Reinitiation of ESA Section 7 Consultation on the Authorization of the Southeast U.S. Shrimp Fisheries in Federal Waters, Giant Manta Ray and Shrimp Trawl Interactions, and Next Steps

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Presentation Overview

- The 2021 Biological Opinion
- Reinitiation of Section 7 Consultation
  - Requirements/Reasons/Scope
- Giant Manta Ray Species Primer
  - Life History, Population Status and Size, Feeding Habits and Habitat, Distribution and Movements
- Giant Manta Ray Trawl Effects, Bycatch Data, and New Information
- Smalltooth Sawfish New Information
- Next Steps and Timing
- What You Can Do Now?

The 2021 Shrimp Biological Opinion

- Analyzed effects of ESA "TED regs" and authorization of southeast US. shrimp fisheries managed under the Magnuson-Stevens Act (i.e., the proposed action)
- Determined the proposed action is not likely to jeopardize the continued existence of sea turtles, sturgeon, giant manta ray, and smalltooth sawfish.
- Issued an incidental take statement (ITS) specifying the amount of anticipated incidental take for listed species
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    - Giant manta rays: 16,780 non-lethal takes over 10 years (average=1,678 giant manta rays per year). No giant manta ray mortalities because there were no records of lethal interactions at that time.
    - Highly uncertain estimate: Based on only one year of data and 12 interactions documented during that time (Carlson 2020).

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Section 7 Reinitiation Requirements

- Reinitiation of ESA formal Section 7 consultation required if discretionary involvement or control over the action has been retained (or is authorized by law) and:
  - The amount or extent of the taking specified in the ITS is exceeded.
  - New information reveals effects of the action that may affect listed species or critical habitat (when designated) in a manner or to an extent not previously considered.
  - The identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion.
  - A new species is listed or critical habitat designated that may be affected by the identified action.

Reasons For Reinitiation and Scope

- **The amount or extent of the taking specified in the incidental take statement is exceeded**
  - Since the 2021 Shrimp Opinion was completed, 4 giant manta ray mortalities have been observed.
    - Lethal takes have only been confirmed in the Gulf of Mexico, but take records in the South Atlantic Region include several giant manta rays caught where the disposition was unknown.
- **New information reveals effects of the action that may affect listed species in a manner or to an extent not previously considered**
  - Recent take data may constitute new information revealing effects of southeast shrimp fisheries on giant manta rays not considered in the 2021 Shrimp Opinion.
  - New publications may constitute new information revealing effects of southeast shrimp fisheries on giant manta rays and smalltooth sawfish not considered in the 2021 Shrimp Opinion.

SCOPE: At this time, no triggers have been met for any of the other species, so consultation limited to addressing only the above two species and their management under the Gulf and South Atlantic Shrimp FMPs and their implementing regulations.

Giant Manta Ray

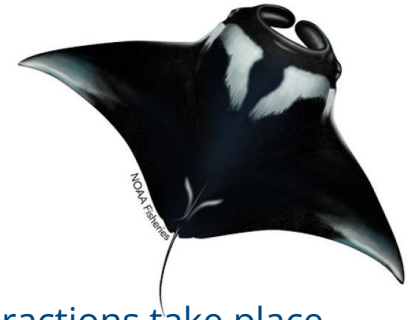
Life History

- Largest ray in the world with wingspans up to 29 feet (8.8 m) wide. Average size 13 ft (4 m).
- Sexual Maturity estimated 8-10 yrs.
- Low fecundity, 1 pup every 2-3 years.
- Juvenile nursery areas at Flower Garden Banks National Marine Sanctuary (Stewart et al. 2018) and in the shallow coastal waters along Florida's Atlantic Coast (Pate et al. 2020).

Population Status and Size

- Listed as Threatened under the ESA in 2018 (83 FR 2916) - Overfishing (foreign) and bycatch major threats contributing to the decline. Low reproductive output make them inherently vulnerable to depletions, with low likelihood of recovery.
- Global population size is unknown (3 published regional total abundance estimates: 600 Mozambique, 1,875 Raja Ampat, and 22,000 in Ecuador/Peru).

Giant Manta Ray



Feeding Habits and Habitat

- Planktivorous / Filter-feeders.
- Unique feeding strategies (e.g., barrel rolling, creating feeding chains).
- Aggregate in various locations in groups usually ranging from 100-1,000.
  - Function as feeding sites, cleaning stations, or sites where courtship interactions take place.
- Wide use of water column, including feeding at the surface and night descents from 200-450 m depths; capable of diving to depths exceeding 1,000 m.

