturgeon or 25°C for Gulf, shortnose, or Atlantic sturgeon, the extent of research should be limited to the standard handling procedures of measuring, weighing, PIT tagging, and tissue sampling.

Fish should be handled rapidly, but with care and kept in water to the maximum extent possible during handling. During handling procedures, each fish should be immersed in a continuous stream of ambient water passing over the sturgeon's gills. Many sturgeon researchers provide sturgeon with supplemental compressed oxygen, thereby reducing stress and ensuring DO does not fall below acceptable saturation levels.

Researchers should also attempt to support larger sturgeon in slings preventing struggle during transfer. Sturgeon should be weighed using hand held sling scales or a platform scale for larger sturgeon. Also, because sturgeon are sensitive to direct sunlight, they should be covered and kept moist.

Short-Term Holding

All captured sturgeon should be removed from the capture gear and immediately transferred to short-term holding. When multiple fish are captured, those not processed immediately should be held in a net pen or live car while waiting to be transferred by hand or sling to a processing station on board. Net pens measuring three feet wide, six feet long, and three feet deep can safely hold about 20 adult shortnose sturgeon or comparably sized juvenile Atlantic, Gulf or green sturgeon when temperatures are below

15°C (Doug Peterson, University of Georgia, pers. comm.). Larger net pens (8 feet long) are required for holding adult Atlantic, green, and Gulf sturgeon or they should be processed as quickly as possible (or scheduled first) instead of subjected to confined holding conditions. When water temperature is between 15° and 25°C, fewer fish should be held in the same enclosure because overcrowding animals amplifies short term stress, particularly at higher temperatures (Safi *et al.* 2006). If the fish are being held on-board a vessel in a holding tank, compressed oxygen should be added to increase DO in the water. If the researcher observes a visually stressed sturgeon, efforts should be made to revive the fish and release it in a healthy condition. In some cases, recovery can be achieved by allowing a sturgeon to rest in an appropriately sized net pen for several hours prior to release.

Sturgeon should never be held in gillnets if there isn't enough room to safely hold them in net pens. In some rivers with large populations of sturgeon, catches can exceed the number of fish that can possibly be held safely in live cars or net pens. In such cases, researchers should have multiple holding bins at their disposal. If more fish are captured than can be processed and released within two hours, those excess fish may need to be released to minimize stress or lethal injury.

When sturgeon are held on-board research vessels, they should be placed in flow through tanks where the total volume of water is replaced every 15 to 20 minutes. Traditionally, some species of sturgeon have been held for research purposes by tethering with ropes looped around tails to the sides of research vessels until they can be handled. In a study of lake sturgeon (Axelsen and Mauger 1993 cited in Dick *et al.* 2006), tethered fish experienced greater stress and higher mortality than sturgeon kept in uncrowded cages. Therefore, NMFS recommends only using on-board holding tanks or net pens large enough to hold a large sturgeon. NMFS does not recommend holding any sturgeon by tethering its caudal peduncle to the research vessel. However, while a rope should never be tied around the caudal peduncle, it may be necessary to use a rope placed under the sturgeon immediately posterior to the pectoral fins when moving large sturgeon from net pens onto the boat.

Following handling procedures, fish should be returned to the net pen for observation and to ensure full recovery prior to release. Total holding time in the net pens would be variable depending on water temperature and the condition of each fish, however, the maximum amount of time a fish should be held after removal from capture gear is approximately two hours, unless more time is needed to recover from the effects of an anesthetic or because prolonged holding would benefit a sturgeon. When water temperature is above 25°C for Gulf, shortnose, and Atlantic sturgeon, or 23°C for green sturgeon, they should be held for as little time as possible. Holding time includes the time to remove any other captured sturgeon, time to process other fish, and time necessary for recovery ensuring the safety of the fish.

Prior to release, sturgeon should be examined and, if necessary, recovered by holding fish upright and immersed in river water, gently moving the fish front to back, aiding freshwater passage over the gills to stimulate it. The fish should be released when

scutes rarely results in bleeding, and is not considered deleterious, there are other, safer means for externally marking sturgeon. NMFS believes a standardized PIT tag location is less stressful to animals and is easily located. If an external mark is necessary, NMFS recommends using other external tags identified in this document. Those external tags are not only obvious to other researchers, but also to the general public for identifying recaptured animals to alert researchers of their recapture. NMFS therefore recommends using external tags to identify the presence of a PIT tag, if necessary, but researchers should not remove scutes from sturgeon for any reason.

Genetic Tissue Sampling

Tissue sampling is a common practice in fisheries science characterizing the genetic “uniqueness” and quantifying the level of genetic diversity within a population. NMFS strongly recommends genetic tissue samples be taken from every sturgeon captured unless, due to marks or tags, the researcher knows a genetic sample has already been obtained. Tissue samples should be a small (1.0 cm²) fin-clip collected from soft pelvic fin tissues using a pair of sharp scissors. Tissue samples should be preserved in individually labeled vials containing 95% ethanol. There is no evidence that this procedure harms any species of sturgeon.

Recommendations

Strongly Recommended

- Researchers should measure all captured green, Gulf, Atlantic, and shortnose sturgeon. The sturgeon should also be weighed, if possible.
- Researchers should scan captured sturgeon for previously inserted PIT tags; and, if none are found, one should be properly inserted.
- Researchers should remove a small tissue sample by clipping the soft tissue of the pelvic fin.

Measuring

- Standardized length measurements for all sturgeon should be taken from the snout to the fork in the tail.
- NMFS recommends measuring the ratio of mouth width to interorbital width to differentiate shortnose and Atlantic sturgeon.

PIT Tags

- NMFS recommends PIT tag placement in all four sturgeon species to be located to the left of the spine, immediately anterior to the dorsal fin, and posterior to the dorsal scutes.
- NMFS recommends using 134.2 kHz PIT tags.
- If necessary, to ensure tag retention and prevent harm or mortality to small juvenile sturgeon of all species, the PIT tag can also be inserted at the widest dorsal position just to the left of the 4th dorsal scute.
- NMFS recommends only sturgeon over 300 mm should receive PIT tags.
- NMFS recommends using external tags to identify the presence of a PIT tag, if necessary, but researchers should not remove scutes from sturgeon for any reason.

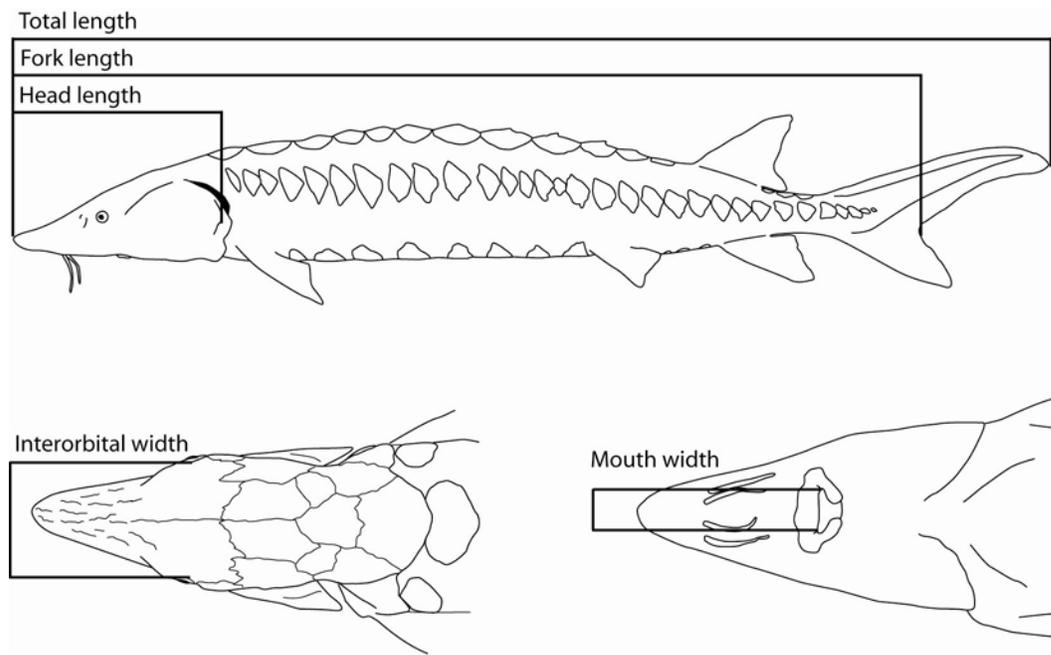
Standard Research Methods

Upon capturing a green, Gulf, shortnose, or Atlantic sturgeon, there are several research procedures strongly recommended on all sturgeon. First, the captured fish is to be measured. The sturgeon should also be weighed if possible. It can also be photographed, if possible. Then, their entire bodies should be scanned for previously inserted PIT tags; and, if none are found, one should be properly inserted. Finally, a small sample of the soft tissue of the pelvic fin should be removed for genetic identification.

Measuring

Standardized length measurements for all sturgeon should be taken from the snout to the fork in the tail (i.e., fork length – FL). The measuring device should be a solid ruler or board, so the measurement does not measure the curvature of the body. Additional length measurements should be taken at the researcher's discretion for total length (TL) or head length (Figure 1). While the heterocercal tail of larger fish may be damaged or shortened, the total length can still be obtained by pressing down the tail at the caudal peduncle and measuring to the tip of the tail. Girth measurements should also be taken at the widest part of the body. While not mandatory, measurements of the ratio of mouth width to interorbital width can also be obtained to differentiate between shortnose and Atlantic sturgeon (Dadswell *et al.* 1984). Interorbital width is measured as the distance between the lateral margins of the bony skull at the midpoint of the orbit and mouth width is measured as the distance between the left and right inside corners of the closed mouth (i.e., excluding the lips) (Figure 1).

Figure 1. Diagram of different types of measurements for sturgeons. Drawings by Eric Hilton, Virginia Institute of Marine Science.



Weighing

All captured sturgeon should be weighed if possible. Weights allow a better understanding of the conditioning of captured sturgeon during various seasons of the year or life span of the fish. For weighing sturgeon, animals should be supported with a sling or net and handling should be minimized throughout the procedure.

Boats used for researching green, Gulf, and Atlantic sturgeon should accommodate larger fish with scales available to safely weigh a 200 pound fish. When targeting shortnose sturgeon (or juvenile green, Gulf, or Atlantic sturgeon), hand-held sling scales are acceptable. When using a bench scale or platform scale to weigh large sturgeon, a five to six foot flat platform will be necessary to support the fish.

