

TURTLE EXCLUDER DEVICE (TED) COMPLIANCE POLICY

BACKGROUND

The April 18, 2014, biological opinion is the current Endangered Species Act (ESA) authorization for the southeastern shrimp fisheries, which includes both state and federal shrimp fisheries. One of the non-discretionary terms and conditions for this biological opinion was the following:

14) NMFS 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 [Office of Law Enforcement] and GMT [Gear Monitoring Team] data and increased enforcement. As part of this policy, NMFS 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.

The following document presents a draft design for a potential TED compliance policy.

CURRENTLY AVAILABLE TED INSPECTIONS BY QUARTER – NUMBER OF VESSELS INSPECTED

QUARTER	GULF OF MEXICO	SOUTH ATLANTIC	TOTAL
THIRD 2012	130	50	180
FOURTH 2012	4	5	9
FIRST 2013	40	39	79
SECOND 2013	70	47	117
THIRD 2013	63	70	133
SECOND 2014	80	0	80
THIRD 2014	131	23	154
FOURTH 2014	25	0	25

NUMBER OF PERMITTED/LICENSED SHRIMP VESSELS

GULF OF MEXICO FEDERAL FISHERY: 1,339 (AS OF MAY 3, 2015)

SOUTH ATLANTIC FEDERAL FISHERY: 488 (AS OF MAY 3, 2015)

INDIVIDUAL STATES (RESIDENT AND NON-RESIDENT): RANGES FROM 300-1,000+¹

¹ Obtaining an accurate number of shrimp licenses in each state is problematic due to issues related to gear identification (otter versus skimmer), licensing each net versus an individual vessel, and latent effort.

COMPLIANCE THRESHOLDS

In the May 8, 2012, and the April 18, 2014, biological opinions, NMFS proposed to monitor and ensure compliance with the sea turtle conservation regulations at a level that would keep sea turtle catch rates of shrimp trawls required to use TEDs at or below 12% of all sea turtle interactions (i.e., maintain an 88% TED effectiveness rate). Therefore, the 88% effectiveness is the immediate threshold that needs to be maintained to ensure ESA compliance and to allow the shrimp fisheries' status quo operation. The question that needs to be addressed next is at what level and at what point should a fishery closure be implemented to improve TED compliance and to protect and conserve sea turtles, should TED effectiveness fall below the 88% threshold?

In the Gulf of Mexico, TED compliance was documented at approximately 66% during the period March-November 2011 (Table 10, NMFS 2012), although this compliance rate is not the same as the TED effectiveness rate, which is weighted to determine a violation's effect on sea turtle capture probability. That is, not all violations impact sea turtle capture probability the same (e.g., a 70-degree TED angle is more significant than a single bent TED grid bar) and some common violations can have a relatively minor effect on sea turtle capture. The corresponding TED effectiveness rate for the same March-November 2011 period was calculated to be 83.82% for small sea turtles and 85.02% for large sea turtles (Table 16, NMFS 2012). Improvements in TED compliance and the corresponding TED effectiveness rates, however, were observed in mid-2011, which are believed to be due to outreach and enforcement efforts relating to shrimp fisheries.

To prevent a significant increase in sea turtle captures and subsequent mortalities, we propose to utilize the average low TED effectiveness rate observed during the period March-November 2011 (i.e., 84%) as the threshold for a fishery closure. We use this period as it is the earliest documented timeframe using our current methodology for determining TED effectiveness (i.e., for consistency), and it represents a period of low TED effectiveness within the southeastern shrimp fleet. As a statistical matter, we need enough of a difference between the minimum target effectiveness rate (i.e., 88%) and the effectiveness rate at which a closure would be implemented to be able to statistically detect actual differences in compliance, as opposed to the variance associated with a point estimate of TED effectiveness. Setting the closure threshold closer to the 88% target makes this issue more problematic. This issue is compounded with small sample sizes, in this case the number of boardings during the period in question. With small numbers of inspections in a quarter (e.g., ~80), a single violation can have a significant impact on the overall TED effectiveness rate. To illustrate, if 80 vessels were inspected in a quarter and 13 were found with significant violations (i.e., 10 vessels were found to have a level 2² or level 3³ violation, and 3 vessels were found to have a level 4⁴ violation), the overall TED effectiveness rate would be 87.49%. If that number increased to 17 significant violations (i.e., 12 vessels were found to have a level 2 or level 3 violation, and 5 vessels were found to have a level 4 violation), however,

² EXAMPLE: 60 DEGREE TED ANGLE

³ EXAMPLE: MISSING BAR; 8" BAR SPACING

⁴ EXAMPLE: 71 DEGREE TED ANGLE; ESCAPE OPENING SEWN SHUT; NAKED NET

overall TED effectiveness would drop to 83.89%. Based on the calculations in NMFS (2012), an 84% effectiveness rate would represent a 25% increase in sea turtle captures over the 88% effectiveness rate required in both the 2012 and 2014 biological opinions. We certainly want to avoid this level of increase in turtle captures, but we also need to be aware of the above statistical considerations to avoid implementing closures that are not based on actual decreases in TED effectiveness. We believe that this policy strikes the appropriate balance between these considerations.

