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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 223

[Docket No. 161109999-8845-02]

RIN 0648-BG45

Sea Turtle Conservation; Shrimp Trawling Requirements

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: We, the NMFS, are issuing a final rule to amend the alternative tow time restriction to require all skimmer trawl vessels 40 feet and greater in length to use turtle excluder devices (TEDs) designed to exclude small sea turtles in their nets. The purpose of this rule is to reduce incidental bycatch and mortality of sea turtles in the southeastern U.S. shrimp fisheries, and to aid in the protection and recovery of listed sea turtle populations. We are also amending the definition of tow time to better clarify the intent and purpose of tow times to reduce sea turtle mortality, and we are refining additional portions of the TED requirements to avoid potential confusion.

DATES: This final rule is effective on April 1, 2021.

ADDRESSES: Public comments and other supporting materials are available at www.regulations.gov identified by docket number NOAA-NMFS-2016-0151, or by submitting a request to Michael Barnette, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701.

FOR FURTHER INFORMATION CONTACT: Michael Barnette, 727-551-5794, michael.barnette@noaa.gov.

SUPPLEMENTARY INFORMATION:

Background

Under the Endangered Species Act (ESA) and its implementing regulations, taking (*e.g.*, harassing, injuring or killing) sea turtles is prohibited, except as identified in 50 CFR 223.206 in compliance with the terms and conditions of a biological opinion issued under section 7 of the ESA, or in accordance with an incidental take permit issued under section 10 of the ESA. Incidental takes of threatened and endangered sea turtles during shrimp trawling are exempt from the taking prohibition of section 9 of the ESA so long as the conservation measures specified in the sea turtle conservation regulations (50 CFR 223.206; 50 CFR 224.104) are followed.

On March 15, 2016 (81 FR 13772), we published a notice of intent to prepare an environmental impact statement to analyze potential revisions to the sea turtle conservation regulations, and conducted five scoping meetings in April 2016. We then incorporated the information and public comments gathered during that process into a draft environmental impact statement (DEIS), the notice of availability of which was published on December 16, 2016 (EIS No. 20160294; 81 FR 91169). The analysis included in this DEIS demonstrated that withdrawing the alternative tow time restriction and requiring TEDs in all skimmer trawls, pusher-head trawls, and wing nets (butterfly trawls) rigged for fishing, with the exception of vessels participating in the Biscayne Bay wing net fishery prosecuted in Miami-Dade County, Florida, would reduce the incidental bycatch and mortality of sea turtles in the southeastern U.S. shrimp fisheries. Therefore, it may be a necessary and advisable action to conserve threatened and endangered sea turtle species. Accordingly, we published a proposed rule (81 FR 91097; December 16, 2016) to withdraw the tow time restriction and include the required TED specifications for these gear types, as well as amend the tow time definition and clarify the names of the allowable TED openings and webbing flaps to improve understanding.

Changes from the Proposed Rule

Based on public comment raising performance and safety issues with TED use on smaller vessels and regarding the economic impacts of the proposed rule, and new

information indicating significantly lower levels of sea turtle mortality in the offshore fleet, we have revised the regulation to limit the TED requirements to skimmer trawl vessels 40 feet and greater in length. After reviewing concerns about applying TED testing data from skimmer trawl operations to pusher-head trawls and wing nets, coupled with a lack of observer data for these vessels, we have decided to maintain the tow time-requirement option for these other types of vessels. This final rule only requires TEDs on skimmer trawl vessels 40 feet and greater in length. This rule will achieve a significant conservation benefit for listed sea turtles, while affecting significantly fewer vessels and imposing far fewer costs upon industry. Because fewer TEDS will need to be manufactured to supply the vessels covered under the final rule, this rule can be implemented in far less time than the proposed rule, allowing for more focused and expedient sea turtle conservation. For purposes of this rule, vessel length is the length specified on the vessel's state vessel registration or U.S. Coast Guard vessel documentation required to be onboard the vessel while fishing.

The proposed rule also included a revision to the tow time definition that would have required vessels to remove their entire net and rigging from the water at specific intervals, instead of just the tail bag as is often done by skimmer trawl vessel operators. For small vessels that lack hydraulics, this process takes significant time and potentially makes the vessel unstable while raising the nets, which could introduce safety issues. Therefore, we revised our proposed tow time definition to avoid these potential scenarios while allowing for a more complete inspection of the net for captured sea turtles and clarifying what is required to end a tow under the regulations. For vessels using pusher-head trawls or wing nets, vessels less than 40 feet in length using skimmer trawls, or vessels considered as live bait shrimpers operating under the allowable tow time exemption, we are requiring the net to be emptied of catch on the deck within the specified time. This prevents vessels from lifting the tail bag clear of the water and potentially lowering it quickly back in due to concerns about the sufficiency of the shrimp catch. We

believe this will result in the intended identification and safe release of any sea turtle captured in a net while minimizing issues to trawling operations, and more clearly identifies what is required of vessels to comply with tow time limits.

The proposed rule anticipated a six-month delay in effectiveness and solicited public input on different options for the phased implementation of the final rule. The revisions between the proposed and final rule have reduced the number of affected fishers by 82 percent, reduced the total economic effect by 73 percent, and are expected to result in a conservation benefit of 801-1,168 sea turtles annually in the Southeastern U.S. shrimp fisheries. The complete analysis for this alternative is included in a final environmental impact statement (FEIS), the notice of availability of which was published on November 15, 2019 (EIS No. 20190270; 84 FR 62530). We believe delaying the effectiveness of the rule until April 1, 2021 is warranted, as that will be an adequate period to allow for the manufacture of the necessary number of TEDs and for fishers, particularly lower income fishers, to financially prepare for the regulation.

Summary of Comments

We held 6 public hearings on the proposed rule in January 2017. Approximately 70 individuals attended the January 9 Larose, Louisiana meeting; 80 attended the January 10 Gretna, Louisiana meeting; 50 attended the January 10 Belle Chasse, Louisiana meeting; 50 attended the January 11 Biloxi, Mississippi meeting; 15 attended the January 12 Bayou La Batre, Alabama meeting; and 15 attended the January 18 Morehead City, North Carolina meeting. We conducted additional presentations on February 8 in Houma, Louisiana for the Louisiana Shrimp Task Force meeting and on February 16 for the Gulf of Mexico Fishery Management Council's Shrimp Advisory Panel. During the comment periods on the DEIS and proposed rule, we received approximately 38,500 comments encompassed in 1,200 submissions (*e.g.*, one submission was a petition with 33,807 signatures; one submission consisted of 3,408 individual comments; other submissions summarized comments from multiple individuals). Below we summarize these comments,

as well as comments received during the six public hearings and two additional presentations. We received additional comments advocating sea turtle conservation measures not related to the southeastern U.S. shrimp fisheries. Given the lack of relevance to this regulatory action, they are not addressed in the following responses. The public comment period on the DEIS officially ended on January 30, 2017, and the public comment period on the proposed rule officially ended on February 14, 2017.

General Comments

Comment 1: Numerous comments support the required use of TEDs designed to exclude small turtles in skimmer trawls, pusher-head trawls, and wing nets.

Response: We agree that use of TEDs in skimmer trawls will benefit sea turtle populations and that use of TEDs on pusher heads and wing nets might benefit sea turtle populations, but due to a lack of data further study is required. At this time, there is a need to further explore efficacy and safety issues related to TED use on pusher-head trawls and wing nets, as well as small skimmer trawl vessels. Therefore, this final rule will only require TEDs on skimmer trawl vessels 40 feet and greater in length. Existing tow time requirements are maintained for pusher-head trawls, wing nets, and smaller skimmer trawl vessels.

Comment 2: All bottom trawls operating in the southeast region should be required to have TEDs, not just selected gear in the shrimp fisheries; NOAA should expand the TED requirement to all trawls; NOAA should require TEDs in try nets; NOAA should consider narrower TED bar spacing.

Response: We are continually evaluating fisheries that have the potential to impact sea turtle populations to assess if there are practical ways to minimize bycatch and mortality to the maximum extent practicable. Trawl fisheries in the Atlantic and the Gulf of Mexico have been documented to frequently interact with sea turtles due to the spatial and temporal overlap of the fisheries with sea turtle habitat. As a result, we are currently testing TEDs for try nets in the shrimp fisheries, as well as TEDs in other trawl fisheries

(e.g., mid-Atlantic croaker fisheries). We have also conducted testing of narrower TED bar spacing in the past. In some fishing conditions, however, narrower bar spacing results in excessive catch loss and reduced gear performance. The TED bar spacing requirements in this rule and existing regulations are based on the segment of sea turtle populations that may be encountered by these particular fisheries and their respective fishing conditions.

Comment 3: Numerous comments support the status quo and oppose the required use of TEDs designed to exclude small turtles in skimmer trawls, pusher-head trawls, and wing nets. Similar comments suggest current tow times are sufficient to avoid sea turtle bycatch mortality, as evidenced by the growing number of Kemp's ridley nests.

Response: We have observer data that document sea turtle mortality resulting from incidental capture in skimmer trawls during tows that were compliant with tow time limits, as well as during tows that exceeded tow time limits. Incidentally-captured sea turtles are often released alive, which is one reason tow time restrictions were previously accepted as a mitigation measure. However, best available information and expert opinion (discussed in detail in the FEIS) indicate that persistent or delayed effects can lead to mortality (post-interaction mortality), including deaths of some turtles that appear to be in good health at the time of release (Stacy, *et al.*, 2015 as referenced in the FEIS). Analysis of the behavioral condition of the turtles caught by skimmer trawls, using current criteria for estimating post-interaction mortality for trawl fisheries (as described in NMFS Procedural Directive 02-110-21), indicated that mortality could be more than triple the number estimated based on dead and comatose turtles alone. This indicates tow time limits may not be as effective in reducing sea turtle bycatch and mortality as previously thought. Furthermore, as sea turtle populations increase, interactions between skimmer trawl vessels and sea turtles are expected to likewise increase. While Kemp's ridley sea turtle nesting numbers have increased significantly in the past several decades, the trend has leveled off in recent years.

We believe the most effective protective measure for threatened and endangered sea turtle populations is to reduce the total time sea turtles are entrained in a skimmer trawl by using TEDs. TEDs are an effective tool in reducing this mortality, as demonstrated in other sectors of the shrimp fisheries. Gear research has shown that they reduce sea turtle bycatch with only minor reductions in target catch. At this time, TEDs will not be required on skimmer trawl vessels less than 40 feet in length, or in any pusher-head trawl or wing net.

Comment 4: NOAA should invest in sea turtle hatcheries to rebuild sea turtle populations (instead of requiring TEDs).

Response: *In situ* nests, or nests in their original place, are preferred over hatcheries whenever the natural beach can support successful nest incubation. Hatcheries are not a preferred alternative because of their limited conservation value when conditions are favorable for *in situ* incubation. Hatcheries can alter the physical environment of the nest, which can affect nest success and hatchling sex ratios. Predation rates are increased when releases of hatchlings from hatcheries are concentrated in limited areas. Regardless, hatchlings released from hatcheries must still survive to reproduce and, without TEDs, would remain subjected to increased mortality in trawls operating without TEDs. In the southeast U.S., nest success is high and is not a limiting factor that supports the use of hatcheries. Furthermore, sea turtle hatchlings (first year of life) have lower survival rates than older life stages. TEDs provide a greater conservation benefit to sea turtles than hatcheries as they reduce bycatch and mortality of older life stages that have already survived past the most vulnerable years.