Photographing

When handling sturgeon, optional photography is often used to document the health of fish, research methods, and any identifying marks on the sturgeon potentially useful in the future. Although it is recommended to take as many pictures as needed, researchers should do so without interfering with other research activities.

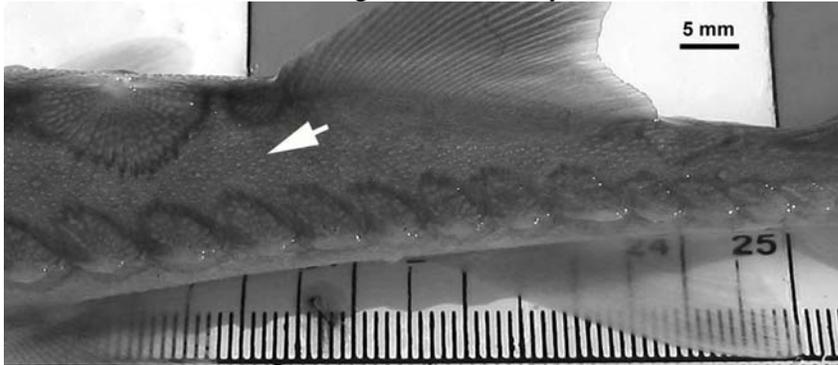
PIT Tags

Every sturgeon should be scanned for PIT tags along its entire body surface ensuring it has not been previously tagged. Untagged sturgeon should then be appropriately PIT tagged (Figure 2) and the identifying number recorded. Each PIT tag consists of integrated circuitry and an antenna encapsulated in glass. PIT tags are “passive” because they contain no batteries; their internal code is activated and transmitted to the receiver when exposed to the transceiver’s electromagnetic signal. The newest PIT tags, and those recommended by NMFS, use a frequency of 134.2 kHz.

Standardized PIT tag placement for Gulf, green, Atlantic, and shortnose sturgeon would enable subsequent researchers to locate prior PIT tags quickly and consistently. Sturgeon, are large fish growing a considerable amount from the time they’re first PIT-tagged until they reach their adult size. If muscles grow over the PIT tag as they mature, the tag can become increasingly more difficult to read.

For this reason, NMFS strongly recommends PIT tag placement in all four sturgeon species to be located to the left of the spine, immediately anterior to the dorsal fin, and posterior to the dorsal scutes (Figure 2). This positioning would optimize PIT tag readability over the animal’s lifetime as sturgeon experience the least new muscle growth in this location during their lifetimes (Berg 2004, Simpson and Fox 2006). After the tag is inserted, it should be scanned to ensure it is readable before the fish is released. If necessary, to ensure tag retention and prevent harm or mortality to small juvenile sturgeon of all species, the PIT tag can also be inserted at the widest dorsal position just to the left of the 4th dorsal scute.

Figure 2. Standardized location for PIT tagging all green, Gulf, Atlantic, and shortnose sturgeon. (Photo by James Henne, USFWS)



PIT tags have the highest reported retention rate of all identification tags, though they are not visible to the researcher or fisherman upon capture. Clugston (1996) found PIT tags implanted in gulf sturgeon have approximately a 90% retention rate. Musick and Hager (2007) tagging 445 Atlantic sturgeon reported a 99% retention rate of PIT tags after 96 hours. Smith *et al.* (1990) noted 100% retention after 60 days in wild shortnose sturgeon. In the Penobscot River, retention rates for PIT tags in Atlantic sturgeon were 93% after as much as 8.8 years (Gayle Zydlewski, University of Maine, pers. comm.). Nelson *et al.* (2007) report approximately 100% retention of PIT tags in recaptured white sturgeon.

Other researchers have had different results. Researchers with EDI Environmental Dynamics (2006) reported recapturing three white sturgeon, with 66% retention of PIT tags. DeHaan *et al.* (2008) recorded 51 to 95% retention when PIT-tagging juvenile pallid sturgeon, which is similar to rates observed by Henne *et al.* (unpublished).

As with all research procedures, there is a risk of injury or mortality either directly or indirectly related to PIT tagging. When PIT tags are inserted into animals having large body sizes relative to tag size, empirical studies generally conclude they have no adverse effect on the growth, survival, reproductive success, or behavior of individual animals (Brännäs *et al.* 1994, Elbin and Burger 1994, Keck 1994, Jemison *et al.* 1995, Clugston 1996, Skalski *et al.* 1998, Hockersmith *et al.* 2003). However, smaller sturgeon may experience mortality within the first 24 hours, usually as a result of inserting the tags too deeply or from pathogenic infection. When analyzing mortality of small sturgeon caused by PIT tags, Henne *et al.* (2008) found 11 and 14 mm tags inserted into shortnose sturgeon longer than 300 mm was safe. In this study, they found that when fish are under 300 mm, factors other than length, such as weight or condition, most influence the likelihood of mortality. Therefore, NMFS recommends only sturgeon over 300 mm should receive PIT tags.

A negative aspect of using PIT tags in sturgeon research is the difficulty for NOAA observers or non-researchers to detect tags in recaptured sturgeon without the benefit of a PIT tag reader. Rien *et al.* (1994) and Nelson *et al.* (2004) recommend removal of the second left lateral scute indicating the presence of a PIT tag in white sturgeon. This methodology has been subsequently used for green sturgeon as well. While removal of

scutes rarely results in bleeding, and is not considered deleterious, there are other, safer means for externally marking sturgeon. NMFS believes a standardized PIT tag location is less stressful to animals and is easily located. If an external mark is necessary, NMFS recommends using other external tags identified in this document. Those external tags are not only obvious to other researchers, but also to the general public for identifying recaptured animals to alert researchers of their recapture. NMFS therefore recommends using external tags to identify the presence of a PIT tag, if necessary, but researchers should not remove scutes from sturgeon for any reason.

Genetic Tissue Sampling

Tissue sampling is a common practice in fisheries science characterizing the genetic “uniqueness” and quantifying the level of genetic diversity within a population. NMFS strongly recommends genetic tissue samples be taken from every sturgeon captured unless, due to marks or tags, the researcher knows a genetic sample has already been obtained. Tissue samples should be a small (1.0 cm²) fin-clip collected from soft pelvic fin tissues using a pair of sharp scissors. Tissue samples should be preserved in individually labeled vials containing 95% ethanol. There is no evidence that this procedure harms any species of sturgeon.

Recommendations

Strongly Recommended

- Researchers should measure all captured green, Gulf, Atlantic, and shortnose sturgeon. The sturgeon should also be weighed, if possible.
- Researchers should scan captured sturgeon for previously inserted PIT tags; and, if none are found, one should be properly inserted.
- Researchers should remove a small tissue sample by clipping the soft tissue of the pelvic fin.

Measuring

- Standardized length measurements for all sturgeon should be taken from the snout to the fork in the tail.
- NMFS recommends measuring the ratio of mouth width to interorbital width to differentiate shortnose and Atlantic sturgeon.

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- NMFS recommends only sturgeon over 300 mm should receive PIT tags.
- NMFS recommends using external tags to identify the presence of a PIT tag, if necessary, but researchers should not remove scutes from sturgeon for any reason.

Genetic Tissue Sampling

- NMFS strongly recommends genetic tissue samples be taken from every sturgeon captured unless, due to marks or tags, the researcher knows a genetic sample has already been obtained.
- Tissue samples from Gulf, green, Atlantic, and shortnose sturgeon should be archived at the NOAA/NOS Tissue Archive in Charleston, South Carolina. Proper certification, identity, and chain of custody of samples should be maintained during transfer of tissue samples.

Incidental Take Response, Handling and Reporting Procedures for Marine Mammals

1. Live Entanglements/Hookings/Trawl Captures:

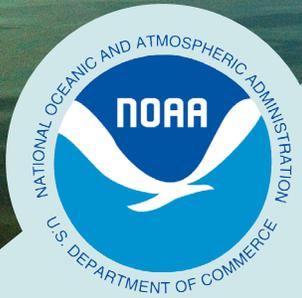
- a. Incidental captures and vessel strikes must be reported immediately to the NOAA Fisheries Marine Mammal Stranding Hotline (877-433-8299).**
- b. While considering human safety, work from the vessel as quickly and carefully as possible to free the animal from the gear. Never enter the water to attempt disentanglement. Ensure the animal's blowhole is kept at the surface as much as possible to allow it to continue to breathe while disentangling.
- c. Before releasing the animal, ensure all net or line (or as much as possible) is cut away from the animal.
- d. If possible, photograph the animal once it is free from gear, prior to its release. Record the information specified on the Protected Species Incidental Take Form and send form via email to nmfs.ser.ea_loa.takereport@noaa.gov within 24 hrs.
- e. Provide a detailed narrative to accompany the NOAA Fisheries Southeast Region Protected Species Reporting Form that includes a complete description of the incident including:
- f. Whether the animal was seen prior to entanglement and a description of its behavior and direction of travel relative to the vessel
- g. Discretionary decisions made by the Chief Scientist or Captain, including rationale for those decisions
- h. Description of how the animal was entangled in the gear, if gear is left on the animal, a description of how the gear was cut and where, approximately how much gear is left on the animal and where it is still entangled

2. In Case of Marine Mammal Mortality:

- a. All mortalities due to incidental captures or vessel strikes must be reported immediately to the NOAA Fisheries Marine Mammal Stranding Hotline (877-433-8299).** In the event of marine mammal mortality, haul the animal aboard the vessel, place in a shaded area, cover and ice carcass, if possible, and retain for pickup by a Stranding Network member. If the animal is unable to be hauled aboard due to human safety and other unforeseen logistics, call the NOAA Fisheries Marine Mammal Stranding Hotline at 1-877-433-8299 for guidance. Photos and measurements (from the tip of upper jaw to the notch in the tail) should also be taken before the carcass is discarded.
- b. Provide a detailed narrative to accompany the NOAA Fisheries Southeast Region Protected Species Reporting Form that includes a complete description of the incident including whether the animal(s) was seen prior to entanglement and a description of its behavior and direction of travel relative to the vessel. Please include any photos taken of the animal during and/or after the entanglement.

3. Reporting:

- a. For entanglements/captures/hookings, please fill out the NOAA Fisheries Southeast Region Protected Species Reporting Form within 24 hours of the incidental take and submit to nmfs.ser.ea_loa.takereport@noaa.gov. Please enter Fisheries Independent Monitoring Protected Species Take (BiOp SER-2009-7541) in the subject line and include the project name and species in the text of the email.
- b. For marine mammal vessel strikes, please complete both the SER Vessel Strike form and NOAA Fisheries Southeast Region Protected Species Reporting Form.