The jeopardy analysis in the 2014 biological opinion analyzed impacts from the fishery based on the 88% effectiveness rate continuing over the longer term into the future. Short term decreases or increases in estimated TED effectiveness (i.e., over a few quarters) were anticipated in those analyses and may not change the long term average effectiveness and the associated effects to listed species. The biological opinion's terms and conditions, including this policy, are intended to accommodate this variance without undermining the conclusions regarding the longer term anticipated effects from the fisheries and objectives of the biological opinion relative to the fishery (i.e., insuring no jeopardy).

Therefore, this policy would implement the following responses based on a corresponding documented TED effectiveness rate:

- 1) \geq 88% EFFECTIVENESS REQUIRED BY THE APRIL 18, 2014, BIOLOGICAL OPINION: GMT OUTREACH;
- 2) $<$ 88% BUT \geq 84% EFFECTIVENESS: ENFORCEMENT PULSE AND GMT OUTREACH; AND
- 3) $<$ 84% EFFECTIVENESS FOR TWO CONSECUTIVE QUARTERS: MINIMUM OF 30-DAY SHRIMP FISHERY CLOSURE IN RESPECTIVE AREA, ENFORCEMENT PULSE, AND GMT OUTREACH.

FISHERY CLOSURE

A fishery closure due to poor TED compliance is a last-resort management action, and one that would occur only after education/outreach and enforcement activities failed to remedy the situation. A potential closure would affect the segment of the fishery were TED performance was demonstrated to be poor over 2 consecutive quarters; for example, if inspections in Gulf federal waters indicated TED effectiveness was less than 84% in two consecutive quarters, a closure would be implemented in federal or state waters in a subsequent quarter and potentially until compliance levels improved significantly; both federal and state waters could be closed to shrimp fishing to prevent deficient vessels from shifting effort from federal to state waters. If deficient vessels were documented to be strictly state-licensed vessels, a state-waters closure could be implemented. Because the federal shrimp fishery is highly migrant (i.e., depending on the season, Texas boats may fish off Florida, Alabama boats may fish off Louisiana, and Louisiana boats may fish off Texas), a closure may impact all federal waters or a portion where a significant number of the fleet may be working in the immediate future (e.g., pink shrimp season off Florida, Texas opening). The intended effect of the closure is to significantly increase TED compliance.

A fishery closure would be implemented by emergency rule per regulatory authority at 50 CFR 223.206(d)(4)(i)(A), which states “the exemption for incidental takings of sea turtles in paragraph (d) of this section does not authorize incidental takings during fishing activities if the takings would violate the restrictions, terms, or conditions of an incidental take statement or biological opinion.” 50 CFR 223.206(d)(4)(iv) authorizes the Assistant Administrator to restrict fishing activities for a period of up to 30 days, which can be renewed for additional periods of 30 days each, in the event of a determination that fishing activities violate the terms or conditions of a biological opinion (i.e., TED effectiveness is < 88%). The fishery closure would allow time for focused outreach with industry to address deficiencies in TED installation that would ultimately improve sea turtle exclusion.

With a closed fishery, dockside TED inspections would be conducted to evaluate vessels for compliance with TED requirements. In order to lift a fishery closure, sample size would need to be equivalent to the number of inspections that led into the closure, and the corresponding TED effectiveness rate would need to be 88% or greater (i.e., the minimum required by the April 18, 2014, biological opinion). For example, 90 inspections were conducted in the first quarter and 80 inspections were conducted in the second quarter, both of which resulted in a TED effectiveness rate less than 84%. During the closure and before fishing would be allowed to resume, at least 85 inspections (i.e., the average between the two quarters) would need to be conducted demonstrating a TED effectiveness rate 88% or greater.

GENERAL OBSERVATIONS ON TRIGGERING CLOSURES

The below examples demonstrate that with adequate sample size, a fishery closure would only result from significant compliance deficiencies across multiple vessels (that would need to be observed over multiple quarters), and not from 1-2 violations.

In a random quarter, 130 Gulf of Mexico federally-permitted vessels are inspected (i.e., ~10% of the fleet) and 100 of the vessels found to be in full compliance (77%). Of the 30 vessels found to have violations, 25 vessels were found to have a level 2 or 3 violation, and 5 vessels were found to have a level 4 violation. These significant violations (i.e., resulting in 70%/30% capture rate and 100% capture rate, respectively) would result in a fleet-wide TED effectiveness rate of 84.23% for the quarter, which, while poor, would not result in a fishery closure based on the above guidelines. In this scenario, extensive outreach/education and enforcement activities would be pursued to raise the TED effectiveness rate back above the 88% minimum required in the April 2014 biological opinion.

If the sample size was increased to 200 vessels with the same 30 significant violations cited above, fleet-wide TED effectiveness increases to 88.70%. Conversely, if the number of TED inspections decreased to only 80 vessels in a quarter with the same 30 significant violations, TED effectiveness drops to 76.25%. Therefore, it is important that as much TED compliance data is available as possible each quarter to remove bias and to get the most accurate picture of TED compliance in the shrimp fisheries.