Comment 5: The regulation may have significant adverse economic effects for an industry that has been struggling due to many other issues.

Response: We acknowledge the regulation may have significant adverse economic effects on the shrimp industry, as documented in the DEIS and FEIS. We believe the need to reduce mortalities of threatened and endangered sea turtles observed in vessels using

skimmer trawls, however, warrants the required use of TEDs as specified in this final rule. This final rule has been modified from the proposed rule, and achieves a significant conservation benefit but has substantially reduced adverse economic effects on industry. Specifically, the revisions between the proposed and final rule have reduced the number of affected fishers by 82 percent, reduced the total economic effect by 73 percent, and are expected to result in a conservation benefit of 801-1,168 sea turtles annually in the Southeastern U.S. shrimp fisheries.

Comment 6: Sea turtles are not observed (*i.e.*, do not occur) in areas where many skimmer trawls operate.

Response: Observer effort on skimmer trawl vessels indicates sea turtles occur in most areas where skimmer trawl vessels operate. At this time, we do not have sufficient information to confidently identify areas where sea turtle interactions would not occur, and where we could exempt TED use based on the possible absence of sea turtles. Therefore, at this time, TED exemptions by discrete area are not considered necessary and advisable.

Comment 7: TEDs will not work in skimmer trawls due to shallow water, due to a change in TED angle if running in shallow water and where the top of grid (and the escape opening) is exposed. Further, there can be excessive debris, particularly crab traps and after storm events.

Response: Based on TED testing conducted aboard commercial skimmer trawl vessels, we expect TEDs will work in the majority of areas and under the majority of fishing conditions. Greater than one-third of the vessels participating in TED testing from 2013 through 2015 operated in depths of 3 feet or less under the vessel with skimmer frames reaching out to shallower water (Gearhart in press). TEDs continued to perform effectively under these conditions. We expect TEDs installed at 55 degrees to operate as intended in water depths as shallow as 2.18 feet of water; TEDs installed at less steep

angles would be able to operate in shallower water (*e.g.*, TEDs installed at 45 degrees could operate in water as shallow as 1.89 feet).

We acknowledge skimmer trawl vessels with and without TEDs may encounter debris such as lost and abandoned crab traps and vegetative debris in the shallow, coastal waters where they operate. A common practice in the fishery is to install zippers, when TEDs are not installed, to help with removing crab traps. Zippers can still be installed with TEDs. Further, TEDs may offer some benefits, such as those discussed below, over zippers, since zippers can be difficult to open because of sand and sedimentation, where the potential benefits of TEDs occur regardless of sedimentation.

Our TED testing found that the diameter of the trawl ahead of the TED when properly installed is approximately 24 inches or less. This does not allow crab traps to make it to the TED and cause blockage. For skimmer trawl vessels with and without TEDs, once the blockage is removed the catch can be washed down to the tailbag where it can be dumped easily.

Crab traps and other debris can damage nets with or without TEDs. In areas where crab traps are abundant, fishers may have to inspect their nets more often to remove entrained crab traps.

Comment 8: The proposed regulations are subject to Executive Order 13771, which would require the elimination of two existing regulations.

Response: The Memorandum: Implementing Executive Order 13771, Titled “Reducing Regulation and Controlling Regulatory Costs” states that a significant regulatory action as defined in Section 3(f) of Executive Order 12866 is an Executive Order 13771 regulatory action and, therefore, must be offset according to the requirements of the executive order. This action was determined to be significant for purposes of Executive Order 12866 following publication of the proposed rule, and will be offset as appropriate and as soon as practicable after publication to comply with Executive Order 13771.

Comment 9: NOAA should provide translated materials for Vietnamese American fishers (per Executive Order 13166 and Title VI of the Civil Rights Act), who comprise a significant portion of the skimmer trawl fisheries.

Response: We acknowledge a significant portion of affected skimmer trawl fishers may not rely on English as their primary language. However, we are not required under Executive Order 13166 or Title VI of the Civil Rights Act of 1964, which deal with Federal financial assistance programs, to translate these regulatory materials to other languages. However, we are translating our *Fishery Bulletin*, compliance guide, and other outreach materials to assist the Vietnamese fishing community.

Comment 10: With increasing sea turtle populations, sea turtle bycatch will increase—bycatch will never be zero—how much bycatch reduction is enough?

Response: While nesting data indicate many sea turtle populations may be increasing, all species of sea turtles in U.S. waters are threatened or endangered under the ESA. In order to promote the continued conservation of these populations, we must continue to implement programs that provide adequate protection for sea turtle populations, including efforts to reduce sea turtle bycatch and mortality. The ESA requires us to issue regulations deemed necessary and advisable to provide for the conservation of any species listed as threatened and broadly authorizes the promulgation of regulations as may be appropriate to enforce the Act. Therefore, while these species remain threatened or endangered under the ESA, we are required to pursue efforts to recover them. Specific recovery metrics that would result in downlisting or delisting from the ESA are in the recovery plans for each sea turtle species.

Social and Economic Environment Effects Comments

Comment 11: The descriptions of the alternatives starting with Alternative 3 in the third column on page 91102 of the proposed rule do not match the alternative numbers in parentheses and do not match the descriptions in the DEIS.

Response: We acknowledge the summary text of the IRFA starting on page 91102 may have introduced some confusion. The summary compares the preferred alternative to the other six alternatives considered in the DEIS, which resulted in an apparent inconsistency in labeling the alternatives (Alternative 3 (the Preferred Alternative in the DEIS) is the basis, resulting in Alternative 4 becoming the “third alternative to the action”). The language in the classification section of the proposed rule diverged from standard protocol, which would have avoided this confusion. We remedy this issue in this rule.

Comment 12: NOAA’s economic analysis does not take into consideration loss of other bycatch species (*e.g.*, drum, crabs, flounder, *etc.*) and resulting income due to TED use.

Response: To date, TED testing studies have not collected sufficient data to generate scientifically acceptable estimates of the reduction in marketable incidental (*i.e.*, non-shrimp) catch. In addition, although the states collect landings and revenue data for incidentally harvested species when the catch is sold, most states do not collect landings data when the harvests are retained for personal use (*e.g.*, consumption). Thus, the landings and value of harvests retained for personal use are unknown. As a result, the economic analysis focuses on the economic effects caused by the reduction in harvest of the primary target species (*i.e.*, shrimp) due to TED use. Revenue resulting from the harvest and sale of incidentally harvested non-shrimp species by vessels participating in the southeast shrimp fisheries are accounted for in the economic analysis as illustrated in the description of the economic environment (see Section 3.4 of the FEIS).

Comment 13: The economic analysis underestimates the adverse effects on processors. The assertion that processors can substitute imports for domestic product if landings are reduced because of the regulations is inaccurate because imports are not a good substitute or cannot be substituted for domestic product.

Response: We disagree that the adverse economic effects on processors in the FEIS are underestimated. We consider those estimates to represent the best available data. Further, the claims that imports are not a good substitute for domestic product and that the processing sector cannot substitute imports in place of reduced domestic landings are not supported by the available data and research (Keithly *et al.*, 2015 as referenced in the FEIS). All research conducted to date, as well as the industry's statements, support the conclusion that imports compete with and are, therefore, substitutes for domestic product, as reflected by the fact that increases in imports have historically caused reductions in domestic shrimp prices. The data also indicate that the processing sector has increased its use of imports when domestic production has declined, and thus imports are used as a substitute for domestic product. However, we agree that the processing sector has become more dependent on domestic production in recent years. Larger processors are also better able to substitute imports for domestic production. We also agree it may be difficult for small processors to substitute imports for lost domestic production or otherwise mitigate the adverse effects from such reductions, particularly if some vessels cease operations because of this regulatory action. We discuss these conclusions in Sections 4.3 and 5.4 of the FEIS.

Comment 14: The proposed regulations would reduce public access to domestic shrimp, particularly from smaller vessels that market shrimp directly.

Response: Based on the economic analysis in the FEIS, we expect landings by vessels directly affected by this rule to decrease. To the extent the affected vessels act as their own dealers and sell shrimp directly to the public, a reduction in public access to domestic shrimp is expected. Many of these vessels are relatively small within the context of the fleets in the southeast shrimp fisheries. However, this final rule affects nearly 82 percent fewer vessels and the total expected loss in domestic landings is about 66 percent less relative to the preferred alternative in the DEIS. Thus, these adverse effects have been reduced as a result of the change to the preferred alternative.

Comment 15: NOAA's economic analysis underestimates shrimp loss.

Response: The economic analysis uses estimates of shrimp loss resulting from extensive testing of TEDs in skimmer trawls. We discuss these results in Sections 3.1 and 4.3.8 of the FEIS. The analysis of economic effects resulting from shrimp loss presented in the FEIS represents the best available information on the subject. Therefore, we believe the current estimates of shrimp loss in the FEIS to be accurate given the availability of current information. These results are also discussed below in the classification section of this rule.

Comment 16: NOAA fails to analyze the broader economic effects of the proposed TED requirements on coastal communities, including loss of jobs.

Response: The expected economic impacts of the proposed TED requirements in terms of expected reductions in employment (jobs), income, total value added, and output for the Gulf of Mexico and South Atlantic are provided in the Regulatory Impact Review (RIR) (see Section 5.5 of the DEIS and Section 5.7 of the FEIS). We revised these estimates in the FEIS to reflect the new preferred alternative. A national economic impacts model or state models can generate these estimates. If economic impacts are estimated state by state using the state models, the total economic impacts from the rule would be underestimated because potentially significant relationships between businesses across states would not be taken into account, unlike the national model which does account for those relationships. We chose to use the national model so as not to underestimate the total economic impacts of the rule. Our economic impacts models do not generate these estimates at the community level, as we do not have the necessary business relationship and activity data at that level. Section 3.5 of the FEIS describes communities that are the most likely to experience effects through the identification of top communities by regional quotient, licenses, and active fishers and through the identification of communities with processors. In addition, we added qualitative text on the loss of jobs at the community level to Section 4.4 of the FEIS in response to this comment.

Comment 17: NOAA's economic analysis does not take into account the long-term economic effect of vessels ceasing operations.

Response: We discuss the expected long-term economic effects if some vessels cease operations under all considered alternatives in Section 4.3.11 of both the DEIS and FEIS. The analyses consider direct effects on the harvesting sector (vessels) and indirect effects on the onshore sector (dealers, processors, and TED manufacturers). We discuss additional information regarding the expected long-term economic effects of the rule if certain vessels cease operations in the RIR, which we update in the FEIS to reflect the new preferred alternative.

Comment 18: NOAA's economic analysis does not take into consideration vessel devaluation due to the proposed TED requirements.

Response: We acknowledge that the new TED requirements in this rule can reduce the profitability of the adversely affected vessels and, thus, their market value. However, we do not have models that would allow us to project the potential magnitude of such decreases, particularly as most of the affected vessels do not have Federal permits and we only have one year of recent data regarding the market value of such vessels in the Gulf of Mexico. The reductions could be significant if some vessels shut down due to this regulatory action. On the other hand, the TED requirement would also eliminate the competitive advantage the affected vessels have had over otter trawl vessels, which have been required to use TEDs for many years. Thus, this change is not necessarily a cost to society. Nevertheless, we have included qualitative statements regarding these expected effects in the FEIS where applicable. Additionally, the change to the preferred alternative is expected to result in significantly fewer vessels being devalued compared to the proposed rule.

Comment 19: A six percent loss in shrimp is not trivial given the margins of the inshore skimmer trawl fisheries.