NOAA FISHERIES

Pre-cruise Actions

1. Whether onboard a NOAA, chartered, or partner vessel, prior to the cruise, communicate, and coordinate with vessel crew about established protected species incidental take reporting and handling procedures.
2. Ensure regional pertinent protected resources staff are in the PSIT email alert notification list.
3. The NMFS cruise Chief Scientist or Designee shall contact the appropriate Regional Stranding Network and query about additional numbers or specific contacts to reach in case of an incidental take of a marine mammal.

Contact

For any PSIT* or NMFS protected species incidental research take protocol queries, contact:

Dr. Mridula Srinivasan, NMFS
Office of Science and Technology
301.427.8179
mridula.srinivasan@noaa.gov

Procedures & Actions for Incidental Takes of Marine Mammals in Research & Monitoring Activities

(applies to surveys on NOAA and charter vessels and partner surveys)

Context

While research conducted by NOAA or through NOAA sponsorship is undertaken to support NOAA's various missions, these activities must still comply with applicable statutes and regulations, including those relating to takes of marine mammals under the Marine Mammal Protection Act. When NOAA activities cause a take of a marine mammal, the cruise senior scientist or designee, should take the following actions.

Key Actions

1. Notify the geographically appropriate Regional Stranding Network Coordinator (contact information in this document) immediately following the incidental take of a marine mammal.
2. Regional Stranding Network Coordinator will immediately contact the Office of Law Enforcement (OLE).
3. For live injured/uninjured marine mammals, priority should be to release the animal before notifying Regional Stranding Networks.
4. For dead animals, maximum efforts should be made to retain carcass and coordinate transfer to the Regional Stranding Network.
5. If Coordinators are unreachable, collect pertinent Protected Species Incidental Take (PSIT) information and release animal or retain carcass if logistically feasible.
6. In all cases, within 48 hours of any take, designated NMFS staff shall submit take-related information to the **PSIT Main – NOAA** (website: www.st.nmfs.noaa.gov/finss/psit/psitMain.jsp). Attach narrative, photos, and completed data forms.

*PSIT – Protected Species Incidental Take Database

What to Do with a Live, Injured or Uninjured Marine Mammal?

If a live, injured or uninjured marine mammal is incidentally captured, the animal should be released immediately. In the event of a large entangled whale, immediately call your regional entanglement response network.

1. Considering human safety, work from the vessel as quickly and carefully as possible to free the animal from the gear. Ensure the animal can continue to breathe while freeing from the gear.
2. If it can be done immediately without further harming the animal, photograph the animal (dorsal and ventral sides including dorsal fin, flanks, head/jaw) prior to and after removal of gear and collect required PSIT information. Research/biological sampling of marine mammals is not permitted without an appropriate Take Authorization.
3. If animal is NOT brought aboard the vessel and taking photos is not an option, provide a comprehensive summary of the incident following requirements described under 'PSIT narrative' in this document.
4. Notify Regional Stranding Network Coordinator immediately after the incident.
5. **Submit take information to PSIT within 48 hours and attach any forms, photos, and narrative to the take record within a week of the event.**

What to Do with a Dead Marine Mammal?

1. Notify Regional Stranding Network Coordinator about the take of a dead marine mammal.
2. Based on any prior discussions with the Regional Stranding Network and importantly, after considering logistics and human safety, make all efforts to haul animal aboard the vessel and retained for pickup by the local Regional Stranding Network. Develop a plan with Regional Stranding Network Coordinator for carcass pickup and subsequent necropsy.

If the animal cannot be hauled aboard or picked up by the Regional Stranding Network Coordinator, as a last resort, release animal after necessary information is collected as described below.

3. Photos of the carcass should be taken: dorsal fin, ventral side, and flank for marine mammals, as well as signs of entanglement, scars, and injuries. This also includes collecting required PSIT data and morphometric measurements.
4. Submit take information to PSIT within 48 hours and attach any forms, photos, and narrative to the take record within one week of the event.
5. Research/biological sampling of marine mammals is not permitted without an appropriate Take Authorization.

What to Do with **All** Marine Mammals?

In addition to the required PSIT information (date, gear, location, etc.) please complete a narrative which includes the following information. A completed narrative is essential for serious injury determinations.

1. Animal Condition (include photos)

Code 1 Live Animal	Code 2 Fresh Dead	Code 3 Moderate Decomposition	Code 4 Advanced Decomposition
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2. Mention if animal escaped or was released.
3. Indicate if the animal or other marine mammals were seen in the vicinity of the vessel during fisheries operations.
4. Animal condition post-release: Describe any observed injuries, the condition and behavioral state of released or injured animal (e.g., no obvious injuries and animal swam away vigorously, did not swim away vigorously, animal surfaced to breathe, animal sank to bottom, or blood in water observed).
5. If gear was still attached to animal after release, describe how the gear was cut and approximately how much gear is left and where it is still entangled/injured.
6. Provide comprehensive photographic evidence (if possible) and written description of live/dead or injured animal. Provide pictures of how the animal was entangled in the gear, and any gear-related interactions such as wounds or constrictions.
7. Decision-making: Include rationale for any discretionary decisions taken by Chief Scientist/crew.
8. Describe possible causes for incidental capture of the animal and any additional mitigation measures that were taken, or might be taken to prevent similar captures in the future.

Regional Stranding Response Coordinator 24/7 Hotline Numbers

(for marine mammals) are provided below. The relevant number should be included in your cruise plan and posted on the ship for easy access.

For all non-marine mammal takes, designated personnel shall report takes to PSIT within 48 hours of take.

Northeast Region	1.866.755.6622
Southeast Region	1.877.433.8299
Western Region	1.866.767.6114
Pacific Islands Region	1.888.256.9840
Alaska Region	1.877.925.7773 NMFS Stranding Coordinators Aleria Jensen 907.586.7248 and Barbara Mahoney 907.271.3448 (cell – after hours 907.360.3481) General NMFS Protected Resources Office Line 907.586.7235 Kate Wynne (NMFS Kodiak) 907.486.1517

Entanglement Response Network Numbers

Southeast Region	1.877.433.8299 or 1.877.942.5343
Northeast Region	1.866.755.6622 For large whale entanglements can also contact USCG via Channel 16.
Western Region	1.877.767.9425 (877-SOS-WHALE)
Pacific Islands Region	1.888.256.9840
Alaska Region	1.877.925.7773

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

Right Whale or Other Large Whale Vessel Strike Report Form

<p>Incident Date (mm/dd/yyyy): ____/____/____</p> <p>Incident Time (local): _____</p> <p>Location</p> <p>Latitude ____° ____.' N</p> <p>Longitude ____° ____.' W</p> <p>How lat/long determined: _____</p> <p>Area Description: _____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Weather/ Environmental Conditions</p> <p>Lighting:</p> <p><input type="checkbox"/> Day <input type="checkbox"/> Night <input type="checkbox"/> Twilight</p> <p>Weather/ Precipitation:</p> <p><input type="checkbox"/> Clear <input type="checkbox"/> Rain <input type="checkbox"/> Fog <input type="checkbox"/> Snow</p> <p><input type="checkbox"/> Other: _____</p> <p>Visibility</p> <p><input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor</p> <p>Est. Visibility Distance: _____</p> <p>Air Temp.: _____ <input type="checkbox"/> °C <input type="checkbox"/> °F</p> <p>Wind Speed (knots): _____ Direction (deg): _____°</p> <p>Wave Height: _____ Swell: _____ <input type="checkbox"/> m <input type="checkbox"/> ft</p> <p>Water Depth: _____ <input type="checkbox"/> m <input type="checkbox"/> ft</p>
<p>Vessel Information</p> <p>Vessel Make: _____</p> <p>Vessel Model: _____</p> <p>Vessel Length: _____</p> <p>Engine Make/Model: _____</p> <p>Engine HP: _____</p> <p>Propeller</p> <p>Diameter: _____ Pitch: _____</p> <p>No. Blades: _____</p> <p>Distance between prop shafts</p> <p>(center to center): _____</p>	<p>Navigation Information at Time of Incident</p> <p>Vessel Activity:</p> <p><input type="checkbox"/> Moored, anchored, or fixed <input type="checkbox"/> On plane</p> <p><input type="checkbox"/> Underway, but off plane <input type="checkbox"/> Drifting</p> <p>Autopilot: <input type="checkbox"/> On <input type="checkbox"/> Off</p> <p>Vessel Speed (knots): _____</p> <p>How Determined _____</p> <p>Engine RPMs: _____</p> <p>Vessel Course (degs.) _____°</p> <p>Position/ Location of Watchstanders:</p> <p><input type="checkbox"/> Bridge <input type="checkbox"/> Bow <input type="checkbox"/> Other: _____</p> <p>No. of Watchstanders: _____</p>
<p>Incident Information</p> <p>Part of Vessel that struck whale(s):</p> <p><input type="checkbox"/> Bow <input type="checkbox"/> Propeller <input type="checkbox"/> Unknown <input type="checkbox"/> Other: _____</p> <p>Observations of whale(s):</p> <p><input type="checkbox"/> Swam away <input type="checkbox"/> Floating/ moving slowly at surface <input type="checkbox"/> Never saw the whale <input type="checkbox"/> Blood in water</p> <p><input type="checkbox"/> Other/ Additional observations: _____</p> <p>_____</p>	

Incident Information (continued)

Description of what was seen, heard, etc.:

Description of impact relative to sandbar, container, etc.:

Description of damage to vessel:

Comments on how collision may have been avoided:

Additional Remarks:



NOAA FISHERIES SERVICE

Compliance Guide for Right Whale Ship Strike Reduction Rule (50 CFR 224.105)

ATTENTION: All vessels greater than or equal to 65 ft (19.8 m) in overall length and subject to the jurisdiction of the United States and all vessels greater than or equal to 65 ft in overall length entering or departing a port or place subject to the jurisdiction of the United States.