Distribution and Movements

- Distributed in tropical, subtropical, and temperate oceans.
  - Low degree of interchange between ocean basins.
- Commonly observed offshore in oceanic waters and in nearshore highly productive coastal areas; water temperatures generally between 20°C and 30°C.
  - In the South Atlantic Region - predicted highest nearshore occurrence off northeastern Florida during April, extending northward along the shelf-edge as temperatures warm, leading to higher occurrences north of Cape Hatteras, North Carolina from June to October, and then south of Savannah, Georgia from November to March as temperatures cool (Farmer et al. 2022).
- Movements correspond with the zooplankton abundance, current circulation, seasonal upwelling, seawater temperature, and possibly mating behavior.

Giant Manta Ray & Trawl Effects

Mortality resulting from asphyxiation:

- Obligate ram-ventilator requires constant movement to pass water over gills.
- Capture in trawls severely restricts movement and respiration resulting in asphyxiation.

Injury/Stress resulting from capture:

- Can directly influence ability to survive post release.
- Compacted against netting or TED by weight of catch, coupled with impaired respiration decreases likelihood of survival post release.
- Post release mortality is unknown

Bycatch Data

Observer Coverage = < 2%

Observed Takes (2019 – April 2023)

- 22 Alive; 4 Mortalies; 7 Unknown
  =**Total: 33** (25 GOM; 8 SA)

Immediate Mortality Estimate

- 2021 Shrimp Opinion assumed no mortality based on 2019 data.
- 12.1% immediate mortality rate (4/33=12.1) based on approx. 4 years of data