Response: We agree that a six percent loss in shrimp catch due to the new TED requirements is not trivial. The expected adverse economic effects resulting from shrimp loss are discussed in Section 4.4 of the FEIS, in the RIR (Section 5 of the DEIS and FEIS), and the Initial and Final Regulatory Flexibility Act Analyses (Section 6 of the DEIS and FEIS). The significance of these effects is discussed in absolute terms as well as in relative terms (*i.e.*, given the different profit margins for various types of vessels in the shrimp fisheries, as discussed in Section 3.4 of the DEIS and FEIS). The magnitude of these adverse economic effects is further reflected by our expectation that about 32 percent of the affected part-time vessels could cease operations due to this rule, generating even greater reductions in landings and gross revenue to the industry. The change in the preferred alternative, however, has significantly reduced the total adverse economic effects expected to result from shrimp loss.

Comment 20: An independent cost estimate of the proposed regulations determined the average initial TED acquisition cost of \$32,648 per vessel. Another comment estimated \$20,000 to outfit TEDs in their nets. Yet another states many skimmer vessels use Dyneema and a single net can cost \$5,000 for materials alone; to have 4-6 nets ready to fish could cost over \$30,000 for just one vessel.

Response: Without specific information on these referenced estimates, we cannot provide a detailed response. However, it appears that these cost estimates may include vessel rigging modification and/or the purchase of new nets, which would not be necessary under the proposed regulation. TEDs can be easily installed into existing trawls between the trawl body and tail bag. Based on TED testing aboard commercial vessels, modifications to vessel rigging to accommodate TED use are unnecessary or minor and rarely occur. The estimates in the DEIS were based on the cost to purchase TEDs for actively fished nets and one set of spare nets for each vessel (*i.e.*, four total TEDs if a vessel uses two nets). The prices ranged based on vessel size (*i.e.*, smaller vessels assumed to fish with smaller, less expensive TEDs than larger vessels). We based the cost estimates

on “average” TEDs constructed of conventional materials that are currently available to fishers. TEDs can vary in price based on design (*e.g.*, flat bar TED). Vessels that desire to purchase additional TEDs beyond the minimum needed to continue fishing under this rule would incur additional costs.

Comment 21: NOAA’s economic analysis overestimates shrimp loss (*i.e.*, NOAA should include catch loss rates from 4-inch TED testing).

Response: As previously stated, we believe the economic effects resulting from shrimp loss presented in the DEIS represents the best available information on the subject. We disagree with the assertion that we should include catch loss rates from previous four-inch bar spacing TED testing. This action would require skimmer trawl vessels 40 feet and greater in length to use TEDs with 3-inch bar spacing instead of tow times. Research results on designs not authorized under this action are not appropriate for this analysis.

Comment 22: NOAA fails to take into consideration (*i.e.*, benefit) the lack of tow times could offset shrimp loss.

Response: We do not expect the removal of a tow time limit to offset shrimp loss. Fishers can attempt to make up shrimp loss stemming from the use of TEDs by increasing the number and duration of tows, and thereby increasing their total catch and revenue, however, this could increase costs, such as fuel and labor. In addition, catch rates (*i.e.*, catch per unit of effort) tend to decrease as towing time (effort) increases in the same area and, in turn, revenue per unit of effort is expected to decrease as towing time increases. Neither economic theory nor the available economic data can help us to determine whether the additional revenues from towing longer will exceed the additional costs.

Comment 23: NOAA overestimates the number of vessels affected by the proposed TED requirements; NOAA should exclude vessels anticipated to cease operations because of the TED requirements from the economic analysis.

Response: Although there are consistency issues between some data sources, we have determined the estimates of the number of affected vessels under the alternatives

considered in the DEIS and FEIS are the best available estimates. We disagree that we should exclude vessels anticipated to cease operations from the economic analysis. If vessels cease operations as a result of the action, that is an effect of the action which needs to be considered per the requirements of Executive Order 12866, the Regulatory Flexibility Act, and the National Environmental Policy Act. To exclude and ignore this effect would distort the analysis and misinform managers and the public.

Comment 24: NOAA inconsistently estimates the per-vessel costs of TEDs and does not clearly explain how many TEDs each vessel will need.

Response: The explanation of how many TEDs each vessel will need and how the estimates of per-vessel TED costs were generated is provided in both the DEIS (pp. 156-157) and the proposed rule. Specifically, the analysis assumes each affected vessel would be required to acquire TEDs for each net fished plus one spare for each net. TED costs vary by vessel size and type. Practically all vessels affected under this rule fish with two nets, which would result in each vessel acquiring four TEDs in total. Thus, the average cost of TEDs per vessel is approximately \$1,300 under this rule. Larger vessels would likely use larger TEDs, which cost more, and larger vessels typically use more nets (four). More large otter trawl vessels are affected under Alternatives 6 and 7, resulting in a higher average TED cost per vessel (approximately \$1,700) compared to the other considered alternatives.

Comment 25: NOAA should analyze the economic effects of full-time and part-time vessels separately versus averaging across all vessels.

Response: The analysis of economic effects for all alternatives considered in the DEIS and FEIS looks at average effects across all vessels as well as average effects separately for different types of vessels, including part-time vessels (those in the Q1, Q2, and Q3 categories) and full-time vessels (all other categories).

Comment 26: NOAA should expand the economic analysis to include the benefits of TEDs (e.g., improved fuel efficiency due to reduced drag from excluding debris and

bycatch; increased price due to improved condition of catch; reduced sorting time) and value of sea turtles beyond simple “conservation value” of the species (*e.g.*, tourism).

Response: We agree that there are other potential benefits from the use of TEDs such as improved fuel efficiency, reduced sorting time, and increased value of product. For example, we anticipate some ancillary benefits from TED use in high debris areas, as the reduction of debris trapped in the tailbag would prevent damage to the catch, thereby increasing the quality (*e.g.*, promoting harvest of whole shrimp rather than pieces) and potentially increasing the price per pound. We also acknowledge that sea turtles are a source of demand for ecotourism in the region. However, based on the existing peer-reviewed literature, there is no theoretical or empirical basis for asserting that the expected reductions in sea turtle mortalities under this rule will result in increased ecotourism and concomitant economic benefits. In addition, we currently lack data and models to quantitatively estimate these ancillary benefits. We have summarized these issues qualitatively and have addressed this comment in Section 5 (RIR) of the FEIS.

Comment 27: The use of TEDs by skimmer trawls would remove the Monterey Bay Aquarium Seafood Watch’s Red Listing of Gulf of Mexico shrimp harvested by skimmer trawls and expand industry markets, and likely increase profits.

Response: Monterey Bay Aquarium and several environmental groups provided comments on the proposed rule, which stated that sea turtle bycatch is a serious concern in the fisheries and contributed to the current red list rating of the skimmer trawl fisheries. We agree that the use of TEDs by skimmer trawl vessels could result in a different listing by the Monterey Bay Aquarium Seafood Watch program. However, this regulatory action does not guarantee a change in the rating. Monterey Bay Aquarium has committed to promptly update their scientific assessment, but has not committed to the outcome of that assessment. Therefore, we cannot assume what the Monterey Bay Aquarium’s rating for the skimmer trawl fisheries will be after implementing the final rule, nor the resulting economic benefits to the fisheries.

Comment 28: The use of TEDs by skimmer trawls would reduce additional bycatch aside from sea turtles, in turn benefitting other commercial and recreational fisheries.

Response: We agree that the use of TEDs by skimmer trawls would reduce additional bycatch other than sea turtles. Numerous studies indicate TEDs reduce finfish bycatch, crustaceans, and debris, resulting in benefits to the local ecosystem (see Section 4.2 of the FEIS).

Comment 29: NOAA should expand its environmental justice analysis by including additional analyses on how the proposed regulations may have high and disproportionate impacts on lower-income generating small fishing operations, expanding the analysis of effects to vessels that cease fishing operations as a result of the regulations, and summarizing the outreach efforts to foster public participation by minority and low income populations.

Response: The environmental justice analysis in the FEIS has been expanded. Specifically, new text has been added including a summary of the public participation process, a qualitative discussion of impacts to lower-income generating small fishing operations, and a qualitative discussion of the effects to vessels that cease fishing operations because of this action. As noted above, by limiting the TED requirement to vessels 40 feet and greater in length, the economic impact to industry is significantly reduced from the proposed rule to the final rule.

Data-Related Comments

Comment 30: The DEIS and proposed rule did not demonstrate whether or how the expected mortality reduction of “small” sea turtles will contribute to population recovery of the sea turtle species and DPSs that occur within the southeastern U.S. The proposed rule and DEIS did not define “small” for each sea turtle species. In addition, the DEIS and proposed rule lacked analyses based on stock assessment models showing how abundance trends respond to the projected reduction in sea turtle mortality attributable to the new

regulations, and evaluations of relative reproductive values or adult equivalents of “small” female sea turtles documented to have been incidentally captured and killed in skimmer trawls, pusher-head trawls, and wing nets within the southeastern U.S. shrimp fisheries.

Response: At present, we do not have stock assessment models for all sea turtle species impacted by this regulation. The conservation need for TEDs to reduce the bycatch of Kemp’s ridley sea turtles in the skimmer trawl fisheries was identified in the Kemp’s Ridley Recovery Plan (NOAA and USFWS 2011). A formal threats assessment identified skimmer trawls, among the trawl types not currently required to use TEDs, as a significant mortality threat, collectively resulting in an estimated annual mortality, adjusted for reproductive value, of 1,218 adult females annually (NOAA and USFWS 2011, Table A1-7). At the November 2014 meeting of the Kemp’s Ridley Recovery Team (https://www.fws.gov/kempstridley/pdfs/KempsRidley_BiNationalTeam_Nov2014.pdf), the team identified requiring TEDs in the skimmer trawl fisheries (*i.e.*, the largest component of the trawl fisheries not currently required to use TEDs) as one of the four most critical recovery actions that needed to be completed.

With regard to size, observer data from skimmer trawl vessels show interactions with green sea turtles ranging from 21.0 cm to 33.5 cm curved carapace length (CCL) and Kemp’s ridley sea turtles ranging from 19.3 cm to 45.6 cm CCL (Stokes and Gearhart 2016). We did not explicitly define “small” because the size range varies across species and can change over time. In general, the term “small” refers to the small juvenile stage.

Comment 31: NOAA’s data is insufficient to support this regulation.

Response: While we disagree and believe sufficient information has been gathered and presented to the public, all of which warrants measures to reduce sea turtle bycatch and mortality in the skimmer trawl fisheries, we do note this final rule differs from the proposed rule due to further data analysis. We have presented four years of observer data that demonstrates skimmer trawls capture sea turtles in their nets, some of which resulted in mortalities. Likewise, we have included information indicating that post-interaction

mortality may occur to trawl-caught sea turtles that are released alive and in seemingly otherwise normal condition. We have also conducted extensive TED testing on skimmer trawl vessels using a variety of configurations and fishing under a variety of different conditions to determine the resultant catch loss under each scenario. Additional economic and social data are included and discussed in the FEIS and these have been determined to be the best available data. A new analysis of sea turtle bycatch and bycatch mortality in the otter trawl shrimp fisheries (Babcock *et al.* 2018 as referenced in the FEIS) indicates bycatch by otter trawlers is significantly lower than previously estimated, and further supports the need for sea turtle conservation in the skimmer trawl fisheries; this information is discussed further in the FEIS. While more data is always beneficial and desired, we believe sufficient data has been gathered, analyzed, and presented to support this action. Where data was lacking or the efficacy of TEDs merited further evaluation, as was the case with requiring the use of TEDs in pusher-head trawls, wing-nets, and smaller skimmer trawls, we narrowed the scope of the final rule accordingly.

