



**NOAA
FISHERIES**

**Southeast
Regional Office**

2014 Shrimp Biological Opinion on Sea Turtle Conservation Regulations and Federal Shrimp Fisheries

Jennifer Lee
Southeast Regional Office,
Protected Resources Division

June 09, 2014

Components of the Shrimp Opinion

- Section 1 - Consultation History
- Section 2 - Proposed Action
- Section 3 - Status Of the Species
- Section 4 - Environmental Baseline
- Section 5 - Effects of the Action
- Section 6 - Cumulative Effects
- Section 7 - Jeopardy Analysis
- Section 8 - Conclusion
- Section 9 - Incidental Take Statement

Consultation History (Section 1)

- Numerous past consultations/biological opinions have been completed over the years, including in: 1987, 1992, 1994, 1996 [2], 1998, 2002, 2005 and 2006 (for sawfish only), and 2012
- Reinitiation of 2012 biological opinion was triggered by November 21, 2012 decision to withdraw proposed changes to the sea turtle conservation regulations that would have required TEDs in skimmer trawls, pusher-head trawls, and wing nets

Proposed Action (Section 2)

- Proposed action that was subject to analysis:
 - Continued implementation of the sea turtle conservation regulations under the Endangered Species Act in state and federal waters of the Gulf and South Atlantic
 - Continued authorization of Southeast U.S. shrimp fisheries in Gulf and South Atlantic federal waters under the Magnuson-Stevens Act

Section 2.1.1: Managing the Effectiveness of TEDs via Estimating and Monitoring TED Compliance and Sea Turtle Capture Rates In Otter Trawls

- Maintains monitoring and ensuring compliance with TED regulations at a level that keeps overall average sea turtle catch rates in the shrimp otter trawl fleet at or below 12%
- Outlines NOAA Fisheries process for reviewing TED compliance and sea turtle capture rates

Status of Listed Species in the Action Area (Section 3)

•Marine Mammals:

- Blue whale (E)
- Fin whale (E)
- Humpback whale (E)
- Northern right whale (E)
- Sei whale (E)
- Sperm (E)

•Corals:

- Elkhorn (T)
- Staghorn (T)

•Sea Turtles:

- Loggerhead NWA DPS** (T)
- Green** (T&E*)
- Hawksbill** (E)
- Kemp's ridley** (E)
- Leatherback** (E)

•*Listed as threatened except for the Florida breeding population, which is listed as endangered.

•Fish:

- Atlantic sturgeon** (T)
- Gulf sturgeon** (T)
- Smalltooth sawfish US DPS** (E)

Red Font=Species Determined Likely to Be Adversely Affected

Critical Habitat in the Action Area (Section 3)

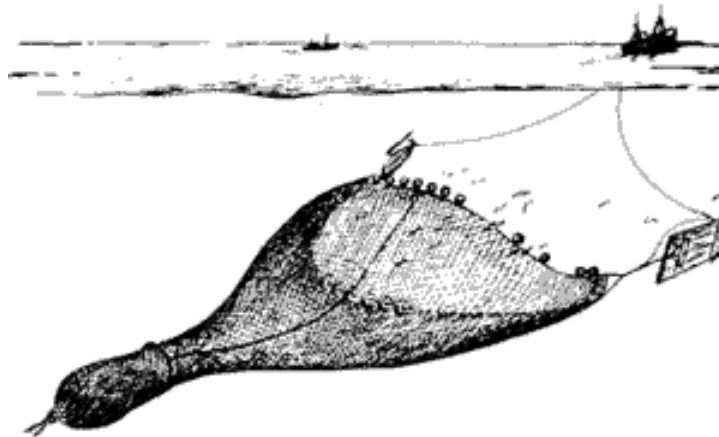
- Designated Critical Habitat for:
 - Northern right whale
 - Gulf sturgeon
 - Elkhorn & staghorn corals
 - Smalltooth sawfish
- All designated critical habitat in the action area determined not likely to be adversely affected

Effects Assessment Scope/Overall Approach (Section 5)

- The consultation considers the effects that:
 - NOAA Fisheries Service's exemption of sea turtle takes via sea turtle conservation regulations have on listed species,
 - The existing sea turtle conservation regulations themselves have on listed species, and
 - Federally-authorized shrimp fisheries (also subject to the sea turtle conservation regulations) have on listed species.

