



**NOAA
FISHERIES**

**Southeast
Regional Office**

Review of 2014 Shrimp Biological Opinion on Sea Turtle Conservation Regulations and Federal Shrimp Fisheries and Incidental Take Statement Terms and Conditions

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Proposed Action

- The proposed action that was subject to analysis in the biological opinion was the:
 - 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.

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

- Section 2.1.1 of the Proposed Action section of the biological opinion:
 - 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 our process for reviewing TED compliance and sea turtle capture rates.

Effects Assessment Scope/Overall Approach

- 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 (e.g. TEDs) have on listed species.
 - Federally-authorized shrimp fisheries (also subject to the sea turtle conservation regulations) have on listed species.

Sea Turtle Otter Trawl Analyses

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

Sea Turtle Otter Trawl Analyses

- Sea Turtle Capture Rates in Shrimp Otter Trawls Vary Depending on Extent of TED Compliance.
 - 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 operated 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 Turtle Otter Trawl Analyses

- Based on 2010-2012 effort data, otter trawl effort in the Southeast had generally remained below 2009 effort levels (i.e., 108,501 days fished in the Gulf of Mexico and 12,502 trips in the South Atlantic; see Table 12, p. 153 in biological opinion)
- 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 for the entire data period (i.e., June 2012 through October 2013) were just 1% higher than anticipated.

Sea Turtle Analyses

- The same methodology and calculations for estimating otter trawl sea turtle interactions, captures, and mortalities used in the May 2012 opinion were repeated in the 2014 opinion because we anticipated:
 - future effort to remain at or below 2009 effort in the long-term.
 - a 12% sea turtle capture rate to be a realistic estimate of a rate we can maintain.
- Consequently, the results are subject to the same assumptions and sources of error as those we presented in the May 2012 opinion and were found too uncertain to accurately predict a specific number of each sea turtle species adversely affected.

Sea Turtle Skimmer Trawl Analyses

- New skimmer-related information we considered included 2012 Gulf of Mexico sea turtle CPUE, mortality, and tow time data and new skimmer trawl effort data
- We 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).
 - The extent of compliance with tow times in the Gulf based on 2012 observed levels.

Sawfish Analyses

- In analyzing effects on sawfish we:
 - 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 assumption (2012 opinion used 2008/2009 effort average).
 - Updated estimated mortality rate to reflect 3 more captures since 2012 opinion.
 - Maintained that TED requirements would not increase the likelihood of capture or the magnitude of impacts resulting from capture

Gulf Sturgeon Analyses

- We still had only one observed take documented in SEFSC observer program on an otter trawl; thus, we maintained that quantitative extrapolation to entire fishery determined was inappropriate.
- Also maintained that TEDs in shrimp trawl fisheries likely benefit Gulf sturgeon by providing a route of escape when rare interaction events occur.

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.

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.

Estimated Sea Turtle Capture Rates

Month	Vessels Inspected For TED Compliance by OLE and/or GMT	Inspected Vessels Required to Have TEDs That Were Found In Violation (i.e., Non-compliant with TED Regulations)	Inspected Vessels Required to Have TEDs That Were Fully Compliant With TED Regulations	Vessels Inspected That Were Found Fully Compliant with TED Regulations	Vessels Inspected That Were Found Non-compliant	Overall Capture Rate for all Kemps, Ridleys and Juvenile Loggerheads and Greens	Overall Capture Rate for all Leatherback and Adult Loggerheads and Greens	Overall Average Sea Turtle Capture Rate	Overall TED Effective Rate
April '14	50	11	39	78%	22%	10%	15%	12%	88%
May '14	23	3	20	87%	13%	3%	3%	3%	97%
June '14	7	2	5	71%	29%	14%	14%	14%	86%
July '14	83	16	67	81%	19%	8%	10%	9%	91%
August '14	48	6	42	88%	13%	7%	6%	6%	94%
October '14	4	0	4	100%	0%	3%	3%	3%	97%
November '14	15	0	15	100%	0%	3%	3%	3%	97%
December '14	6	1	5	83%	17%	11%	4%	8%	93%
January '15	4	0	4	100%	0%	3%	3%	3%	97%
February									
March '15	42	13	29	69%	31%	7.4%	13.6%	10.5%	89.5%

For Additional Information:

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