Comment 32: New regulations are unnecessary, as NOAA's own data indicates sea turtle populations are recovering under the status quo.

Response: While there have been improvements in nesting numbers of several species of sea turtles, we still have recovery goals to meet for all ESA-listed sea turtle species. As mentioned in our response to Comment 10, in order to promote the continued conservation of these populations, we must continue to consider and implement conservation measures that will provide adequate protection for sea turtle populations and help us achieve our ESA recovery goals and objectives. The ESA requires us to issue regulations deemed necessary and advisable to provide for the conservation of any species listed as threatened and broadly authorizes the promulgation of regulations as may be appropriate to enforce the Act. Therefore, while these species remain listed under the ESA, we are required to continue our efforts to recover these species. Specific recovery metrics that would result in downlisting or delisting from the ESA are in the recovery

plans for each sea turtle species. In addition, as noted in our response to Comment 30, the Kemp's Ridley Recovery Team identified requiring TEDs in skimmer trawls as one of the four most critical recovery actions that needed to be completed. Therefore, implementing this requirement is consistent with our statutory duty to implement the recovery plan under section 4(f) of the ESA.

Comment 33: NOAA does not have sufficient evidence of tow time violations; most fishers abide by tow times for reasons other than possibility of sea turtle bycatch.

Response: We disagree, as there have been cited violations of tow time limits by skimmer trawl fishers. While we are unable to quantify the extent to which tow time violations occur, we do have evidence that it is an issue that needs to be addressed. Moreover, we have observer data that document sea turtle mortality has resulted from capture in skimmer trawl nets occurring within the tow time limits, as well as information indicating post-interaction mortality is at a significant level, even though captured sea turtles are released alive and may seem in healthy condition when released. Therefore, we believe tow time limits are not as effective in reducing sea turtle bycatch and mortality as previously thought.

Comment 34: NOAA's catch loss rates based on TED use are manipulated and vastly under-estimated. NOAA conducted TED testing at times that are not representative of peak fishing activity, which results in an underestimate of catch loss.

Response: We conducted extensive fishery-independent and fishery-dependent testing during the 2013, 2014, 2015, and 2016 fishing seasons using a variety of TED configurations and under a variety of fishery conditions off Louisiana, Mississippi, Alabama, and North Carolina. We used an established protocol to conduct this testing. Prior to analysis, data were reviewed and unsuccessful tows were removed from the dataset. Unsuccessful tows were comprised of bogged gear, bag untied, torn nets, hung gear, bags dumped together, and fouled tickler chain. Successful tows were defined as tows in which the gear worked properly and the trawl was hauled in perfect condition.

Tows with TED obstructions such as debris or crab pots were not removed from the data set and were included for analysis. However, tows in which the TED was twisted were considered captain related gear handling errors and were removed prior to analysis. In addition, tows with less than 2 kg of shrimp per net for both nets were removed prior to analysis.

We also attempted to conduct fishery-dependent work during the opening of shrimp season where catch rates would be expected to be highest, but were unable to find vessels willing to participate; fishers desired to focus on the season opener to maximize fishing time and catch. We attempted several times to address this issue with industry. Therefore, the resulting data from this research represents the best available science, and we believe it adequately reflects average fishing conditions. We document these findings in the FEIS and the primary study (Gearhart in press).

Comment 35: NOAA has not provided any data on wing nets or anchored vessels; TEDs will not work in vessels anchored and fishing tidal current.

Response: To date, we have not conducted TED testing on wing nets or anchored vessels. This gear fishes very differently from trawl vessels. This lack of research, among other reasons, has led us to change the preferred alternative in the FEIS and adjust our final rule accordingly.

Comment 36: Averaging observer catch data to all vessels, including small vessels that work in shallow water where sea turtles may not be as abundant, and extrapolating the skimmer trawl observer data to the wing net and pusher-head trawl fisheries is inappropriate.

Response: In order to determine the effects the shrimp fisheries have on threatened and endangered sea turtles, we must consider the entirety of the fisheries instead of just limited, observed vessels. Averaging limited data across an entire fishery is an acceptable practice, and has been conducted for numerous fisheries for several decades. We maintain the skimmer trawl observer data gathered over several years and in numerous states is the

best available information on the skimmer trawl fisheries. Averaging these data helps to avoid overestimating or underestimating, which may occur when using data from a single year. We do not have discrete sea turtle abundance data that would lend itself to further refining catch rates by water depth or area to support or refute the commenter's assertion that sea turtles are not as abundant in shallow water. Therefore, we disagree with the first portion of this comment. We do agree, however, that applying observer data from skimmer trawls to wing nets and pusher-head trawls is problematic. In addition, comments raising safety and other practical concerns about using TEDs on small skimmer trawls factored into the decision to change the preferred alternative and modify the final rule to focus solely on skimmer trawl vessels 40 feet and greater in length.

Comment 37: NOAA grossly overestimates sea turtle mortality attributable to the skimmer trawl fisheries; the commenter asserts the average skimmer trawl vessel would experience one sea turtle mortality every eight years by only considering sea turtles released dead (n=3).

Response: We disagree with the commenter's assertion that sea turtle mortality is overestimated, and note the commenter fails to take into consideration post-interaction mortality in their estimate. We went to considerable lengths in the DEIS and FEIS to describe the process by which we estimated bycatch mortality using the best available information. Based on that information, we believe the combined skimmer trawl, pusher-head trawl, and wing net fisheries (*i.e.*, 5,837 total vessels) may result in 2,165-2,942 sea turtle mortalities per year. Averaged across the whole fleet evenly, this would result in one sea turtle mortality per vessel every 1.98-2.7 years. Annual fishing effort, however, is not evenly distributed among vessels in the fleet, so this rate is of limited utility. The majority of the skimmer trawl, pusher-head trawl, and wing net fleet consists of part-time vessels that do not fish as often as full-time vessels. Therefore, we expect the rate to be significantly higher among the smaller population of full-time skimmer trawl, pusher-head trawl, and wing net vessels, many of which are 40 feet and greater in length.

Comment 38: NOAA's observer data demonstrates otter trawls with installed TEDs resulted in higher sea turtle mortality than skimmer trawls without TEDs.

Response: We disagree with this comment. As noted previously, we take into consideration post-interaction mortality when considering the effect of the skimmer trawl fleet (*i.e.*, on vessels not using TEDs) on sea turtle populations. The period and sample sizes (*i.e.*, hours of fishing effort observed) differ between the otter and skimmer trawl fleets for calculating mortality rates by gear type. From 2011-2015, we observed 13 sea turtles released dead from otter trawls fishing with TED-equipped nets (<https://www.fisheries.noaa.gov/webdam/download/93552747>), while during 2012-2015 we observed 3 sea turtles released dead from skimmer trawl vessels fishing without TEDs. During the respective periods, however, we observed 86,658 hours of effort on otter trawlers (E. Scott-Denton, NMFS, pers. comm.), while only 2,699 hours of effort were observed on skimmer trawl vessels. That equates to one observed dead turtle released every 6,666 hours on otter trawlers versus one observed dead turtle released every 900 hours on skimmer trawl vessels. This indicates considerably more observed lethal sea turtle interactions with skimmer trawl vessels than otter trawlers.

A new analysis of sea turtle bycatch and bycatch mortality in the otter trawl shrimp fisheries (Babcock *et al.* 2018) indicates bycatch by otter trawlers is significantly lower than previously estimated in past biological opinions. Furthermore, the results suggest that skimmer trawlers working without TEDs may result in more sea turtle mortalities than otter trawlers working with TEDs, even with lower total annual effort. This information is discussed in more detail in the FEIS.

Comment 39: A six-month delay in effectiveness is unrealistic given NOAA's own data indicates it would take more than two years to fabricate enough TEDs for vessels to use.

Response: We agree, and while the estimates are based on the best available information, we acknowledge that there is considerable uncertainty associated with

estimating how many new TEDs will actually be installed, as well as how quickly the necessary TEDs will be constructed. TED production time was one of the factors considered when we decided to change the preferred alternative to one that will affect nearly 82 percent fewer vessels and require much less production time for the necessary number of TEDs. We also have extended the delay in effectiveness until April 1, 2021.

Comment 40: NOAA must maintain oversight over the electronic logbook data program.

Response: Electronic logbooks (ELBs) are required under a fishery management plan developed by the Gulf of Mexico Fishery Management Council, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, only on selected vessels with a Federal Gulf of Mexico shrimp moratorium permit. The vast majority of vessels that use skimmer trawls do not have Federal permits and, thus, are not required to use ELBs. While we do maintain effective oversight over the ELB program, the program itself is not associated with this final rule.

Gear and Fishery-Related Comments

Comment 41: NOAA's proposed regulation is discriminatory against certain fishers since it maintains tow times for bait shrimpers.

Response: The proposed regulation, as well as the final rule, focuses on the segments of the shrimp fisheries that are documented to have levels of bycatch mortality that can be reduced using TEDs. The bait shrimp fishery operates with tow times shorter than the alternative tow-time requirements per 50 CFR 223.206(d)(2)(ii)(A), to ensure shrimp are captured and transferred to a live well alive and in good condition. Based on this information, we determined the bait shrimp fishery presents a low risk of sea turtle bycatch and mortality and does not warrant additional restrictions at this time.

Comment 42: Biscayne Bay wing net vessels should be restricted to a maximum tow time of 10 minutes with observers to evaluate potential bycatch issues.

Response: Biscayne Bay wing nets are limited by state law to a frame size much smaller than frames of wing nets in other states. They also fish by sight in surface waters, and use nets constructed of light monofilament webbing. We have initially concluded this fishery may not present a threat to sea turtles. However, further investigation is needed to make a final determination.

Comment 43: Beam trawl vessels operating in the Corpus Christi Bay, Texas bait shrimp fishery should be exempt from the proposed TED requirements, similar to the Biscayne Bay wing net fishery exemption.

Response: Beam trawl vessels are exempt from existing TED requirements if they comply with provisions at 50 CFR 223.206(d)(2)(ii)(B)(1). The proposed and final regulations do not change the requirements for beam trawlers, which are currently required to fish with TEDs, excluding those that comply with the aforementioned exception.

Comment 44: TED requirements present safety issues when used on small vessels (*e.g.*, walking out on frames to remove debris snagged in TEDs, extension can result in net getting entangled in the propeller, *etc.*).

Response: The TED is installed just in front of where the tail bag is brought alongside or onboard the vessel for dumping, so walking out on frames to remove debris from the TED is unnecessary. Further, this rule exempts skimmer trawl vessels less than 40 feet in length to allow us additional time to examine issues related to TED use on these smaller vessels, including potential safety issues, which may be more significant for them. Skimmer trawl vessels less than 40 feet in length will continue to be required to comply with the existing tow time requirements.

Comment 45: An installed TED on a small vessel may introduce issues with dumping the catch, as the TED extension may prevent the net from fully clearing the surface and complicate hauling it on deck. If the vessel is moving during the process, the TED may cause the net to twist tight, further complicating the situation.

Response: Skimmer trawl vessels less than 40 feet in length are exempt from the TED requirement in this final rule, but must continue to comply with the existing tow time requirements. We intend to examine issues that may be unique to these vessels to determine methods to mitigate those issues in the future. With respect to a twisting net, we found during TED testing this can be alleviated by either changing the location of the lazy line attachment on the trawl or changing the lifting point in the rigging to allow the TED to clear the water during haul back.