Effects of the Action (Section 5)

- For each listed species likely to be adversely affected, we generally:
 - Examined the types of interactions that occur when exposed to trawl gears
 - Considered factors affecting the likelihood of exposure
 - Evaluated and quantified effects using the best available information



Sea Turtles (Section 5.1)

- Reviewed the effects analysis of the 2012 opinion
- Summarized relevant new information since its completion
- Considered how that new information might change the effects that the proposed action on loggerhead, Kemp's ridley, green, and leatherback sea turtles

Sea Turtles (Section 5.1)

- New information since completion of the 2012 opinion relevant to our otter trawl sea turtle bycatch analysis was limited to effort and TED compliance data
- New otter trawl analysis focused on our surrogates for sea turtle interactions and captures, i.e., effort (i.e., days fished in the Gulf of Mexico and number of trips in the South Atlantic), otter trawl fleet sea turtle capture rates, and the relative impact of any documented changes to those parameters on the magnitude of effects of the proposed action

Sea Turtle Capture Rates in Shrimp Otter Trawls

- When TEDs are constructed, installed, and operating legally in shrimp trawl nets, only 3% of sea turtles entering the nets do not escape and are captured.
- When TEDs are not constructed, installed, or operating legally, sea turtle capture rates can be higher and in severe cases, completely compromised.
- In estimating sea turtle capture rates, NOAA Fisheries evaluates the various types and degrees of severity of TED violations and their corresponding effects on both small and large sea turtles.

Sea Turtles (Section 5.1)

- Based on 2010-2012 effort data, otter trawl effort in the Southeast over the past three years generally remained below 2009 effort levels.
- There was some fluctuation in effort from year to year in the South Atlantic with some years less than and some years more than 2009 effort levels

Sea Turtles (Section 5.1)

- Monitoring of otter trawl TED compliance and periodically conducting sea turtle capture rate analyses per the terms and conditions of the opinion's ITS requirements indicated average sea turtle capture rates in the entire Southeast were:
 - 1% higher than we anticipated June-November 2012 and 5% higher than we anticipated December 2012-May 2013, thus averaged 3% higher than anticipated that first year.
 - 2% lower than the sea turtle capture rate standard for the period June 2013 through October 2013, rates were , bringing up the average sea turtle capture rate for the entire data period (i.e., June 2012 through October 2013) to just 1% higher than anticipated

Sea Turtles (Section 5.1)

- Anticipating future effort to remain at or below 2009 effort in the long-term and that the 12% sea turtle capture rate represents a realistic estimate of a rate we can maintain, we used the same otter trawl capture and mortality methodology and calculations as the May 2012 opinion
- The sea turtle capture and mortality estimates are subject to the same assumptions and sources of error as those we presented in the May 2012 opinion and ultimately found too uncertain to accurately predict a specific number of each sea turtle species.



Sea Turtles (Section 5.1)

- New skimmer-related information considered included 2012 Gulf of Mexico sea turtle CPUE, mortality, and tow time data and new skimmer trawl effort data
- Updated skimmer trawl sea turtle capture and mortality estimates to reflect:
 - Sea turtle CPUE data for Gulf of Mexico skimmer trawls from 2012 observer coverage
 - That skimmer trawls, pusher-head trawls, and wing nets will continue to fish without TEDs under tow times restrictions), and
 - The extent of compliance with tow times in the Gulf based on 2012 observed levels.

Sawfish (Section 5.2)

- Maintained 2012 opinions reliance on bycatch estimates based on extrapolation of observer data (NMFS-SEFSC 2011)
- Updated otter trawl capture estimates to reflect 2009 effort baseline:
 - Calculated based on combined effort across areas (Gulf and South Atlantic) and 2009 effort; 96 sawfish captures annually or 288 every three years;
- Updated estimated mortality rate based on 3 more captures:
 - $4 \div 11 = 36.4\%$ or 105 smalltooth sawfish mortalities every three years
- Maintained that TED requirements would certainly not increase the likelihood of capture or the magnitude of impacts resulting from capture

Atlantic Sturgeon (Section 5.3)

- Estimated otter trawl and try net captures in federal waters based on observed CPUE extrapolated to fleet based on federal effort
- Estimated otter trawl interactions based on data demonstrating TEDs result in an 87 percent reduction in Atlantic sturgeon bycatch by number of individuals
- Mortalities estimated by observed mortality rate (11%); conservative relative to other studies
- TED compliance not believed to be an important consideration except for egregious violations (i.e. no TED or sewn shut) and not accounted for in estimates

Gulf Sturgeon (Section 5.4)

- Still have only one observed take documented in SEFSC observer program; quantitative extrapolation to entire fishery determined was inappropriate
- TEDs in shrimp trawl fisheries likely benefit Gulf sturgeon by providing a route of escape when rare interaction events occur

Jeopardy Analyses (Section 7)

- Evaluated the effects of the proposed action on the likelihood of survival and recovery by looking first at whether there is a reduction in the reproduction, numbers, and distribution of any species
- Concluded there would be a reduction in numbers from lethal captures and associated reproduction losses for all adversely affected listed species

Jeopardy Analyses

- Then evaluated whether any such reduction would cause an appreciable reduction in the likelihood of survival and recovery:
 - *Survival* means the species' persistence... beyond the conditions leading to its endangerment, with sufficient resilience to allow recovery from endangerment.
 - *Recovery* means improvement in the status of a listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act.