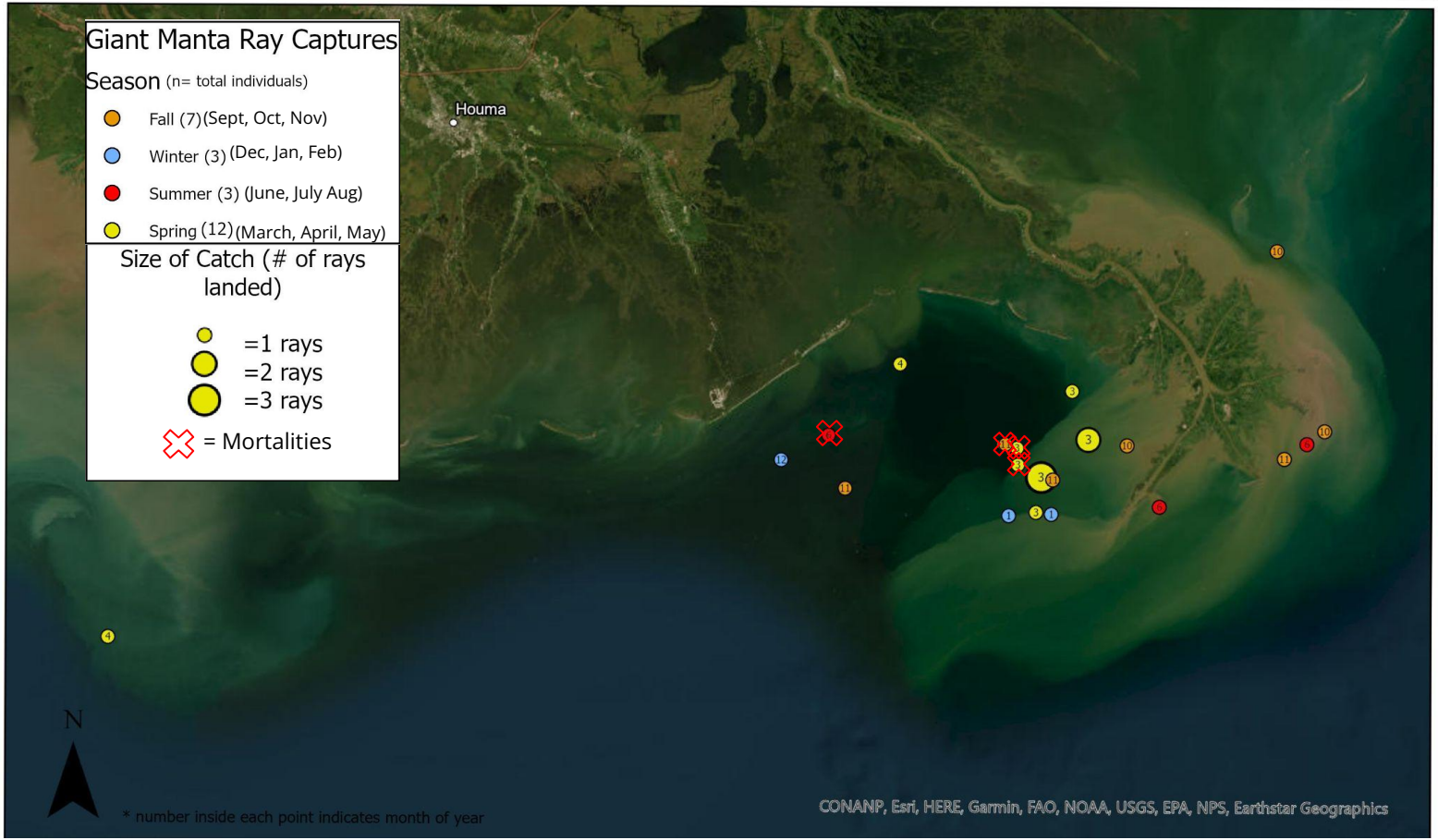
Spatial and Temporal Observations

- Majority interactions occurring offshore **Louisiana (n=25)**, followed by **Georgia (n=6) and Florida (n=2).**
- Most interactions occurring in **Spring and Fall.**
- Multiple interactions occurring on a **single trip** and at **night**.
- Majority of interactions at **depths <100 ft**.

Year	Disposition	Total
2019	Released Alive	4
2019	Unknown	4
2020	Released Alive	3
2021	Released Alive	5
2021	**Mortalities**	**2**
2022	Released Alive	8
2022	Unknown	2
2023	Released Alive	2
2023	**Mortalities**	**2**

Louisiana Giant Manta Ray Captures in the Shrimp Fishery

July 2023
NMFS



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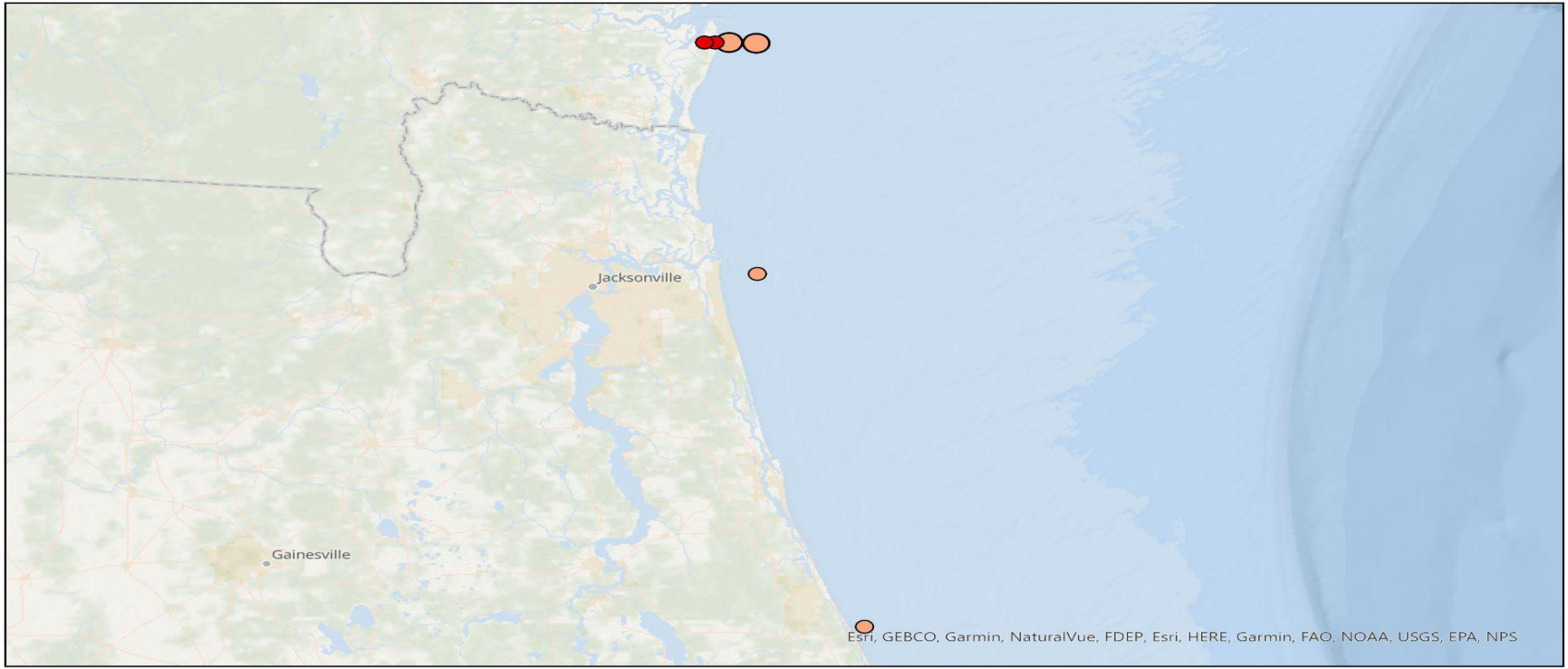
South Atlantic Giant Manta Ray Captures in the Shrimp Fishery