Comment 46: TEDs installed in skimmer nets exhibit a rolling action that twists the net and closes it, making it ineffective at catching anything.

Response: This rule will only authorize top-opening TEDs. Top-opening TEDs often begin with a half twist in the net when deployed. During active fishing with skimmer frames lowered and nets and bullets deployed, water flow opens the trawl and causes the TED to untwist and adjust into the proper fishing position. We anticipate that fishers will have to become familiar with how TEDs function and behave in their nets or under their specific fishing conditions, and adjust their activities to ensure their nets with installed TEDs are fishing correctly.

Comment 47: Excessive debris such as crab traps and tree limbs will accumulate on the TED grid and result in excessive catch loss.

Response: We acknowledge that the inshore/nearshore skimmer trawl fisheries encounter more debris while fishing compared to the offshore shrimp fisheries. Abandoned crab traps and debris, particularly debris after storms, currently present issues for skimmer trawl vessels. TEDs may actually help exclude some of this debris. In situations where there are numerous abandoned crab traps or excessive debris, fishers regularly check their nets to ensure entrained traps and debris are not negatively affecting their catch rates. We expect fishers to continue this practice with TEDs installed in their nets. Depending on the net and TED size, the diameter of the trawl just ahead of the TED is not large enough to allow crab traps or large debris to reach the TED. The use of TEDs

facilitates crab trap and debris removal, alleviating the need for zippers that typically are used in skimmer trawls for debris removal, as discussed in response to Comment 7.

Comment 48: The proposed tow time definition presents issues for vessels without hydraulics (*i.e.*, time to raise/lower gear) or for small vessels due to safety (*e.g.*, raising and lowering rig constantly presents stability issues).

Response: We agree the proposed tow time definition may present issues for small vessels or vessels rigged without hydraulics. As a result, we have amended the tow time definition in this final rule to avoid issues related to constantly raising and lowering the skimmer trawl rig.

Comment 49: Small vessels cannot use a standard TED grid and need a smaller grid to fit in the nets.

Response: In response to comments relating to the feasibility of using TEDs on small vessels, and because we have not comprehensively tested TEDs on small vessels, we have changed our preferred alternative. As a result, skimmer trawl vessels less than 40 feet in length will have to continue to follow the tow time requirements. We will examine this and other issues related to TED use on small vessels and present solutions or adaptations to these potential issues so that TEDs could be effectively used on these smaller vessels in the future.

Comment 50: In some skimmer vessels, the entire net would have to be specially made to fit effective TEDs in the net.

Response: Nets used on skimmer trawl vessels 40 feet and greater in length can accommodate a standard TED, and as discussed in response to Comment 20, necessary modifications to rigging, if any, are expected to be minor.

Comment 51: Some skimmer vessels use A-frame rigging designed for short nets. The use of TEDs would require lengthening the net, and modifications to the A-frame rigging to pick up the nets, which could cost anywhere from \$1,000-\$10,000, depending on the size of vessel, extent of change, and costs of material and labor.

Response: The installation of a TED into a skimmer trawl adds four to five feet of length to the trawl. It may be necessary to install the TED farther forward in the trawl to partially compensate for the added length. Adjusting the lazy line attachment point on the tailbag may also be necessary to compensate for the added length. Each of these adjustments alleviates the need to change rigging configurations to compensate for TED installation.

Comment 52: The use of TEDs by small vessels with limited horsepower would slow the boat down to the point it would be ineffective.

Response: We do not expect skimmer trawl vessels to have difficulty pushing nets with TEDs installed due to limited horsepower. These vessels are typically powered to move trawls that contain significant amounts of catch. This catch increases the drag on the vessel. The addition of a TED is inconsequential with respect to the drag in the net relative to the catch. Instead, drag is reduced through TED use by reducing the amount of bycatch entrained in the net.

Comment 53: Fishers have serious concerns that TEDs would not work on their type or size of vessel and result in them having to convert to otter trawls, which would cost \$20,000-\$30,000.

Response: Results of TED testing indicates that TEDs will work effectively on vessels encompassed by this final rule (*i.e.*, skimmer trawl vessels 40 feet and greater in length). We do not believe the associated economic effects of TED use in skimmer trawls are sufficient to make switching gears necessary, particularly considering TEDs are already required in the otter trawl fisheries.

Recommendations

Comment 54: NOAA needs to prepare a detailed enforcement plan, including the number of officers and vessels needed; minimum/maximum enforcement levels by time and area; the use of partner agencies, observers, and trained volunteer patrols; use of

onboard cameras; implementation of emergency closures if enforcement (compliance) is not adequate; and other approaches to achieve a 94 percent TED compliance level.

Response: Our Office of Law Enforcement (OLE) is committed to enforcing the laws and regulations associated with TEDs. On a continuing basis, OLE management is evaluating how it can best use its resources in meeting OLE's overall mission of protecting the marine resources of the United States. OLE meets this mission through formal and informal relationships with other enforcement partners. TED compliance is but one regulatory requirement OLE and its partners are responsible for enforcing. We have had extensive discussions on this subject with our enforcement partners, and have developed a TED Compliance Policy that we also intend to integrate for the skimmer trawl fisheries. The TED Compliance Policy (<https://www.fisheries.noaa.gov/webdam/download/93552419>) outlines what data will be used, the time periods for calculating compliance, and discusses measures that would be taken if TED effectiveness falls below the TED compliance thresholds designated in the April 18, 2014, biological opinion on the southeastern shrimp fisheries.

Comment 55: NOAA should conduct a detailed analysis of sea turtle abundance, fishing effort, and stranding patterns to determine hotspots of sea turtle mortality in the fishery.

Response: A detailed analysis of sea turtle mortality hot spots would be a valuable exercise. But given the annual variability in sea turtle distribution, population size, and seasonal influences such as water temperature, wind speed and direction, and prey availability, as well as numerous other factors, the recommended analysis would not likely change how this rule is implemented. The use of TEDs can significantly reduce fishery-related bycatch and mortality on a regular basis, regardless of variability in sea turtle distribution, hence it is our preferred action over other alternatives considered in the DEIS and FEIS.

Comment 56: NOAA should investigate and promptly enact appropriate time and area closures for the fishery to protect important sea turtle habitat and populations.

Response: We regularly investigate all significant events in an attempt to learn the causative factor(s) for sea turtle mortality. In some cases, these factors are not readily identifiable, even after several years of investigation. If we determine an activity or source of mortality and habitat impacts can be prevented or mitigated by time/area closures, we would explore that option at the appropriate time based on available information.

Comment 57: TED use should be based on inside/outside waters as defined by the Louisiana Statutes 45:495, and only required in outside waters.

Response: Fisheries observer data from skimmer trawl vessels demonstrate that sea turtles occur within areas defined as inside waters by the Louisiana Statutes. The inside/outside waters definition also does not correlate with bathymetric or other sea turtle habitat preferences in a manner that lends itself to practical consideration. This recommendation would not effectively achieve our recovery goals and objectives of reducing bycatch and mortality of sea turtles in the shrimp fisheries.

Comment 58: Maintain existing tow times and enforce them through mandatory use of electronic vessel monitoring.

Response: The use of electronic vessel monitoring systems (VMS) is a potential management option, but one that was not considered due to the inherent difficulties in requiring such a system on thousands of vessels of differing sizes and configurations. Whereas VMS could be more effective on a more homogenous fleet of larger vessels, we determined it was not viable for the skimmer trawl fisheries. We have also looked at other options, such as a data logger to monitor tow times. However, since the revised tow time definition included in this final rule allows the frame to continually fish, it is impractical to configure a data logger to monitor tow times. We have documented that sea turtle bycatch and mortality, including post-interaction mortality, can occur within the allowable

tow time limits. Therefore, TEDs represent the most effective measure to reduce sea turtle bycatch and mortality in these fisheries.

Comment 59: NOAA should provide TEDs to all fishers and allow a one-year trial period before making the requirement effective.

Response: We are currently exploring avenues for financial support that could provide TEDs to affected fishers. We do expect that affected fishers could receive assistance from the Fishery Finance Program, which could provide low-interest loans for fishers to purchase the required TEDs, although the program has not been used for this type of gear purchase in the past. Given the number of fishers affected and number of TEDs required, we are delaying effectiveness of this final rule until April 1, 2021. While this delay in effectiveness is not considered a trial period, it does provide fishers additional time to adapt to fishing with TEDs in their specific fishing conditions.

Comment 60: NOAA should have mitigation measures for the loss of shrimp due to TED use, as well as economic assistance to purchase TEDs. NOAA should explore opportunities to provide fishers TED training or TEDs with funding allocated to one or more of the Trustee Implementation Groups under the DEEPWATER HORIZON oil spill program.

Response: As previously mentioned in Comment 59, we are exploring measures to provide financial support for affected fishers to acquire TEDs. We have also considered the need for outreach and training efforts to assist fishers with the installation and maintenance of TEDs in their nets. We will be scheduling and announcing future TED training workshops to be conducted during the phase-in period.

Comment 61: NOAA needs to conduct a sea turtle stock assessment to determine population levels to determine if additional regulations are necessary.

Response: We disagree with this comment. While stock assessments for all sea turtle species would be beneficial for management purposes, we are mandated to implement management measures deemed necessary and advisable to recover threatened

and endangered species under our purview. Given that fisheries observer data indicates sea turtle bycatch and mortality is occurring in the skimmer trawl fisheries, delaying management action to conduct stock assessments is not warranted.

Comment 62: If TEDs are required, implementation should be phased in over two to three years by breaking vessels into size classes or based on landings.

Response: We considered public comments such as this when determining how to implement the final rule. Since the revised final rule affects approximately 82 percent fewer fishers than the preferred alternative in the DEIS, we determined a single delayed implementation date would be most appropriate for fishers, management, and enforcement since this alternative requires much less production time for the necessary number of TEDs.

Comment 63: Due to issues with debris clogging in shallow water and the assumption a TED would lose angle, thereby increasing catch loss, NOAA should exempt TED use in waters 2-4 feet in depth.

Response: As mentioned in our response to Comment 7, TED testing aboard commercial vessels indicates that TEDs operate effectively in depths as shallow as 2 feet. Therefore, an exemption based on water depth is not warranted.

Comment 64: NOAA should exempt all skimmer trawls less than 40 feet in length from the TED requirements.

Response: Based on public comment and further deliberation, we revised our final rule to exempt skimmer trawl vessels less than 40 feet in length.

Comment 65: NOAA should look at other sea turtle issues such as vessel impacts, pollution, explosive demolition of oil rigs, and other fisheries including recreational fisheries, etc.

Response: Sea turtles face a variety of threats including vessel impacts, pollution, and bycatch in other fisheries. We address the impacts of various threats to sea turtles, and

several other management actions that mitigate these impacts on sea turtle populations are discussed in Section 3 of the DEIS and FEIS.

Comment 66: Ban trawlers.

Response: We believe the use of TEDs in trawl nets reduces sea turtle bycatch in these fisheries to acceptable levels, which meets our goals and objectives for sea turtle conservation. A ban on all trawl gear is an extreme measure not warranted to support sea turtle conservation.

Comment 67: The TED implementation strategy should be based on what provides the greatest conservation benefit, and a phased approach may be necessary.