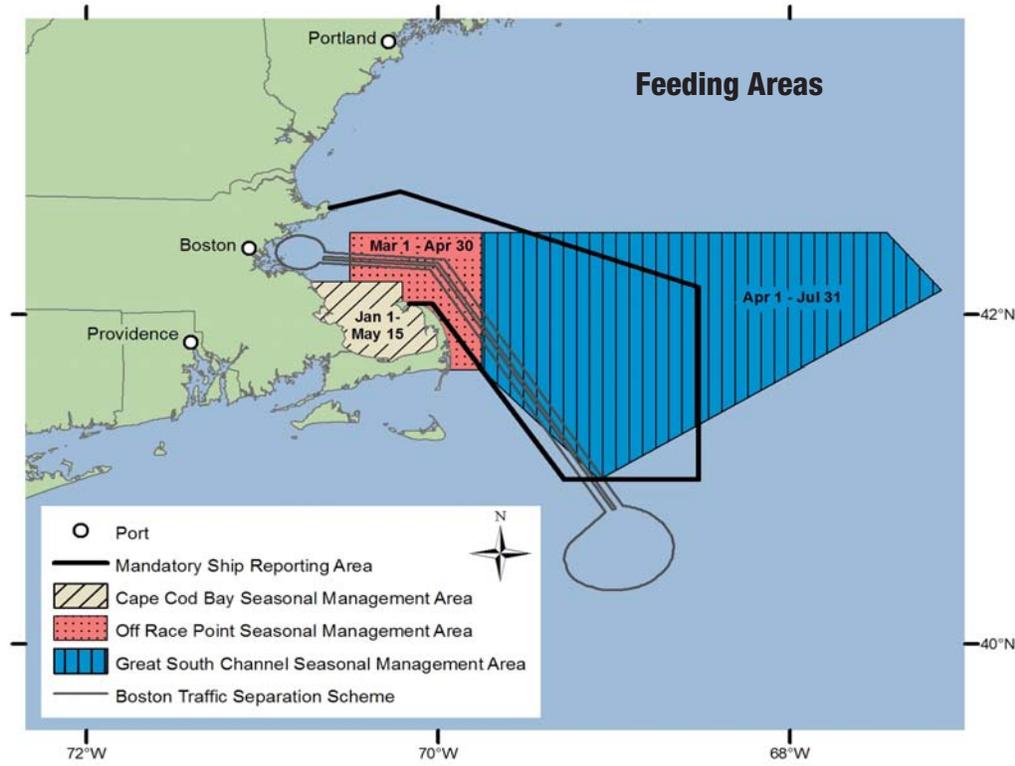
YOU MUST SLOW TO SPEEDS OF 10 KNOTS OR LESS IN SEASONAL MANAGEMENT AREAS

Mandatory speed restrictions of 10 knots or less are required in Seasonal Management Areas along the U.S. East Coast during times when right whales are likely to be present. The purpose of this regulation is to reduce the likelihood of deaths and serious injuries to these endangered whales that result from collisions with ships.



NOAA

Northeast U.S. Seasonal Management Areas



Feeding Areas

Cape Cod Bay	Off Race Point	Great South Channel
January 1 - May 15	March 1 - April 30	April 1 - July 31
Includes all waters of Cape Cod Bay with Northern Boundary of 42°04'56.5"N, 070°12'W to 42°12'N, 070°12'W then due west back to shore.	Waters Bounded by: 42°04'56.5"N 070°12'W 42°12'N, 070°12'W 42°12'N, 070°30'W 42°30'N, 070°30'W 42°30'N, 069°45'W 41°40'N, 069°45'W then due west back to shore.	Waters Bounded by: 42°30'N, 069°45'W 42°30'N, 067°27'W 42°09'N, 067°08'24"W 41°00'N, 069°05'W 41°40'N, 069°45'W then back to starting pt.

The rule does not apply to waters inshore of COLREGS lines.

Vessels may operate at a speed greater than 10 knots only if necessary to maintain a safe maneuvering speed in an area where conditions severely restrict vessel maneuverability as determined by the pilot or master.

If a deviation from the 10 knot speed restriction is necessary, the following information must be entered into the logbook:

- Reasons for deviation
- Speed at which vessel is operated
- Latitude and longitude at time of deviation
- Time and duration of deviation
- Master of the vessel shall sign and date the logbook entry

Mid-Atlantic U.S. Seasonal Management Areas

Migratory Route

November 1 through April 30

Vessel speed is restricted in the following areas:

•Block Island Sound waters bounded by:

40°51'53.7" N 070°36'44.9" W
 41°20'14.1" N 070°49'44.1" W
 41°04'16.7" N 071°51'21.0" W
 40°35'56.5" N 071°38'25.1" W
 then back to starting point.

•Within a 20-nm (37 km) radius of the following (as measured seaward from the COLREGS lines):

-Ports of New York/New Jersey:

40°29'42.2"N 073°55'57.6"W

-Entrance to the Delaware Bay

(Ports of Philadelphia and Wilmington):

38°52'27.4"N 075°01'32.1"W

-Entrance to the Chesapeake Bay

(Ports of Hampton Roads and Baltimore):

37°00'36.9"N 075°57'50.5"W

-Ports of Morehead City and Beaufort, NC:

34°41'32.0"N 076°40'08.3"W

•Within a continuous area 20 nm from shore between Wilmington, NC, to Brunswick, GA, bounded by the following:

Point	Latitude	Longitude
A	34°10'30"N	077°49'12"W
B	33°56'42"N	077°31'30"W
C	33°36'30"N	077°47'06"W
D	33°28'24"N	078°32'30"W
E	32°59'06"N	078°50'18"W
F	31°50'00"N	080°33'12"W
G	31°27'00"N	080°51'36"W

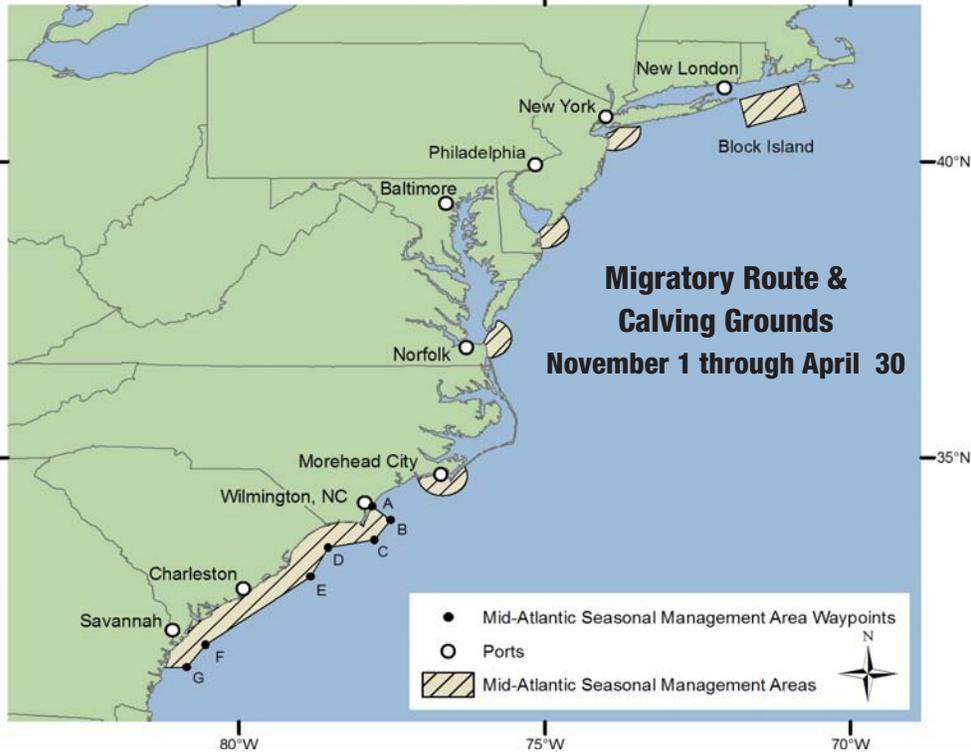
Calving and Nursery Grounds

November 15 through April 15

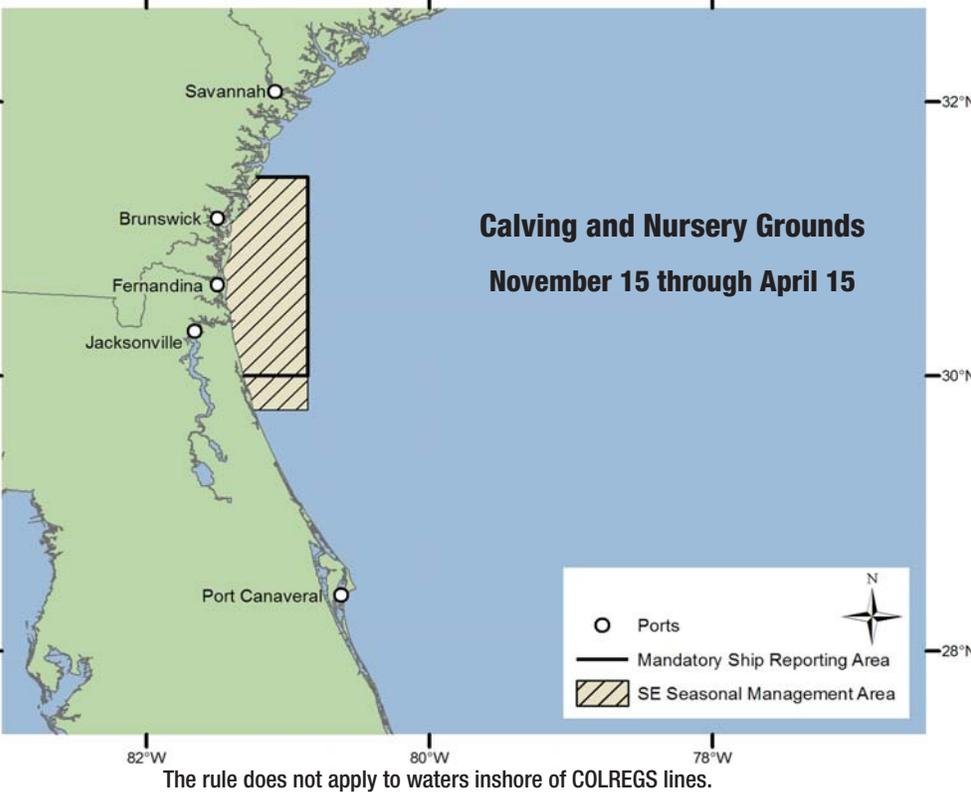
Vessel speed is restricted in the area bounded to the north by latitude 31°27'N; to the south by latitude 29°45'N; to the east by longitude 080°51'36"W.