August 2023
NMFS



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Total Individuals Caught and Season

1 Individual - Summer

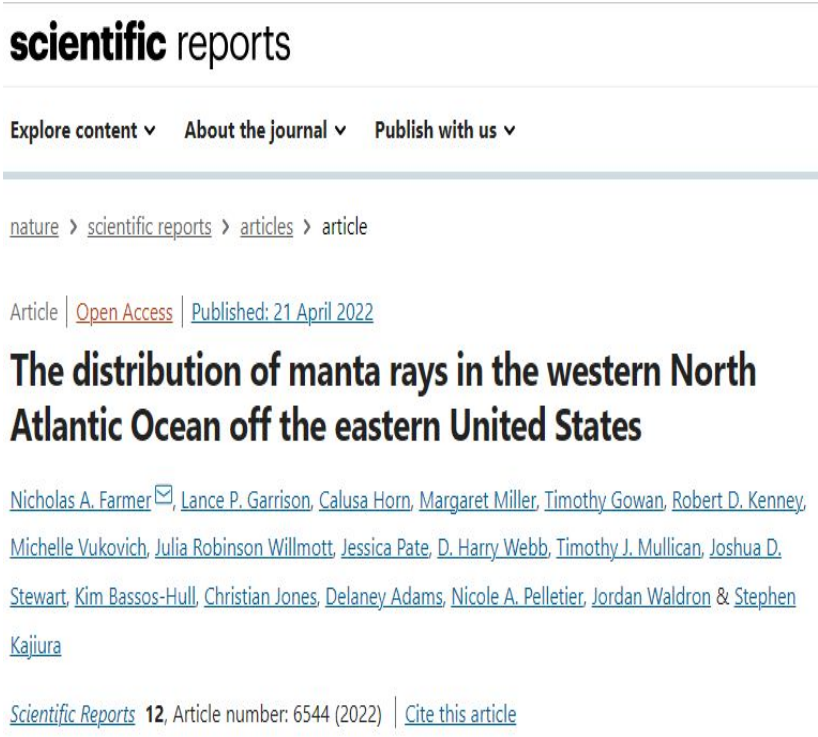
1 Individual - Fall

2 Individuals - Fall

Giant Manta Ray New Information

Farmer et al. (2022):

- Integrated decades of sightings and survey effort data into species distribution modeling.
- Predicted the highest occurrence around the Mississippi River Delta April - June and Oct - Nov.
- Predicted highest occurrence during April off Northeastern Florida, leading north to North Carolina from June - Oct, then south to Georgia from Nov - March with cooling temps.
- Notably - seasonal occurrence and location of shrimp trawl interactions are consistent with predictions made in Farmer et al. 2022.