Response: Based on public comments raising performance and safety issues with TED use on smaller vessels and regarding the economic impacts of the proposed rule, and new information indicating significantly lower levels of sea turtle mortality in the offshore fleet, we have revised the regulation to now limit the TED requirements to skimmer trawl vessels 40 feet and greater in length. The more focused scope of the final rule will allow for faster implementation of the TED requirement and is expected to result in a significant conservation benefit of 801-1,168 sea turtles annually in the Southeastern U.S. shrimp fisheries. We may address other trawls, such as pusher-head trawls, wing nets, and try nets, as well as small skimmer trawl vessels, in future rulemaking.

Comment 68: Double rig trawlers should be banned in the lakes and inside waters.

Response: Double rig (otter) trawlers are currently required to use TEDs in their nets. As state shrimp fishery management issues unrelated to sea turtle bycatch and mortality are outside the purview of this action, we do not have any additional response to this comment.

Classification

This final rule has been determined to be significant for purposes of Executive Order 12866 because it may raise novel legal or policy issues out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. This significant

regulation is considered regulatory under Executive Order 13771. Depending on the assumptions used, the estimated cost of this rule in 2016 dollars is between 3.24 and 3.85 million. A discussion on the basis for these estimates is in the FEIS.

We prepared a FRFA, as required by Section 603 of the Regulatory Flexibility Act (RFA), for this final rule. The FRFA describes the economic effects this final rule would have on small entities. A description of the action, why it is being considered, the objectives of, and legal basis for this final rule are contained at the beginning of this section in the preamble and in the **SUMMARY** section of the preamble. A copy of the full analysis is available from us (see **ADDRESSES**). A summary of the FRFA follows.

The ESA provides the statutory basis for this final rule. We did not receive any comments from the U.S. Small Business Administration's Office of Advocacy on the IRFA in the proposed rule. We received 18 comments from the public regarding the IRFA in the proposed rule and the economic effects analysis in the DEIS; see comments 11-28 in the preamble of this rule. Comment 39 regarding the delay in the effectiveness of this rule is also germane. These comments and our responses are incorporated here by reference. The preferred alternative and the tow time definition in this final rule were changed from the proposed rule, based in part on these comments. The reasons for these changes are discussed in the preamble and also incorporated here by reference.

No duplicative, overlapping, or conflicting Federal rules have been identified. This final rule would not establish any new reporting, record-keeping, or other compliance requirements beyond the requirement to use a TED when vessels 40 feet and greater in length use skimmer trawls to harvest shrimp in the southeastern United States. The net manufacturer typically installs TEDs, so fishers are not expected to have special skills. Some learning will likely be necessary for the maintenance and routine use of TEDs by fishers who have not historically had to use these devices. TEDs have been required in otter trawls for many years. A majority of the vessels directly regulated by this rule also used otter trawls between 2011 and 2014. Thus, many if not most vessel owners and

captains are expected to be knowledgeable of how to maintain and use TEDs. As a result, the skills required for TED use are thought to be consistent with the skillset and capabilities of commercial shrimp fishers in general and special professional skills would not be expected to be necessary. Further, we plan to engage in significant outreach efforts (*e.g.*, TED workshops and complimentary inspections by our Gear Monitoring Team) to educate owners and captains of affected skimmer vessels regarding how to use and maintain TEDs.

This final rule is expected to directly regulate businesses that operate vessels 40 feet and greater in length using skimmer trawls in the southeastern U.S. shrimp fisheries (North Carolina through Texas). An estimated 1,062 vessels use this gear (1,047 vessels in the Gulf of Mexico and 15 vessels in the South Atlantic). Although some vessels are known to be owned by businesses with the same, or substantially the same, individual owners and, thus, would be considered affiliated, ownership data is incomplete. It is not currently feasible to accurately determine the number of individual businesses these 1,062 vessels represent. While it will result in an overestimate of the actual number of businesses directly regulated by this rule, for the purposes of this analysis, we assume that each vessel is independently owned by a single business and, thus, the terms vessels and businesses are used interchangeably. Therefore, we expect this rule to directly regulate 1,062 businesses.

The average annual gross revenue (2014 dollars) over the period 2011-2014 for vessels 40 feet and greater in length that harvested shrimp using skimmer trawls was approximately \$76,529 for vessels in the Gulf of Mexico (1,047 vessels) and \$258,756 for vessels in the South Atlantic (15 vessels). The largest average annual gross revenue earned by a single business over this period was approximately \$1.85 million. We have not identified any other small entities that might be directly affected by this regulatory action.

On December 29, 2015, we issued a final rule establishing a small business size standard of \$11 million in annual gross receipts (revenue) for all businesses primarily

engaged in the commercial fishing industry (NAICS code 11411) for RFA compliance purposes only (80 FR 81194, December 29, 2015). The \$11 million standard became effective on July 1, 2016, and replaces the prior Small Business Administration standards of \$20.5 million, \$5.5 million, and \$7.5 million for the finfish (NAICS 114111), shellfish (NAICS 114112), and other marine fishing (NAICS 114119) sectors of the U.S. commercial fishing industry in all our rules subject to the RFA after July 1, 2016 (Id. at 81194). In addition to this gross revenue standard, a business primarily involved in commercial fishing is classified as a small business if it is independently owned and operated, and is not dominant in its field of operations (including its affiliates). Based on the information above, all businesses directly regulated by this rule are determined to be small businesses for the purpose of this analysis.

This final rule is expected to directly regulate all commercial fishing entities operating vessels 40 feet and greater in length that use skimmer trawls in the southeastern U.S. shrimp fisheries, or an estimated 1,062 businesses. Data from 2011 through 2014 indicate that 9,711 vessels (8,401 in the Gulf of Mexico and 1,310 in the South Atlantic) participated in the southeastern U.S. shrimp fisheries during this time. Thus, this rule would directly regulate about 11 percent of the vessels in these fisheries, which is considered a substantial number based on existing guidance. As previously discussed, all of these affected entities have been determined, for the purpose of this analysis, to be small entities. Therefore, we determine that this rule would affect a substantial number of small entities.

This final rule would require all commercial fishing businesses that operate vessels 40 feet and greater in length using skimmer trawls in the southeastern U.S. shrimp fisheries (North Carolina through Texas) to use TEDs designed to exclude small sea turtles when shrimping. These TEDs successfully result in the reduced bycatch of small sea turtles, but they also result in shrimp loss and, thus, reduced shrimp harvest per tow. Although it may be theoretically possible to compensate for this reduction in harvest with

additional effort (*i.e.*, more tows or trips), increasing effort will also increase operating costs. With the exceptions of 2013 and 2014, the differential between shrimp and fuel prices has generally been very small in the past several years and, therefore, vessels are already operating on small positive or negative economic margins. Increasing effort is therefore likely to be economically risky in the short term, particularly for vessels that only or primarily harvest after season openings because catch per unit of effort steadily declines over the course of a trip and a season and thus the additional revenue from each tow or trip steadily declines as well. Further, if additional effort was cost-effective or profitable, this effort would already be occurring and part of baseline fishing behavior. Therefore, we do not expect that individual vessels would or could compensate for lost shrimp and the associated gross revenues by increasing effort.

Vessels affected by this final rule would likely experience economic losses from two sources: reduced shrimp revenue resulting from loss of shrimp catch caused by the use of TEDs and increased gear costs associated with the purchase, installation, maintenance, and replacement of newly required TEDs. Revenue loss from reduced shrimp harvest is expected to be recurring, barring changes in fishing practices, and the increased gear costs due to the purchase and installation of TEDs are expected to occur in the first year (*i.e.*, prior to the effective date of this rule). Under normal use and proper maintenance, a TED would last more than three years and likely much longer for many vessels. In addition, TEDs can often be repaired by the owner or operator if they have or can easily obtain the proper knowledge. TEDs have been required in otter trawls for many years and a majority of the vessels directly regulated by this regulatory action also used otter trawls between 2011 and 2014. Thus, many if not most vessel owners and captains are expected to be knowledgeable of how to maintain and use TEDs. Further, we plan to engage in significant outreach efforts to educate the owners and captains of affected skimmer vessels regarding how to use and properly maintain TEDs. Therefore, TED costs are not assumed to recur on an annual basis.

In this analysis, we assume the average shrimp loss to be 6.21 percent (estimated range of 3.07-10.61 percent), the estimated cost per TED is \$325 for small vessels (vessels less than 60 feet) and \$550 for large vessels (vessels 60 feet or longer), and vessels are assumed to purchase/carry enough TEDs for the nets towed plus one spare set. Therefore, the actual effects of this final rule on individual vessels will vary based on gear purchase decisions (*e.g.*, how many nets are used, how many spares are kept, and how many TEDs are purchased) and individual performance. Individual vessels may experience higher or lower shrimp loss than the average given their experience with TEDs. For example, fishers that have not traditionally had to use TEDs may initially experience shrimp loss greater than the average, which could persist until they become more familiar with the equipment, while shrimp loss for those who have experience with TEDs may be below the average.

Further, in this analysis, we expect neither the ex-vessel price per pound of shrimp nor the cost per TED to change in response to supply and demand conditions. Specifically, the estimated decrease in the harvest of domestic shrimp from catch loss due to the use of TEDs is not expected to result in an increase in the ex-vessel price of domestically-harvested shrimp, nor do we expect an increase in the average price (cost) of a TED. The maximum estimated number of TEDs necessary to outfit all of the vessels regulated by this regulatory action is 4,242. The assumed stability in shrimp ex-vessel prices is based on the fact that imported shrimp dominate the U.S. market and available evidence suggests the demand for shrimp is highly elastic. Whether the price of TEDs increases and the magnitude of that increase will be determined by the number of available producers (there are currently six), their capacity to meet demand (each can currently produce 20 TEDs per week), the timeframe for compliance, and the total number of TEDs needed. The total number of TEDs needed will be affected by vessel owners' purchase decisions and the number of vessels that can successfully remain in operation in the face of the higher operating costs and reduced revenue. Though not expected, if the ex-vessel price of shrimp increases due to reduced supply, this analysis will overstate the adverse economic

effects of lost shrimp revenue. Conversely, if the price of a TED increases, the adverse economic effects associated with TED costs will be understated.

Because the increased gear costs associated with purchasing TEDs would be incurred in the first year but only periodically thereafter, whereas shrimp loss would recur on each trip in every year, the following analysis focuses on first-year results (*i.e.*, results that include both TED purchase costs and shrimp revenue reduction). The adverse effects in subsequent years will be less than those in the first year. As previously stated, effects in subsequent years would be expected to vary with fishing adaptations (*e.g.*, fishers may become more skilled in how the nets with TEDs are fished, thereby reducing shrimp loss), as well as unpredictable and unknown TED replacement schedules. In this analysis, all of the monetary effects provided are in 2014 dollars.

Over all of the businesses expected to be affected (1,062 vessels), this final rule would be expected to result in a reduction in gross revenue of approximately \$2.29 million, TED costs of approximately \$1.38 million, and thus a total adverse effect of approximately \$3.67 million in the first year, assuming no vessels cease operations as a result of this rule. The average adverse effects per vessel in the first year would be \$2,159 lost gross revenue and \$1,298 in TED costs, and, thus, the average total adverse effect per vessel would be \$3,457. These effects are not expected to be uniform across Gulf of Mexico and South Atlantic vessels. The 1,047 vessels in the Gulf of Mexico are expected to experience average adverse effects of \$2,184, \$1,298, and \$3,482 in the first year with respect to lost gross revenue, TED costs, and total adverse effects, respectively. In general, the comparable values for the 15 South Atlantic vessels are much less at \$429, \$1,300, and \$1,729, respectively.