For more information, visit:
<http://www.nmfs.noaa.gov/pr/shipstrike>
<http://nero.noaa.gov/shipstrike>
<http://rightwhaleessouth.nmfs.noaa.gov>

Right Whale Ship Strike Reduction Rule expires on December 9, 2013



Southeast U.S. Seasonal Management Area



The rule does not apply to waters inshore of COLREGS lines.

Voluntary Dynamic Management Areas (DMAs) may also be established by NOAA Fisheries Service. Mariners are encouraged to avoid these areas or reduce speeds to 10 knots or less while transiting through these areas. NOAA Fisheries Service will announce DMAs to mariners through its customary maritime communication media.

This serves as NOAA's small entity compliance guide.

OMB Control #0648-0580

Most Common Marine Mammals of the Gulf of Mexico, Atlantic and Caribbean in waters < 200 m deep

Bottlenose dolphin (*Tursiops truncatus*)



SIZE: Adult size varies considerably: 1.9–3.6 m (6–12 ft), 140–650 kg. At birth approx 1 m (3 ft), 25 kg.

BODY: Robust body and head. **Short, thick, well-defined beak.** Two “ecotypes” are recognized: “**coastal form**” is shorter and slimmer than **larger “offshore form.”** Flippers pointed, flukes deeply notched.

COLOR: Highly variable: blue-gray to brown with lighter sides and belly. **No distinctive color pattern.** Some have spots, pale shoulder blaze, or cape.

DORSAL FIN: Tall, falcate, with broad base; located mid-back.

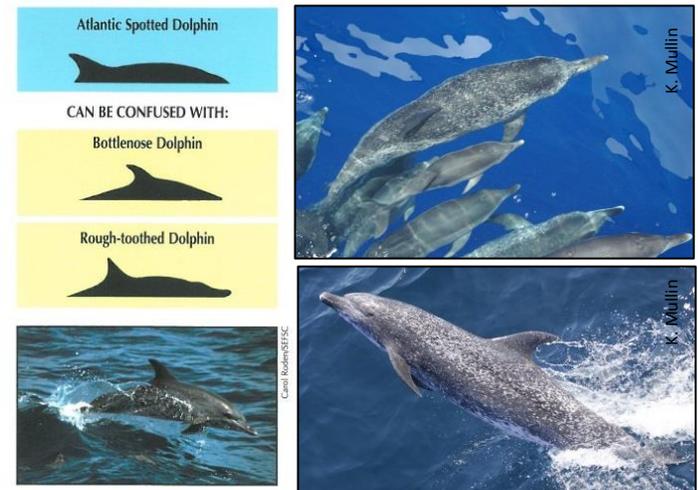
BEHAVIOR: Coastal form: small groups <10; offshore form: groups of 10s to 100s. Acrobatic: breach, spyhop, lobtail. Often seen with pilot whales and right whales (in FL, GA).

DIVE PATTERN: Max dives of 3–4 min. **Beak rarely visible when surfacing.**

HABITAT: Coastal form: shallow, warm, in-shore waters of bays and rivers. Offshore form: deep, offshore waters of shelf edge and slope.

Source: Guide to Marine Mammals & Turtles of the U.S. Atlantic & Gulf of Mexico by K. Wynne & M. Schwartz
Layout: M. Cook, National Marine Fisheries Service

Atlantic spotted dolphin (*Stenella frontalis*)



SIZE: Adults 2.1–2.3 m (7–7.5 ft), 140 kg. At birth approx 1 m (3 ft).

BODY: Fairly robust body with moderate keel. **Long, thick, white-tipped beak.** Flippers curved and pointed. Coastal animals larger and more spotted than offshore animals.

COLOR: Tricolored background: dark purplish gray back and cape, light gray sides, white belly. **Pale blaze** often sweeps up from side toward dorsal fin. **Variable spotting:** born unspotted, develop spots with age that may obliterate background color. **White-tipped beak. Tail stock single color,** pales with age.

DORSAL FIN: Tall, dark, falcate; located mid-back.

BEHAVIOR: Gregarious; coastal groups of <20, offshore groups usually <100. Associate with other dolphins and small whales.

DIVE PATTERN: Tip of beak breaks surface first. Fast, acrobatic; avid bowrider.

HABITAT: Coastal to pelagic. Tropical to warm-temperate waters over continental shelf, edge, and upper reaches of slope. Associated with Gulf Stream n. wall and warm core rings.



SOUTHEAST REGION PROTECTED SPECIES INCIDENTAL TAKE REPORTING FORM INSTRUCTIONS

October 2014

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State/Academic surveys: Andrew Herndon Andrew.Herndon@noaa.gov (727) 824-5312

For questions regarding the National Environmental Policy Act Environmental Assessment (NEPA EA):
Melissa Cook Melissa.Cook@noaa.gov (228) 549-1628

For questions regarding the Marine Mammal Protection Act Letter of Authorization (LOA) for
incidental takes: Keith Mullin Keith.Mullin@noaa.gov (228) 549-1632

Southeast Region Protected Species Incidental Take Reporting Form Instructions

INTRODUCTION

The Southeast Region Protected Species Incidental Take (PSIT) Reporting Form, version 1.3 10/2014 (Appendix A) is used to record vessel/trip information, gear characteristics and interaction information, and biological data of protected species (e.g. sea turtles, sawfish, marine mammals, etc.) incidentally captured during fishery independent sampling. Other data collected, such as biological information, tagging data and biopsy samples are critical to the development of conservation and recovery strategies for protected species. Only trained and authorized personnel may collect the biological information indicated on this form.

When conducting research, authorized personnel must carry all relevant permits and authorization letters and follow all terms and conditions, including reporting requirements, as outlined in the permit(s).

GENERAL INSTRUCTIONS

Complete one Southeast Region Protected Species Incidental Take Reporting Form for each protected species (i.e., marine mammals, sea turtles, sturgeon and sawfish) captured. If possible, photograph the gear interaction prior to removal. Try to photograph all specimens, including those hooked or entangled that are not brought aboard due to their large size and/or for safety reasons. Photographs are used to confirm species identification and document the gear interaction. Record tag data, if tags are present, and take biological samples if requested and authorized. Note the amount of writing required when completing the form has been minimized by offering drop-downs and options to check a box, although some questions require a written response. **If an answer is not available in the drop-down list you may type in your response. For many fields, hovering over the blank box will further describe the requested information required.**

Report all marine mammal incidental takes immediately. Marine mammal entanglements (live or dead) and vessel strikes must be reported immediately to the NOAA Fisheries Marine Mammal Stranding Hotline at 1-877-433-8299. All applicable reporting forms should be sent within 24 hours.

Please submit completed PSIT Form and photographs within 24 hours to nmfs.ser.ea_loa.takereport@noaa.gov. Please enter Fisheries Independent Monitoring Protected Species Take (BiOp SER-2009-7541) in the subject line and include the project name and species in the text of the email.

Please fill out the following required fields for each incidentally captured protected species. All required fields are outlined in red on the instructions and PSIT form. If red outline is not visible, select Highlight Fields, located in the purple instructions section of the form.

REPORTER INFORMATION

Reporting Agency: Select name from the list or enter your agency's abbreviations.

Project/Survey Name: Select the name of your project from the list.

VESSEL/TRIP INFORMATION

Vessel Name/ID: Record vessel name or identification number.

Cruise/Trip #: Record the survey cruise/trip #.

Station/Site #: Record the station/site #. Please do not leave blank.

Collection #: If you assign a unique number for a specimen please record it here.

Specimen #: Record a three digit consecutive number for each protected species captured on that cruise. Enter 001 for the first capture and number sequentially for each additional animal caught (regardless of species). Protected species specimen numbers are kept separate from all other specimen numbers for other species groups. Example: if two turtles were captured, regardless of species, in one net then it should be 001 and 002, if a sturgeon was captured on the next station it would be number 003 and so on.

Vessel Size: Select the size (in feet) of the vessel from the list.

Unique Identifier (assigned by NMFS): Please leave blank, automatically populated. Identifier is composed of the Agency abbreviations, capture date (year, month, day), station number and specimen number. Each field is separated by a hyphen. Ex. NMFS-20141023-100-01.

The following section describes the gear used in the sampling activity involved in the protected species interaction. Please complete all applicable fields.

GEAR CHARACTERISTICS

TRAWL GEAR

Trawl Type: Select type of trawl from the list or enter trawl type if not listed.

Headrope Length (ft): Record the headrope length in feet. Length is measured between the points at which the ends of the headrope are attached to the trawl net, measured along the forward-most webbing.

Footrope Length (ft): Record the footrope length in feet. Length is the distance between the points at which the ends of the footrope are attached to the trawl net, measured along the forward-most webbing.

of Nets: Select the total number of nets pulled at that specific station.

TED Present: Indicate whether or not a turtle excluder device (TED) was installed in the net the capture occurred by selecting Yes or No from the list.

Trawl Body: Select from the list the type of material from which the trawl body is constructed and record the *stretched* mesh size in inches.

Cod End: Select from the list the material type from which the cod end of the trawl is constructed and record the *stretched* mesh size in inches.

Ground Gear: Indicate the length of the ground gear (i.e. tickler chain, cookies, wheels, etc.) in feet and record its size in inches.

Doors: Select from the list the type of material type from which the trawl doors are constructed. Also include the length and height of the door in feet.

Lazy Line: Select from the list the type of material type from which the lazy line is made.

Net Sampling Location: Refers to the general sampling location of where the net is fishing in the water column. Please select the appropriate classification from the list.

Net Sampling Depth: Enter the actual depth in the water column where the net was fishing. For trawls fishing on the bottom entering the bottom depth is appropriate. For midwater trawling, enter the depth where the net was fishing.

OTHER NET TYPES: SEINE/GILLNET/TRAMMEL/FYKE NETS

Other Net Types: Select the type of non-trawl net used from the list or enter trawl type if not listed.

Seine/Gillnet/Trammel Net – Floatline Length: Record the floatline length in feet and the diameter in inches.

Seine/Gillnet/Trammel Net – Leadline Length: Record the leadline length in feet and the diameter in inches.

Fyke Net – Leader Length: Record the leader length in feet.

All Net Types Mesh – Material Type: Select from the list the type of material from which the net is constructed.

All Net Types Mesh – Twine Size: Record the twine size of the net in inches.

Gillnet – Net Sampling Location: Refers to the general sampling location of where the net is fishing in the water column. Please select the appropriate classification from the list.

Gillnet – Mode of Fishing: Refers to the more general type of gillnet fishing (i.e., anchored, drift, or encircling). Please select the appropriate method from the list.