Conclusion

- The proposed action is NOT expected to cause an appreciable reduction in the likelihood of both the survival and recovery of any listed species and thus, is NOT likely to jeopardize the continued existence of any listed species

ITS Anticipated Take Authorized

- Take proxy used for sea turtles: Take of sea turtles will be considered exceeded and effects on sea turtles will be considered greater than analyzed if:
 - 2009 and/or 2010 effort levels are exceeded (132,900 days fished in the Gulf of Mexico and 14,560 trips in the South Atlantic) and/or
 - Compliance levels are expected to result in TEDs in the fleet having a greater than 12% sea turtle capture rate average

ITS Anticipated Take Authorized

- Interactions, captures, and mortalities specified for Atlantic sturgeon and smalltooth sawfish:
 - 1773 total Atlantic sturgeon interactions overall, including 285 captures of which 27 are expected to be lethal every three years
 - 288 total smalltooth sawfish interactions, of which 105 are expected to be lethal every three years
- Gulf sturgeon take not exempt, therefore not included in ITS

Reasonable and Prudent Measures

- For Sea Turtles, NOAA Fisheries must:
 1. Monitor effort in state and federal fisheries and continue to work to better determine their effects on sea turtles
 2. Monitor TED reg. compliance and ensure that compliance is at anticipated levels
 3. Continue outreach programs to train fishermen and net shop personnel in the proper installation and use of TEDs
 4. Continue to work with industry on TED development and to conduct research to better understand the nature of sea turtle interaction, particularly small juvenile sea turtle interactions, with shrimp trawls in inshore and nearshore waters

Reasonable and Prudent Measures

- For Smalltooth sawfish, NMFS must:
 5. Conduct research to better understand the nature of smalltooth sawfish interactions with shrimp trawls
 6. Conduct outreach to Southwest and South Florida fishers to ensure that they know and use the safe handling guidelines for sawfish release to minimize post release mortality
- For Atlantic sturgeon, NMFS must:
 7. Conduct research to better understand the nature of Atlantic sturgeon interactions with the shrimp fishery.

T/Cs Pertaining to Fishing Effort/TED Compliance

- RPM 1, T/C 1: NOAA Fisheries Service must coordinate with the states to monitor shrimp fishing effort in major gear types and must use this information to determine trends in shrimp fisheries and possible effects of these trends on sea turtles.
- RPM1, T/C2: NOAA Fisheries must collect logbook data in the South Atlantic comparable to logbook data collected in the Gulf or work with the states to collect these data.
- RPM 1, T/C5: NOAA Fisheries must increase the amount of empirical and other data it has on trawl sea turtle capture probabilities associated with TED violations that are documented by observers, GMT, and OLE capture probabilities. These additional data must be used to test and revise as needed the violation and capture rate matrix used in this opinion (i.e., Table 15 of Section 5.1.3.2).

T/Cs Pertaining to Fishing Effort/TED Compliance

- RPM2, T/C 10: NOAA Fisheries must continue to monitor compliance with TED regulations using one or more of four following elements: SEFSC GMT, NMFS OLE, observer data, and other partner agencies.
 - a) The SEFSC Gear Monitoring Team must continually monitor shrimp fishing vessels dockside and at sea throughout the Gulf and South Atlantic areas. The SEFSC GMT personnel must record all monitoring efforts using standardized boarding forms.
 - b) The Office of Law Enforcement must continue to enforce TED regulations and must keep records of all of its TED compliance boardings using standardized boarding forms.
 - c) NOAA Fisheries must work with state enforcement agencies and the USCG to improve and standardize enforcement of TED regulations, such as promoting the use of standardized boarding forms.

T/Cs Pertaining to Fishing Effort/TED Compliance

- RPM2, T/C13: NOAA Fisheries must use data on TED compliance to target outreach, enforcement effort, and emergency rules, if warranted, ranging from possible TED modifications to closures of areas to shrimp fishing.
- RPM2. T/C 14: NOAA Fisheries must develop a policy specifying data requirements or minimum data standards for taking various actions (e.g. time area closures) to address non-compliance. Our goal is to use observer data for compliance analyses because the program is based on representative sample and avoids potential biases from using enforcement data. However, until that time we must to rely on OLE and GMT data and increased enforcement. As part of this policy, NOAA Fisheries must develop a general policy or guidelines outlining methods and standards for determining if a documented lack of compliance is throughout the entire Gulf area or Atlantic area) or concentrated in certain portions of an area. This policy must be finalized within one year of completing the opinion and be updated as necessary.

Conservation Recommendations (Section 10)

- Specify actions NOAA Fisheries can take to minimize effects of the proposed action on sea turtles, smalltooth sawfish, and sturgeon
- Focus primarily on developing additional information

For Additional Information:

- http://sero.nmfs.noaa.gov/protected_resources/
- http://sero.nmfs.noaa.gov/protected_resources/sea_turtles/index.html

- Jennifer Lee
- Fishery Biologist/Fishery Management Liaison
- Southeast Region
- Jennifer.Lee@noaa.gov
- 727 551-5778