However, these values insufficiently capture the range of differences in the economic performance of vessels across the fisheries. To examine these differences, we placed vessels in a category based on their average annual gross (total) revenue from 2011-2014. These categories are based on vessel categories developed for or derived from

the annual economic reports for Federally-permitted vessels in the Gulf of Mexico and the South Atlantic, and a 2014 economic report for non-Federally-permitted vessels in the Gulf of Mexico. Vessels were placed in the category that their average annual gross revenue most closely approximated. In the South Atlantic, the distribution of gross revenue between shrimp and non-shrimp species was also taken into account.

In the Gulf of Mexico, vessels were placed into one of six categories: average Federally-permitted vessel (Federal Gulf of Mexico), Q5, Q4, Q3, Q2, and Q1. Specifically, in the Gulf of Mexico, the average annual gross revenue ranges for the Federal Gulf, Q5, Q4, Q3, Q2, and Q1 categories are as follows: \geq \$255,000, $<$ \$255,000 and \geq \$119,000, $<$ \$119,000 and \geq \$52,000, $<$ \$52,000 and \geq \$29,000, $<$ \$29,000 and \geq \$17,000, and $<$ \$17,000. In the South Atlantic, vessels were placed into nine categories: rock shrimp (RSLA), primary penaeid (SPA Primary), secondary penaeid (SPA Secondary), average Federally-permitted South Atlantic penaeid vessel (AS), Q5, Q4, Q3, Q2, and Q1. A vessel was placed in the RSLA category if 50 percent or more of its gross revenue came from shrimp and its average annual gross revenue was \geq \$456,000. A vessel was placed in the AS category if 50 percent or more of its gross revenue came from shrimp and its average annual gross revenue was $<$ \$456,000 and \geq \$216,000. A vessel was placed in the SPA Primary category if 50 percent or more of its gross revenue came from shrimp and its average annual gross revenue was $<$ \$216,000 and \geq \$119,000. Finally, a vessel was placed in the SPA Secondary category if $<$ 50 percent of its gross revenue came from shrimp and its average annual gross revenue was \geq \$119,000. The ranges are the same as in the Gulf of Mexico for the Q5, Q4, Q3, Q2, and Q1 categories.

These categories should not be presumed to imply that every vessel in a particular category has a particular permit associated with the category name, as that is not always the case. Among these vessel categories for vessels in both areas, vessels in the Q1, Q2, and Q3 categories are considered, for the purpose of this analysis, as part-time commercial

shrimp vessels (*i.e.*, vessels that are only engaged in commercial fishing part-time) and vessels in each of the other categories are considered full-time vessels.

For Gulf of Mexico vessels, the number of vessels expected to be directly regulated by this final rule and their average annual gross revenue for 2011-2014 by category are as follows: 265 vessels and \$6,661 (Q1), followed by 116 vessels and \$23,060 (Q2), 169 vessels and \$39,947 (Q3), 303 vessels and \$80,411 (Q4), 139 vessels and \$163,311 (Q5), and 55 vessels and \$397,640 (Federal Gulf of Mexico). The expected average adverse effect (reduced shrimp revenue and TED cost) of this regulatory action in the first year for these vessels by category is \$1,615, \$2,175, \$2,697, \$4,677, \$6,450, and \$3,558 for vessels in each category, Q1-Q5 and Federal Gulf of Mexico, respectively.

Although the average adverse effects of this final rule could be compared to the average gross revenue to generate an estimate of the average relative (percent) effect of the rule by category, this “average to average” approach (average adverse effect/average gross revenue for each category) would provide a distorted perspective of the actual expected effects of this rule at the vessel level. For example, using this “average to average” approach for category Q1, the average estimated adverse effect of this rule would be approximately 24 percent ($\$1,615/\$6,661$), and thus the projected average adverse effect of this rule per vessel in the Q1 category would be 24 percent of average annual gross revenue). Although this outcome would not likely be considered insignificant, examination of the adverse effect by vessel (adverse effect/average gross revenue for that vessel), then averaged across all vessels, provides a much clearer picture of the expected economic burden of this regulatory action because it accounts for the heterogeneity of vessels within categories. Using this approach, the relative adverse effect of this rule as a percentage of average annual gross revenue increases to 85 percent for vessels in the Q1 category. This result demonstrates that most of these vessels generate minimal fishing revenue year-to-year, and the costs of the TEDs alone are likely to be financially unbearable even before factoring in the loss of shrimp revenue. Applying this approach

(analysis at the vessel level, then averaging across all vessels) to all revenue categories for Gulf of Mexico vessels, the percent loss relative to gross revenue would be expected to be 85 percent (Q1), 9.5 percent (Q2), 6.9 percent (Q3), 5.9 percent (Q4), 4.2 percent (Q5), and 1.1 percent (Federal Gulf of Mexico). These results demonstrate that, although the expected effects in absolute monetary terms are greater for the vessels that generate the highest average annual gross revenues and are considered full-time vessels (*i.e.*, Q4, Q5 and Federal Gulf of Mexico vessels), the relative effect of this rule would be greater on part-time vessels with the lowest average annual gross revenues (*i.e.*, Q1, Q2, and Q3 vessels).

The number of South Atlantic vessels expected to be directly regulated by this final rule and, where disclosable, their average annual gross revenue for 2011-2014 by category are as follows: 4 vessels and \$5,832 (Q1) vessels, 5 vessels and \$70,860 (Q4), and 3 vessels and \$835,270 (RSLA). In addition, 1 vessel in the SPA Secondary category and 2 vessels in the Q2 category are expected to be affected. Because the expected number of businesses affected by this regulatory action in the SPA Secondary and Q2 categories is so small, neither baseline economic information nor expected economic effects directly derived from that baseline economic information can be reported for these entities due to confidentiality restrictions. The expected average adverse effect (reduced shrimp revenue and TED cost) of this regulatory action in the first year for these vessels is \$1,378, \$2,180, and \$1,308 for vessels in the Q1, Q4 and RSLA categories, respectively. Using the same vessel-level analytical approach discussed above for Gulf of Mexico vessels, the percent loss relative to gross revenue expected for South Atlantic vessels by category is 77.5 percent (Q1), 7.9 percent (Q2), 3.4 percent (Q4), 0.2 percent (RSLA), and 0.1 percent (SPA Secondary). Using the same vessel-level analytical approach discussed above for Gulf of Mexico vessels, the percent loss relative to gross revenue expected for South Atlantic vessels by category would be 69.1 percent (Q1), 7.6 percent (Q2), 4.9 percent (Q3), 2.8 percent (Q4), and 0.2 percent (RSLA). Although the expected effects in absolute

monetary terms for the South Atlantic vessels do not follow as markedly the same pattern as those for Gulf of Mexico vessels, full-time vessels in the South Atlantic would generally be expected to experience greater average adverse effects than part-time vessels. However, the range of the difference is only several hundred dollars for South Atlantic vessels and not thousands of dollars as expected in the Gulf of Mexico. Further, although the relative effects in general are not expected to be as great for South Atlantic vessels, the relative effects on the part-time vessels in the South Atlantic still exceed those of full-time vessels. Although the effects on some South Atlantic part-time vessels may be so great as to render continued operation as a commercial fishing vessel economically infeasible, as with some part-time vessels in the Gulf of Mexico, only 6 part-time vessels are affected in the South Atlantic.

The average lifespan of a TED is inversely related to how often it is used for harvesting shrimp (*i.e.*, the more it is used in a particular period of time, the shorter its lifespan will be). At some point over the 10-year time period considered in the analysis, there will be recurring TED costs for the Q2, Q3, Q4, and Q5 vessels, the frequency of which will vary with the average number of days they shrimp in each year level. Because the Q4 and Q5 vessels spend more days shrimping in a year on average, they will experience recurring TED costs more often than the Q2 and Q3 vessels. The Q1 vessels are not expected to experience recurring TED costs in this analysis because TEDs are expected to last about 15 years due to the relatively small number of days they spend shrimping on average in any given year.

In spite of the results presented above, the preceding analysis does not assume nor conclude that any specific individual or total number of vessels would be expected to stop operating in the southeastern U.S. shrimp fisheries because of this final rule. However, the vessels most likely to shut down because of these adverse effects are the part-time vessels (*i.e.*, Q1, Q2, and Q3 vessels). These vessels have the lowest average annual gross revenues per vessel, are thought to earn relatively high negative net revenues (losses) on

average, and are, therefore, the least able to absorb revenue reductions and cost increases. On the other hand, at least some of these vessels continued to commercially harvest shrimp in 2013 and 2014 after experiencing relatively high losses in 2012. This suggests either available data incompletely captures the “economics” of these operations (*e.g.*, the value of shrimp retained for personal consumption or bartering purposes is not considered), or the decision to harvest shrimp is based on criteria other than, or in addition to, considerations of economic profit and loss, such as personal consumption of harvested shrimp and associated value and lifestyle bonus (*i.e.*, the value of the commercial fishing lifestyle).

Nonetheless, in theory, vessels and businesses in general are expected to shut down when they cannot cover their variable costs. However, data on variable costs is not available for all vessels affected by this final rule. Estimates of average variable costs for a relatively small sample of the affected vessels are available, as are estimates of net revenues, but those estimates are insufficient with respect to determining how many and which vessel owners may choose to stop operating. Thus, the most appropriate measure to use for projecting how many and which vessels may stop operating is the percentage loss in average annual gross revenue, estimates of which are available for all of the affected vessels.

There is no single “hard and fast” decision rule for determining what percentage loss in gross revenue will definitively cause a vessel or any other business to stop operating. However, given the characteristics of the part-time vessels as noted above, it is reasonable to assume that an adverse effect (*i.e.*, the combination of additional costs and revenue reductions) in the first year that represents more than 20 percent of their average annual gross revenue would be sufficient to cause them to shut down. Applying this assumption to the vessels affected by this rule results in the following findings.

The number of part-time skimmer trawl vessels 40 feet and greater in length projected to potentially shut down in the Gulf of Mexico is 178, or approximately 2

percent of the 8,401 shrimp vessels in the Gulf of Mexico, 17 percent of the 1,047 affected shrimp vessels in the Gulf of Mexico, and about 32 percent of the 550 part-time shrimp vessels affected in the Gulf of Mexico. The number of part-time vessels projected to shut down in the South Atlantic is only 2, or approximately 0.1 percent of the 1,310 shrimp vessels in the South Atlantic, 13 percent of the 15 affected vessels in the South Atlantic, and one-third of the 6 part-time shrimp vessels affected in the South Atlantic. As some uncertainty exists with respect to how business owners will respond, these estimates should be viewed with some caution.

In general, if vessels shut down, they will no longer be landing shrimp or other species, nor will they be generating gross revenues or net revenues associated with those landings (*i.e.*, their loss in landings and gross revenue is 100 percent). Further, the average percentage loss in annual gross revenue per vessel will in turn increase, particularly in the long term because shutting down causes a long-term reduction in landings and gross revenue for the vessels that shut down. In theory, the loss of net revenues may improve or worsen average economic performance within the affected group of vessels depending on whether the economic performance (as measured by net revenues) of the vessels that shut down is better or worse than the average affected vessel. Because the vessels shutting down are thought to experience relatively high losses, average net revenues for those that continue operating would be expected to improve. On the other hand, because vessels that shut down will no longer require TEDs, the number of TEDs needed, the total costs of purchasing those TEDs, and the average cost of TEDs per affected vessel will decrease. The decrease in TED costs will help to mitigate the adverse effects across all vessels, but the losses in gross revenue would generally be expected to far outweigh the reductions in TED costs and thus the average adverse effect per affected vessel would be expected to increase. Further, the reductions in total TED costs would not reduce such costs for the vessels that continue operating as those would be expected to remain unchanged.