Gillnet – # of Panels: Record the total number of mesh panels making up a net, even if they are of different mesh sizes. Please select the appropriate number from the list.

Gillnet – Length (ft): Record the length of the panel in feet.

Gillnet – Height (ft): Record the height of the panel in feet.

Gillnet – Spacing (ft): Record the distance between each panel in feet. If there is no distance between the panels, record the distance as 0.

Gillnet – Mesh Size (in): Record the *stretched* mesh size for each panel in inches. Even if the mesh sizes are the same, record it for each panel.

LONGLINE/HOOK-AND-LINE GEAR

Hook and Line Type: Select from the list the type of hook-and-line gear used.

Mainline Length (m): Record the length of the mainline in meters.

Mainline Test (lb): Record the test of the mainline in pounds.

Mainline Line Type: Select from the list the material type of the mainline.

Gangion Length (m): Record the length of the gangions in meters.

Gangion Test (lb): Record the test of the gangions in pounds.

Gangion Line Type: Select from the list the material type of the gangions.

Vertical Line/Bandit Reel ONLY – Backbone Length (m): Record the length of the gangions in meters.

Vertical Line/Bandit Reel ONLY – Backbone Test (lb): Record the test of the gangions in pounds.

Vertical Line/Bandit Reel ONLY – Backbone Line Type: Select from the list the material type of the gangions.

Bait Type: Select from the list the type of bait used. If multiple bait types or a type of bait not listed is used, please describe the bait(s) used in the space provided.

Hook Size: Check the box for the appropriate size(s) of hook, (e.g., 9/0, 18/0). If using multiple hook sizes, check all that apply.

Hook Type: Select “J” or Circle from the list.

Gangions: If using longline, bandit or vertical line gear, record the total number of gangions used.

Rod and Reel ONLY – Hooks/Line: Record the number of hooks per line.

Manufacturer: Select from the list the manufacturer of the hooks used (e.g. Mustad) or enter if not on the list.

Style No.: Record the style number of the hooks used (e.g., Mustad #39968D).

Offset: Record the degree of hook offset (e.g., 0°, 5°, 10°).

ALL OTHER GEAR: Please record any other fishing gear used that was not included in previous sections.

The following sections describe the capture, identification, interaction, biological information and release of the species involved in the interaction. Please complete all applicable fields. All required fields are outlined in red on the instructions and form.

CAPTURE INFORMATION

Start of Set Date: Record the date of the start of the set.

Start of Set Time: Record the starting time of the set. This may vary depending on type of gear used. Ex. Trawl, gillnet/trammel net and hook & line - when the gear reaches its fishing depth, longline - when the last highflyer enters the water. Record the time using 24-hour (HHMMSS) notation of the start of the set. Enter time as six digits and do NOT use punctuation (ex. 091530).

Start of Set Zone: Select from the list the time zone (GMT or local) used for recording the time for the Start of the Set.

End of Set Date: Record the date of the end of the set.

End of Set Time: Record the ending time of the set. This may vary depending on type of gear used but it is typically when gear haul back begins. Ex. Trawl, gillnet/trammel net and hook & line - when haul back begins, longline - when the first high flyer is retrieved. Record the time using 24-hour (HHMMSS) notation of the end of the set. Enter time as six digits and do NOT use punctuation (ex. 091530).

End of Set Zone: Select from the list the time zone (GMT or local) used for recording the time for the End of the Set.

Standard Soak Time (min): The target amount of time in minutes that the gear is typically soaked in the water based the survey's sampling protocol.

Soak Time (calculated by NMFS): The amount of time the gear actually soaked in the water. Calculated from start and end of set fields.

Water Depth (m): Record the maximum water depth in meters at the location where the animal was captured.

Surface Water Temperature (°C): Record the surface water temperature in Celsius at the location where the animal was captured.

Capture Latitude (DD.DDDD): Record, using decimal degrees, the latitude at the time of the actual recovery of the animal.

Capture Longitude (DD.DDDD): Record, using decimal degrees, the longitude at the time of the actual recovery of the animal. Remember longitude is negative in the western hemisphere.

Capture Date: Record the date the animal was captured.

Capture Time (24 hr): Record the time the animal was captured using 24-hour (HHMMSS) notation. Enter time as six digits and do NOT use punctuation (ex. 091530).

Capture Zone: Select from the list the time zone (GMT or local) used for recording the capture time.

Marine Jurisdiction: Select the jurisdiction in which the vessel was fishing when the capture occurred. If the incidental capture occurred in state waters please select which state waters or choose Federal if the capture occurred in federal waters.

Animal Boarded? If the captured animal was brought on the vessel select Yes. If the animal was kept in the water and not brought on the vessel select No.

Condition of animal at time of capture: Select the appropriate description that best corresponds to the captured animals' condition when it was recovered. On the diagram(s) on page 4, record specific notes about any previous/healed injuries and injuries due to the interaction.

- **Alive, Injured:** The animal is alive and injured. Any fresh lesion or abrasions from the interaction constitutes an injury.
- **Alive, Uninjured:** The animal is alive and visually does not appear to be injured from the related interaction, and there are no fresh lesions or abrasions.
- **Comatose/Unresponsive:** Select this category if the animal is comatose/unresponsive and/or if there is any indication of life but no obvious movements or breaths.
- **Fresh Dead:** The animal appears to have died as a direct result of incidental capture in the current research or looks like it has died within the last 24 hours. The carcass may show signs that it had been alive during the interaction (e.g., multiple wrap entanglement in line or netting, or internal hooking). The carcass may or may not have rigor mortis.
- **Previously Dead:** "Dead before interaction". The animal obviously died prior to and not as a result of the observed fishing interaction. A previously dead animal will usually have rotting tissue around the eyes and vents, and it may be bloated and foul smelling. It also may have sloughing skin/scutes/scales. However, it may not smell, but may have rigor mortis.
- **Unknown:** The scientist cannot determine if the animal is injured or cause of death cannot be determined. This may happen when an animal is not boarded, and no one got a good view of the animal. If the animal is dead and it cannot be determined if fresh or previously dead select Unknown and note comments and uncertainties in the Additional Comments section on page 3.

If comatose/unresponsive, attempted resuscitation? Choose Yes or No to indicate whether resuscitation was attempted. Record in the Additional Comments section on page 3, the time it took for the animal to respond and how long the animal was kept on deck before release. For sea turtles, Resuscitation Guidelines are described in the Federal Register (66 FR 67495, December 31, 2001) and in Chapter 3 of the Sea Turtle Research Techniques Manual.

IDENTIFICATION

Species: Select from the list the appropriate species of captured animal. If you are unable to identify the species with certainty, try to take photographs and record the species to the lowest possible taxa.

Confidence in species ID: Select from the list Good, Fair or Poor to indicate confidence in species identification.

Photographs taken? Select from the list Yes or No as to whether photos of the captured animal were taken. Please attempt to photograph every animal if it does not jeopardize the health and safety of the animal. Take as many photos as necessary to: (1) confirm species identification and (2) document the gear interaction.

Number of Photos: Record the number of photos taken. *If applicable, do not leave blank.*

Video taken? Select from the list Yes or No as to whether video of the captured animal was taken.

Contact Info for Photos/video (person, email): Provide the name and email address of the person possessing the original photographs and/or video.

GEAR INTERACTION

ALL NET GEAR:

Capture Location in Gear: Indicate the section of gear where the animal was captured or entangled. Select all answers that apply, as animals may interact with multiple parts of the gear. If entangled in the body of the gear, record the stretched mesh size of the webbing in inches. If the gear location is not listed on the form, check the “other” box and describe the location of the gear where the animal was captured.

Entanglement Location on Animal: Indicate the location on the animal’s body where the gear was entangled. Select all answers that apply as gear may interact with/entangle on multiple parts of the animal. If not entangled in net, leave blank. *Please also indicate exact location of gear interaction on the appropriate diagram on page 4.*

Gear left on Animal? For each location selected above where the animal was entangled, select Yes or No if any gear was left on the animal at the time of release (for live animals only). For example, if tail/fluke is checked as the location on the body where the animal was entangled, indicate whether gear was left on the tail/fluke when the animal was released by selecting Yes or No.

How much? Estimate the length of gear remaining on each entanglement location at the time of release. Select the units of measurement (centimeters, meters, feet, inches).

ALL LONGLINE/HOOK AND LINE GEAR:

Capture Location in Gear: Indicate the location of the gear where the animal was entangled and/or hooked. Select all answers that apply as animals may interact with multiple parts of the gear. If selecting “hooked”, please also select the size of hook from the list. If the gear location is not listed on the form, check the “other” box and describe the location of the gear interaction.

Entanglement Location on Animal: Indicate the location on the animal where the gear was entangled. Select all answers that apply as gear may interact with multiple parts of the animal. *Please also indicate the exact location of gear interaction(s) on the appropriate diagram on page 4.*

Gear left on Animal? For each location selected above where the animal was entangled/hooked, select Yes or No if any gear was left on the animal at the time of release (for live animals only). For example, if tail/fluke is checked as the location on the body where the animal was entangled/hooked, indicate whether gear was left on the tail/fluke when the animal was released by selecting Yes or No.

How much? If there was any location on the animal in which gear was left, estimate the length of gear remaining on each entanglement location at the time of release. Select the units of measurement (centimeters, meters, feet, inches) for estimated length of fishing line remaining. For hook and line fisheries, the measurement begins at the eye of the hook, includes the crimp, and all line left on the animal.

If Hooked, Hook Location on Animal: For hooked animals, select **all** locations where the animal is observed to be hooked or may be hooked (both internal and external) if they can be determined. If a specific jaw or mouth location cannot be determined, note the general location of the hook by checking the beak/mouth box. If the hooked location is not listed on the form, check the “other” box and describe the location on the animal where it was hooked. Please also *note the hook location in the appropriate diagram on page 4. Indicate if there is more than one hook involved in the Additional Comments section at the bottom of page 3.*

BIOLOGICAL INFORMATION

Length Measurements

Use measuring tape, calipers, and a scale to record the following measurements. Select the units used to take the measurement. If the animal cannot be measured, estimate the total length and check the estimated box.

Finfish (Other than Sawfish)

Total length – Using a measuring tape, record the straight distance from the tip of the nose to the end of the tail. Do NOT compress the tail.

Fork length – Using a measuring tape, record the straight distance from the tip of the rostrum/nose to the notch in the tail.