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Article | Open Access | Published: 21 April 2022

The distribution of manta rays in the western North Atlantic Ocean off the eastern United States

Nicholas A. Farmer, Lance P. Garrison, Calusa Horn, Margaret Miller, Timothy Gowan, Robert D. Kenney, Michelle Vukovich, Julia Robinson Willmott, Jessica Pate, D. Harry Webb, Timothy J. Mullican, Joshua D. Stewart, Kim Bassos-Hull, Christian Jones, Delaney Adams, Nicole A. Pelletier, Jordan Waldron & Stephen Kajiura

Scientific Reports **12**, Article number: 6544 (2022) | Cite this article

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Smalltooth Sawfish New Information

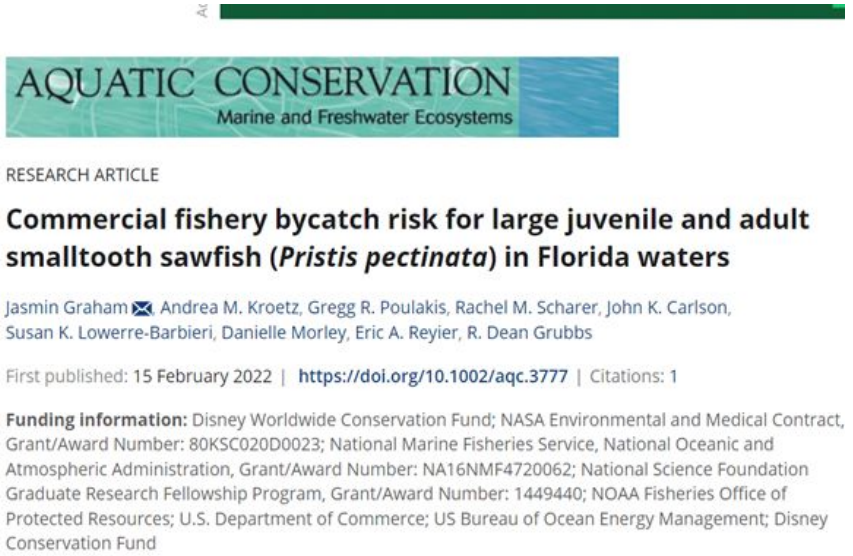
Graham et al (2022)

- Highlights trawl threats.
- Finds that females smalltooth sawfish are at a higher risk from shrimp trawl bycatch than males due to their greater overlap with areas of shrimp trawling effort.
- Recommends year-round closure of shrimp trawling off much of the Southwest Florida.

Feldheim et al. (2017) & Smith et al. (2021)

- Only **126** individual females have contributed to the majority of juveniles caught in sampled nurseries.

Presented to the Shrimp AP in late 2022; next step is to present population viability analysis results in late 2023/early 2024.



AQUATIC CONSERVATION
Marine and Freshwater Ecosystems

RESEARCH ARTICLE

Commercial fishery bycatch risk for large juvenile and adult smalltooth sawfish (*Pristis pectinata*) in Florida waters

Jasmin Graham ✉, Andrea M. Kroetz, Gregg R. Poulakis, Rachel M. Scharer, John K. Carlson, Susan K. Lowerre-Barbieri, Danielle Morley, Eric A. Reyier, R. Dean Grubbs

First published: 15 February 2022 | https://doi.org/10.1002/aqc.3777 | Citations: 1

Funding information: Disney Worldwide Conservation Fund; NASA Environmental and Medical Contract, Grant/Award Number: 80KSC020D0023; National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Grant/Award Number: NA16NMF4720062; National Science Foundation Graduate Research Fellowship Program, Grant/Award Number: 1449440; NOAA Fisheries Office of Protected Resources; U.S. Department of Commerce; US Bureau of Ocean Energy Management; Disney Conservation Fund

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Next Steps and Timing

- SERO has developed a tentative schedule for:
  - Working with SEFSC to develop information needed to formally initiate consultation
  - Collaborating with the Gulf and South Atlantic Councils.
- Key data needed include:
  - Revised giant manta ray bycatch estimates based on the recent observer data - Target December 2023.
  - Smalltooth sawfish population viability analysis population viability analysis - Target late 2023/early 2024.
  - Giant manta ray population viability analysis - Target March 2024.
- We will also need to consider any proposed Shrimp FMP-driven actions and any shrimp actions the Gulf or South Atlantic Councils consider in response to key data as it becomes available.
- Complete reinitiation package - Target April 2024.

What Can You Do Right Now?

Ensure fishers are using the release guidance for giant manta ray and smalltooth sawfish.

- https://www.fisheries.noaa.gov/southeast/endangered-species-conservation/sea-turtle-smalltooth-sawfish-and-giant-manta-ray-release

Hook-and-line fisheries: Commercial-Report discards to applicable logbook program (e.g., supplementary discard logbook (if selected); recreational via MRIP.