Sawfish

Total length – Using a measuring tape, record the straight distance from the tip of the rostrum to the dorsal caudal fin by stretching/compressing the fin away from the body.

Marine Mammals

Total length – Using a measuring tape, record the straight distance from the tip of the rostrum to the notch of the fluke.

Sea Turtles

Curved carapace length (cm): Using a measuring tape, record the distance between the center of the nuchal scute and the end of the longest post-central scute (**notch-to-tip**), following the curvature of the

dorsal center line. On leatherbacks the measurement is taken alongside (not over the top) of the vertebral (center) ridge.

Curved carapace width (cm): Using a measuring tape, record the maximum distance between the lateral edges of the carapace, measured over the curvature of the shell, perpendicular to the center line of the carapace, at the widest point. On leatherbacks, the width is measured from side ridge to side ridge at the widest point.

Straight carapace length (cm): Using calipers, record the distance between the center of the nuchal scute and the end of the longest post-central scute (**notch-to-tip**). If the animal cannot be measured, estimate the straight carapace length and check the estimated box.

Straight carapace width (cm): Using calipers, record the maximum distance between the lateral edges of the carapace, perpendicular to the center line of the carapace. Note: this measurement may be taken at a different place on the carapace than when measured over the curve with a tape measure.

Weight and Sex: All Incidentally Captured Animals

Weight: If possible, use a scale to weigh the animal and note if units are pounds (lb) or kilograms (kg). If the weight was estimated, mark the estimated box.

Sex: Select from the list if the sex of the animal was M (male), F (female) or unknown.

Tag/ID #

Examine the animals' entire body for existing tags. Multiple tags and different types of tags may appear on the same animal. Animals may have both external and internal tags. For example, sea turtles may have metal or plastic tags located externally on any of the four flippers. Marine mammals, notably bottlenose dolphins, may have a freeze brand near the base of the dorsal fin. Sea turtles, sturgeon and sawfish should be scanned with a passive integrated transponder (PIT) tag reader if one is available.

Tag/ID # 1-4: Record the number of the tag that is already present or that is being applied. If no tags are on the animal and none are applied, leave blank.

For each Tag/ID # (1-4), note each of the following by using the drop-down menu. If response is not listed it may be entered manually in the "other tag" section.

Tag/ID Presence: Choose "*Already present*" if the Tag/ID was in/on the animal prior to the incidental capture; choose "*Applied*" if a Tag/ID was put on by the scientists on the vessel following capture. If the tag is already present, record the return address of the tag in the Additional Comments section. Only trained and permitted individuals may tag incidentally captured species.

Tag/ID Type: Choose from the list the type of tag/ID on/applied to the animal.

Tag/ID Color: Choose from the list the color of the tag/ID on/applied to the animal.

Tag/ID Position: Select from the list the location on the animal's body where the tag was located or applied.

Tags Removed? Select from the list Yes or No to indicate if tags are removed.

-Sea turtles, any tags that are getting hard to read or about to fall off should be removed and replaced with new ones. The removed tags should be collected and provided to the SEFSC Program Coordinator. If existing tags are in good condition, leave them in place.

Other Tags: When other types of tags, not listed above, are present or are applied, record the tag number if it has one. Record details, including position and photograph the tag. If living tags are observed, please describe them here and record details, including position and photograph the mark. Some sea turtles, mainly Kemp's ridleys, may have living tags externally on any of the lateral scutes.

PIT Tag Scan? Select from the list Yes or No, indicating whether you scanned the animal with a PIT tag scanner prior to and after application. Remember when scanning to hold the scanner as close as possible to the animal and keep the reader protected from the wet environment by sealing it in a water proof bag.

-Sea turtles, scan the four flippers, shoulder and "armpit" area with the PIT tag scanner.

-Sturgeon PIT tag placement is typically located to the left of the spine, immediately anterior to the dorsal fin, and posterior to the dorsal scutes. However, it is recommended to scan the entire body surface to ensure it has not been previously tagged.

Samples

Samples Taken: Select from the list Yes, No or Unsuccessful to indicate if any samples were taken from the animal. Dead protected species should be photographed (if possible) and then discarded near the original site of capture. The only exception is sea turtles caught using trawl gear, if appropriately permitted, may be salvaged.

Sample number: Record the sample number for the corresponding sample taken.

Sample Recipient: Record the name of the person receiving the sample at the end of the survey.

Affiliation: Record the affiliation of the person receiving the sample at the end of the survey.

RELEASE INFORMATION

Record the location (latitude and longitude) where the animal was released, the release time, and water temperature at that location. If the entire animal was returned to shore (salvaged or taken to holding facility), leave blank (this is recorded in the Final Disposition section).

Latitude of Release (DD.DDDD): Record, using decimal degrees, the latitude at the time of the actual release of the animal.

Longitude of Release (DD.DDDD): Record using decimal degrees the longitude at the time of the actual release of the animal.

Date: Select the date the animal was released.

Time (24hr): Record the time of day the animal was released using 24-hour (HHMMSS) notation. Enter time as six digits and do NOT use punctuation (ex. 091530).

Zone: Select from the list the time zone (GMT or local) used for recording the capture time.

How was animal released?: Select from the list the best description of how the animal was released or escaped from the gear. *If the animal was cut free from the gear, disentangled, or a hook was removed, please record the equipment used to perform the action in the Additional Comments section on page 3.*

Time taken to release animal (calculated by NMFS): The amount of time it took to release the animal. This will be calculated from the capture and release time. Includes any time spent on sampling (measuring, weighing, etc).

Final Disposition: Record the final disposition (fate) of the animal by checking the appropriate box:

- **Discarded Dead/Comatose/Unresponsive Carcass:** In some cases, an animal may have shown signs of life while onboard, but if it is dead or unresponsive at release, it belongs in this category.
 - **Marked?** Select Yes or No as to whether the carcasses was marked before being discarded. All carcasses returned to sea should be spray painted, tagged, or otherwise marked.
- **Salvaged Carcass/Parts (other than sampled above, list all):** Select this disposition if the carcass or parts of the carcass were salvaged. List all parts saved.
- **Released Alive:** Select if animal was alive upon release.
- **Taken to Holding Facility:** Select if live animal was taken to a holding facility and list facility name and location.
- **Unknown (explain):** If final disposition is unknown please explain.

Behavior upon release: It is extremely important to observe and record the behavior(s) of the animal upon release. Check ALL the appropriate boxes that apply and/or describe the animal's behavior next to "other".

Describe the nature of any injuries caused by the capture and release in the box provided. If the animal was injured as a result of the capture and/or release, it is extremely important to explain and describe the nature of those observed or suspected injuries (i.e. blood in the water, location of bleeding, how much bleeding, cuts/lacerations on body and where, etc.). If wounds were observed on the animal's body, please note these on the appropriate diagram on page 4.

Data Recorder: Person responsible for filling out data sheet.

Tagger: Person responsible for handling and tagging animal (if applicable).

Mitigation Measures in place at time of capture: List all mitigation measures followed at the time of capture, and note why other mitigation measures in place for your particular project may not have been followed. Some examples of mitigation measures are limited tow/soak times, turtle excluder devices (TEDs) in trawls, ending soak/tow time if protected species are sighted in sampling area, ending soak/tow time if protected species is observed interacting with sampling gear, use of circle hooks, gear constantly monitored/tended, etc.

Additional Comments: Use this area to record any additional comments, as noted specifically above, or that the recorder feels are important. If resuscitation was attempted on the animal, please record all details in this section (such as length of time resuscitation was attempted, method(s) used, etc.). If the animal was cut free from the gear, disentangled, or a hook was removed, record the equipment used to perform the action.

Diagrams on Page 4: Please note any gear interactions, scars, etc. on appropriate diagrams.

Use these diagrams to annotate any details as specifically noted above and any anomalies, wounds, location of living tags, etc. Also, be sure to indicate locations of all biological samples collected. To annotate the diagrams, on your menu, go to *Tools->Comment and Mark up* and select a drawing tool. Use the typewriter tool to enter text.

NOAA Fisheries
 Southeast Region Protected Species Incidental Take Reporting Form version 1.3 10/2014

REPORTER INFORMATION

Reporting Agency: Project/Survey Name:

VESSEL/TRIP INFORMATION

Vessel Name/ID Cruise/Trip# Station/Site# Collection # Specimen # Vessel Size Unique Identifier (generated):

If vessel strike, also complete the SER Vessel Strike form and immediately contact 877-433-8299.

GEAR CHARACTERISTICS

Trawl Type		Other Net Types	
<input type="text"/>		<input type="text"/>	
Headrope length (ft) <input type="text"/>	# of nets <input type="text"/>	TED present? <input type="checkbox"/>	
Footrope length (ft) <input type="text"/>			
Trawl Body	Cod End	Ground Gear	
material type <input type="text"/>	material type <input type="text"/>	length (ft) <input type="text"/>	
mesh size (in) <input type="text"/> <small>(stretched)</small>	mesh size (in) <input type="text"/> <small>(stretched)</small>	size (in) <input type="text"/>	
Doors	Lazy Line		
type <input type="text"/>	material type <input type="text"/>		
length (ft) <input type="text"/> height (ft) <input type="text"/>			
net sampling location <input type="text"/> <small>(water column)</small>	net sampling depth (m) <input type="text"/>		

Seine/Gillnet/Trammel: **Fyke:**

Floatline length (ft) diameter (in) Leader length (ft)

Leadline length (ft) diameter (in)

All Net Types:

mesh material type twine size (in)

Gillnet:

net sampling location mode of fishing
(water column)

Panels/bags in net

of panels mesh size (in)
(stretched)

length (ft) panel 1 panel 4

height (ft) panel 2 panel 5

spacing (ft) panel 3 panel 6

Longline/Hook and Line Type

Mainline length (m) <input type="text"/> test (lb) <input type="text"/> line type <input type="text"/>	Hook size (s): <small>(check all that applies)</small>	hook type <input type="text"/> hooks/line <input type="text"/> <small>(rod and reel only)</small>
Gangion length (m) <input type="text"/> test (lb) <input type="text"/> line type <input type="text"/>		# gangions <input type="text"/>
Backbone length (m) <input type="text"/> test (lb) <input type="text"/> line type <input type="text"/> <small>(vertical line/bandit reel only)</small>		Manufacturer <input type="text"/>
bait type <input type="text"/>	<input type="checkbox"/> 4/0 <input type="checkbox"/> 11/0	Style No. <input type="text"/> offset <input type="text"/>
If bait type "other/multiple", please describe <input type="text"/>	<input type="checkbox"/> 6/0 <input type="checkbox"/> 12/0	
	<input type="checkbox"/> 7/0 <input type="checkbox"/> 13/0	
	<input type="checkbox"/> 8/0 <input type="checkbox"/> 15/0	
	<input type="checkbox"/> 9/0 <input type="checkbox"/> 18/0	

All Other Gear (describe):

CAPTURE INFORMATION

Start of Set: <input type="text"/>	Date <input type="text"/>	Time (24hr) <input type="text"/>	Zone <input type="text"/>	Standard Soak Time (min) <input type="text"/>	Water Depth (m) <input type="text"/>
End of Set: <input type="text"/>	Date <input type="text"/>	Time (24hr) <input type="text"/>	Zone <input type="text"/>	Soak Time (calculated) <input type="text"/>	Surface Water Temp (°C) <input type="text"/>

CAPTURE INFORMATION (Cont.)

Latitude: Longitude: Marine Jurisdiction Animal Boarded?

Date Time (24hr) Zone Condition of animal at time of capture

If comatose/unresponsive, attempted resuscitation?

IDENTIFICATION

Species Confidence in species ID

Photographs taken? # of Photos Video taken? Contact Info for photo/video (person, email)

GEAR INTERACTION

ALL NET GEAR:

<u>Capture Location in Gear</u> <small>(check all that applies)</small>	<u>Entanglement Location on Animal</u> <small>(check all that applies)</small>	<u>Gear left on Animal?</u>	<u>How Much?</u>
<input type="checkbox"/> cod end	<input type="checkbox"/> beak/neck/head/saw/rostrum	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> lazy line	<input type="checkbox"/> rear flipper/groin/peduncle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> wing extension	<input type="checkbox"/> front flipper/shoulder/armpit	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> in the body mesh size(in) <input type="text"/> <small>(stretched)</small>	<input type="checkbox"/> carapace/plastron/body	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> near lead line	<input type="checkbox"/> pectoral flipper	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> near float line	<input type="checkbox"/> dorsal fin	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> other (describe): <input type="text"/>	<input type="checkbox"/> tail/fluke	<input type="text"/>	<input type="text"/>
	<input type="checkbox"/> other (describe): <input type="text"/>	<input type="text"/>	<input type="text"/>

ALL LONGLINE/HOOK AND LINE GEAR:

<u>Capture Location in Gear</u> <small>(check all that applies)</small>	<u>Entanglement Location on Animal</u> <small>(check all that applies)</small>	<u>Gear left on Animal?</u>	<u>How Much?</u>
<input type="checkbox"/> entangled in mainline	<input type="checkbox"/> beak/neck/head/saw/rostrum	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> entangled in floatline	<input type="checkbox"/> rear flipper/groin/peduncle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> entangled in gangion	<input type="checkbox"/> front flipper/shoulder/armpit	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> entangled in float	<input type="checkbox"/> carapace/plastron/body	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> hooked (size) <input type="text"/>	<input type="checkbox"/> pectoral flipper	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> other (describe): <input type="text"/>	<input type="checkbox"/> dorsal fin	<input type="text"/>	<input type="text"/>
	<input type="checkbox"/> tail/fluke	<input type="text"/>	<input type="text"/>
	<input type="checkbox"/> other (describe): <input type="text"/>	<input type="text"/>	<input type="text"/>

If Hooked, Hook Location on Animal

<p>Internal: <small>(check all that applies)</small></p> <p><input type="checkbox"/> beak/mouth jaw location: <input type="checkbox"/> upper <input type="checkbox"/> lower <input type="checkbox"/> side (mouth only)</p> <p style="padding-left: 40px;">mouth location: <input type="checkbox"/> tongue <input type="checkbox"/> jaw joint</p> <p style="padding-left: 80px;"><input type="checkbox"/> glottis/throat <input type="checkbox"/> roof of mouth</p> <p><input type="checkbox"/> swallowed/esophagus (hook visible)</p> <p><input type="checkbox"/> swallowed/esophagus (hook not visible)</p> <p><input type="checkbox"/> unknown</p> <p><input type="checkbox"/> other (describe): <input type="text"/></p>	<p>External: <small>(check all that applies)</small></p> <p><input type="checkbox"/> beak/neck/head/saw/rostrum</p> <p><input type="checkbox"/> rear flipper/groin/peduncle</p> <p><input type="checkbox"/> front flipper/shoulder/armpit</p> <p><input type="checkbox"/> carapace/plastron/body</p> <p><input type="checkbox"/> pectoral flipper</p> <p><input type="checkbox"/> dorsal fin</p> <p><input type="checkbox"/> tail/fluke</p> <p><input type="checkbox"/> other (describe): <input type="text"/></p>
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BIOLOGICAL INFORMATION

Measurements

Finfish

total length _____ estimated
 fork length _____ estimated

Sea Turtles

curved carapace length (cm) _____
 curved carapace width (cm) _____
 straight carapace length (cm) _____ estimated
 straight carapace width (cm) _____

All Incidentally Captured Animals

Weight _____ estimated
 Sex _____

Marine Mammals

total length _____ estimated

Tag/ID #

	Tag/ID Presence	Tag/ID Type	Tag/ID Color	Tag/ID Position	Tags Removed?
Tag/ID #1 _____	<input type="checkbox"/>				
Tag/ID #2 _____	<input type="checkbox"/>				
Tag/ID #3 _____	<input type="checkbox"/>				
Tag/ID #4 _____	<input type="checkbox"/>				

Other tag (describe) _____ PIT scan?

Samples

Final Disposition

Samples Taken	Type	Sample Number	Person	Affiliation
<input type="checkbox"/>	blood	_____	_____	_____
<input type="checkbox"/>	fin clip	_____	_____	_____
<input type="checkbox"/>	tissue	_____	_____	_____
<input type="checkbox"/>	carcass	_____	_____	_____
<input type="checkbox"/>	other (describe): _____	_____	_____	_____

RELEASE INFORMATION

Latitude: (DD.DDDD) _____ Longitude: (DD.DDDD) _____ How was animal released? _____
 Date _____ Time (24hr) _____ Zone _____
 Time taken to release animal 0 _____
 (calculated)

Final Disposition:

discarded dead/comatose/unresponsive carcass (marked?)

salvaged carcass/parts (list all): _____

released alive

taken to holding facility (location): _____

unknown (explain): _____

Behavior upon release:

swam away vigorously dove quickly

swam away slowly dove slowly

remained at surface sank

surfaced to breathe

other (describe): _____

Describe the nature of any injuries caused by capture and release (i.e. blood in water, location of bleeding, how much bleeding, cuts/lacerations on body and where): _____

Data Recorder _____ Tagger _____

Mitigation Measures in place at time of capture: _____

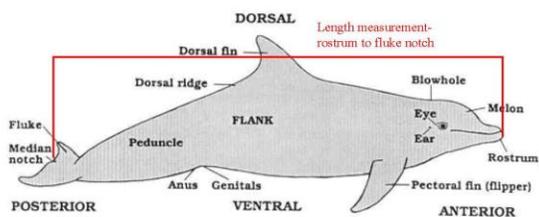
Additional Comments: _____

Please submit completed PSIT Form and photographs within 24 hours to nmfs.ser.ea loa.takereport@noaa.gov. Please enter Fisheries Independent Monitoring Protected Species Take (BiOp SER-2009-7541) in the subject line and include the project name and species in the text of the email.

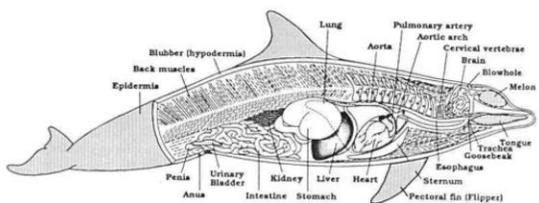
Print Form **Reset Form**

Use these diagrams to annotate any details as specifically noted above and any anomalies, wounds, location of living tags, etc. Also, be sure to indicate locations of all biological samples collected. To annotate the diagrams, on your menu, go to *Tools->Comment and Mark up* and select a drawing tool. Use the typewriter tool to enter text.

Marine Mammals



Basic External Anatomy

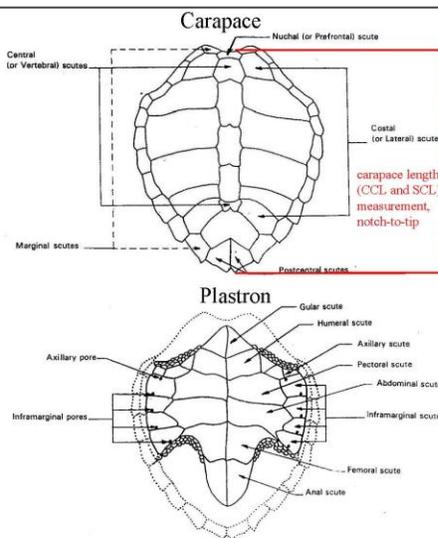
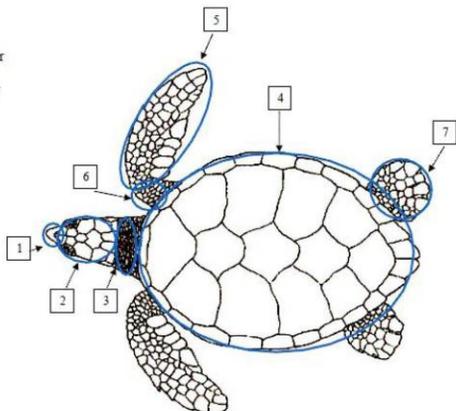


Basic Internal Anatomy

Sea Turtles

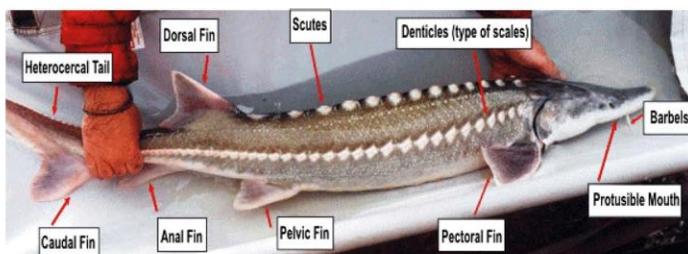
External hardshell:

- 1) Beak
- 2) Head
- 3) Neck
- 4) Carapace
- 5) Front Flipper
- 6) Shoulder
- 7) Rear Flipper



Finfish

Sturgeon



Sawfish