In addition to any required reporting:

- For Sawfish: 1-844-4SAWFISH (1-844-472-9347)
- For Manta rays: Email our Regional Giant Manta Ray Species Coordinator: Calusa.Horn@noaa gov or manta.ray@noaa.gov

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Smalltooth Sawfish, Safe Handling and Release Procedures for Commercial Fisheries

The guidelines presented here describe procedures for releasing a smalltooth sawfish incidentally caught in commercial fishing gears. Sawfishes are listed as endangered under the U.S. Endangered Species Act and it is therefore illegal to harm, injure, or kill them.

General Handling and Release

- Sawfish must be released as quickly as possible and without harm
- Leave sawfish in the net or on the line until ready for release
- Keep sawfish in the water as much as possible
- Keep sawfish wet if it must be removed from the water
- Do NOT stand or sit next to the rostrum
- Tie rope around tip of saw or tail only if needed to control sawfish for safety

Line Gears (e.g., longline, rod and reel)

- Keep the sawfish, especially the gills, in the water
- Use line-cutting poles, long-handled dehookers, and/or boat hooks to remove line or gear
- DO NOT attempt to remove the hook, just cut the line as close to the hook as possible
- If line is tangled around the body or saw, untangle and remove as much of the line from around the sawfish as possible and then cut the line close to the hook

Net Gears (e.g., trawls and gillnet)

- Keep the sawfish, especially the gills, in the water as much as possible
- Roll netting away from the body of the sawfish
- Use line-cutting pole, scissors, and/or knife to cut free any net tangled around the saw by cutting the mesh along the length of the saw
- Once the mesh is cut, continue rolling the netting off the sawfish for release

Data Recording

- Date and time
- GPS coordinates
- Photographs and videos
- Sex (check for claspers by pelvic fins)
- Tag number, if applicable
- Length (estimate saw and total length)
- Release condition (alive, dead, injured)

Reporting: 1-844-4SAWFISH (1-844-472-9347)

For more information contact:
Adam Brame, Sawfish Recovery Coordinator
727-209-5958, Adam.Brame@noaa.gov

June 24, 2021

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

Release Guidance for Giant Manta Rays Incidentally Captured in Trawls

Southeast Region

The guidelines presented here describe procedures for releasing a large manta or devil ray from a trawl. With this procedure, the trawl is retrieved in a normal manner and the ray is not brought onboard the vessel. The objective is to bring portions of the trawl tail and body out of the water in order to maneuver the captured ray towards and out of the mouth of the net.

The capture of manta ray during a tow often provides cues to the vessel crew that should trigger the start of hauling up their nets. Once caught, large rays create an increase in the overall drag associated with the trawl. In some instances, the increase in drag, along with the rays thrashing against the trawl webbing, can provide noticeable cues. These cues can include irregular "jerking" motion of the trawl cable above the water, a decrease in main engine RPM's associated with an engine "lugging" sound and a decrease in vessel speed. If the vessel is rigged for side trawling with outriggers, the vessel may be pulled off course in the direction of the trawl that has captured the a large ray

Photo: Josh Stewart

Photo: NOAA

Step 1: The haul back of all nets should proceed as usual. Bring doors to the block.

Step 3: Position the vessel so that the manta/trawl is on the windward/upwind side of the boat. Reduce speed or take engine out of gear (if possible). This will reduce drag on the animal allowing it to move towards the mouth of the trawl in subsequent steps.

Step 4: Retrieve bag and dump catch as usual.

Step 5: Using a whip line (lifting line) positioned forward of the TED, raise sections of the trawl out of the water as high as possible, causing the animal to slide toward the trawl mouth.

- It may require several lifts/whips, moving forward in the trawl body with each lift, to begin moving the animal toward the trawl mouth.
- If the animal stops moving at any point, try lowering the trawl doors to the water. This will increase the angle of the whip line lifting point relative to the trawl mouth and help move the animal toward the trawl mouth.

Step 6: If the animal does not move after repetitive lifts are attempted, it may be necessary to cut portions of the trawl webbing that appear to be under tension near or around the animal. Bring those areas of the trawl as close to the vessel as possible and make necessary cuts to relieve tension. Take care to avoid cutting the animal.

Step 7: Once released from the trawl, monitor direction of movement. The manta may remain at the surface while it regains mobility. Take care to maneuver the vessel away from the animal while it is recovering.

Step 8: Report the incident to Calusa Horn, NMFS Southeast Giant Manta Ray Recovery Coordinator at 727-824-5312, or email Calusa.Horn@noaa.gov

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