Seven alternatives, including no action, were considered for this final rule. The first alternative (no action) to the rule would not expand the required use of TEDs. The “no action” alternative would not achieve the objective of reducing the incidental bycatch and mortality of ESA-listed sea turtles, particularly small sea turtles, in the southeastern U.S. shrimp fisheries in order to aid in protection and recovery.

The second alternative to the final rule would have expanded the required use of TEDs to vessels 26 feet and greater in length using skimmer trawls, pusher-head trawls, and wing nets (butterfly trawls) to harvest shrimp in the southeastern U.S. This alternative was not selected as it would have been expected to affect more vessels (3,103) and increase the total expected TED costs and shrimp revenue loss compared to this rule. In addition, this alternative would have potentially caused an additional 680 part-time vessels to cease operations, and it would have taken almost 1.5 additional years to produce the number of TEDs necessary for all vessels to comply compared to this rule. This alternative was also not selected because, to date, we have no fishery observer data or TED testing information on any vessels using pusher-head trawls or wing nets in the southeastern U.S. shrimp fisheries. Concerns were expressed about applying data regarding the use of TEDs in skimmer trawl operations to pusher-head trawls and wing nets. New information indicated significant differences in the manner pusher-head trawls and wing nets operate compared to skimmer trawls, and therefore we determined additional gear testing is needed for those types.

The third alternative to the final rule would have expanded the required use of TEDs to vessels that use skimmer trawls, pusher-head trawls, and wing nets (butterfly trawls) in the southeastern U.S. shrimp fisheries (North Carolina through Texas), with the exception of vessels that use wing nets in Biscayne Bay in Miami-Dade County, Florida. This alternative was the preferred alternative in the proposed rule. This alternative was not selected because it would have been expected to affect significantly more vessels (5,847) and significantly increase the total expected TED costs and the shrimp revenue loss

compared to this rule. This alternative was also not selected would have potentially caused an additional 2,630 part-time vessels to cease operations, and it would have taken almost 3.5 additional years to produce the number of TEDs necessary for all vessels to comply compared to this rule. In addition, to date, we have no fishery observer data on skimmer trawl vessels less than 26 feet in length or TED testing information on skimmer trawl vessels less than 25 feet in length in the southeastern U.S. shrimp fisheries. Thus, we do not have adequate information to determine the effectiveness and practicability of TEDs on skimmer trawl vessels less than 26 feet in length. Some of our concerns included the ability to adequately install TEDs in the nets of these vessels without significant modifications to vessel rigging. Other identified issues included the potential lack of deck space to accommodate TEDs. On very small vessels, such as skiffs 18 feet in length for example, there is limited space to sort catch and handle gear. These types of issues have complicated TED testing, as there is little space for observers, and would likely complicate enforcement and compliance checks at sea. Further, there were potential navigational concerns with TEDs installed on vessels less than 26 feet in length. For example, there were concerns the TED extension could interfere with the engine while maneuvering a small vessel. A net lengthened to accommodate a TED on a small vessel could potentially foul the engine and immobilize a vessel, presenting a potential safety issue. We are conducting additional testing before requiring TEDs on vessels less than 26 feet in length.

The fourth alternative to the final rule would have expanded the required use of TEDs to vessels 26 feet and greater in length using skimmer trawls. This alternative would have been expected to affect significantly more vessels (2,913) and lead to higher TED costs and greater shrimp revenue losses compared to this rule. This alternative would have also potentially caused an additional 623 part-time vessels to cease operations, and it would have taken almost 1.5 additional years to produce the number of TEDs necessary for all vessels to comply compared to this rule.

The fifth alternative to the final rule would have expanded the required use of TEDs to all vessels using skimmer trawls regardless of vessel length. Similar to the third alternative, this alternative would have been expected to affect significantly more vessels (5,432) and significantly increase the total expected TED costs and shrimp revenue loss compared to the rule. This alternative was also not selected would have potentially caused an additional 2,417 part-time vessels to cease operations, and it would have taken almost 3.5 additional years to produce the number of TEDs necessary for all vessels to comply compared to this rule. In addition, this alternative was also not selected for the reasons noted above with respect to why the TED requirement was not expanded to vessels less than 26 feet in length.

The sixth and seventh alternatives to the final rule would have expanded the required use of TEDs to all shrimp vessels regardless of trawl type but varying by fishing location (*i.e.*, state waters only or all waters). These alternatives were not selected for the same reasons the second, third, and fourth alternatives were not selected. These alternatives were also not selected because they would have been expected to affect significantly more vessels (9,711 for both alternatives) and result in significantly greater expected increases in TED costs and shrimp revenue loss, with a relatively minor increase in the expected protection of small sea turtles, compared to the rule. These alternatives were also not selected because they would have potentially caused an additional 3,972 part-time vessels to cease operations, and it would have taken more than 7 additional years to produce the number of TEDs necessary for all vessels to comply compared to this rule.

Based on the above information, the alternative chosen in this final rule has minimized the expected adverse effects on small entities compared to the other significant alternatives considered that would achieve the objectives of this rule and the ESA.

Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996 states that, for each rule or group of related rules for which an agency is required to prepare a FRFA, the agency shall publish one or more guides to assist small entities in

complying with the rule, and shall designate such publications as “small entity compliance guides.” The agency shall explain the actions a small entity is required to take to comply with a rule or group of rules. As part of this rulemaking process, a small entity compliance guide was prepared. The compliance guide will be distributed to affected entities by sending copies of the guide to fishing industry and interest groups (*e.g.*, Louisiana Shrimp Association, Audubon Nature Institute - G.U.L.F., Vietnamese-American Fisher Folk and Families, and Coastal Communities Consulting, Inc., *etc.*) and to state fish and wildlife agencies in Louisiana, Mississippi, Alabama, Florida, and North Carolina. In addition, copies of this final rule and the compliance guide are available from the Regional Administrator (see **ADDRESSES**) and at the following website:

<https://www.fisheries.noaa.gov/southeast/bycatch/turtle-excluder-device-regulations>

As noted in the response to comment 8, we intend to offset this action as soon as practicable after publication to comply with Executive Order 13771.

List of Subjects in 50 CFR Part 223

Endangered and threatened species; Exports; Imports; Transportation.

Dated: December 16, 2019.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 223 is amended as follows:

PART 223--THREATENED MARINE AND ANADROMOUS SPECIES

1. The authority citation for part 223 continues to read as follows:

Authority: 16 U.S.C. 1531-1543; subpart B, § 223.201-202 also issued under 16 U.S.C. 1361 *et seq.*; 16 U.S.C. 5503(d) for § 223.206(d)(9).

2. In § 223.206, revise paragraphs (d)(2)(ii)(A)(3) and (d)(3)(i) introductory text to read as follows:

§ 223.206 Exceptions to prohibitions relating to sea turtles.

* * * * *

(d) * * *

(2) * * *

(ii) * * *

(A) * * *

(3) Has only a pusher-head trawl or a wing net, or has a skimmer trawl on a vessel less than 40 ft (12.2 m) in length as indicated on the vessel's state vessel registration or U.S. Coast Guard vessel documentation.

* * * * *

(3) *Tow-time restrictions*—(i) *Duration of tows*. If tow-time restrictions are used pursuant to paragraph (d)(2)(ii), (d)(3)(ii), or (d)(3)(iii) of this section, a shrimp trawler must limit tow times. The tow time begins at the time the trawl door enters the water and ends at the time the trawl door is removed from the water. For a trawl that is not attached to a door, the tow time begins at the time the codend enters the water and ends at the time the codend is emptied of catch on deck. Tow times may not exceed:

* * * * *

3. In § 223.207 revise paragraphs (a)(4), (a)(6), (a)(7)(ii)(B) and (C), and (d)(3)(ii) and (iii) and add paragraph (d)(3)(v) to read as follows:

§ 223.207 Approved TEDs.

* * * * *

(a) * * *

(4) *Space between bars.* The space between deflector bars and the deflector bars and the TED frame must not exceed 4 inches (10.2 cm), except for TEDs required to be installed in skimmer trawls, where the space between deflector bars and the deflector bars and the TED frame must not exceed 3 inches (7.6 cm).

* * * * *

(6) *Position of the escape opening.* The escape opening must be made by removing a rectangular section of webbing from the trawl, except for a TED with an escape opening size described at paragraph (a)(7)(ii)(A) of this section for which the escape opening may alternatively be made by making a horizontal cut along the same plane as the TED. A TED installed in a skimmer trawl rigged for fishing must have the escape opening oriented at the top of the net. For TEDs installed in all other trawls, the escape opening must be centered on and immediately forward of the frame at either the top or bottom of the net when the net is in the deployed position. The escape opening must be at the top of the net when the slope of the deflector bars from forward to aft is upward, and must be at the bottom when such slope is downward. The passage from the mouth of the trawl through the escape opening must be completely clear of any obstruction or modification, other than those specified in paragraph (d) of this section.

(7) * * *

(ii) * * *

(B) *The 71-inch opening.* The two forward cuts of the escape opening must not be less than 26 inches (66 cm) long from the points of the cut immediately forward of the TED frame. The resultant length of the leading edge of the escape opening cut must be no less than 71 inches (181 cm) with a resultant circumference of the opening being 142 inches (361 cm) (Figure 12 to this part). A webbing flap, as described in paragraph (d)(3)(ii) or (v) of this section, may be used with this escape hole, so long as this minimum opening size is achieved. Either this opening or the one described in paragraph

(a)(7)(ii)(C) of this section must be used in all offshore waters and in all inshore waters in Georgia and South Carolina, but may also be used in other inshore waters.

(C) *Double cover opening*. The two forward cuts of the escape opening must not be less than 20 inches (51 cm) long from the points of the cut immediately forward of the TED frame. The resultant length of the leading edge of the escape opening cut must be no less than 56 inches (142 cm) (Figure 16 to this part illustrates the dimensions of these cuts). A webbing flap, as described in paragraph (d)(3)(iii) or (v) of this section, may be used with this escape hole. Either this opening or the one described in paragraph (a)(7)(ii)(B) of this section must be used in all offshore waters and in all inshore waters in Georgia and South Carolina, but may also be used in other inshore waters.

* * *

(d) * * *

(3) * * *

(ii) *71-inch TED flap*. The flap must be a 133-inch (338-cm) by 52-inch (132-cm) piece of webbing. The 133-inch (338-cm) edge of the flap is attached to the forward edge of the opening (71-inch (180-cm) edge). The flap may extend no more than 24 inches (61 cm) behind the posterior edge of the grid (Figure 12 to this part illustrates this flap).

(iii) *Double cover TED flap*. This flap must be composed of two equal size rectangular panels of webbing. Each panel must be no less than 58 inches (147.3 cm) wide and may overlap each other no more than 15 inches (38.1 cm). The panels may only be sewn together along the leading edge of the cut. The trailing edge of each panel must not extend more than 24 inches (61 cm) past the posterior edge of the grid (Figure 16 to this part). Each panel may be sewn down the entire length of the outside edge of each panel. This paragraph (d)(3) of this section notwithstanding, this flap may be installed on either the outside or inside of the TED extension. For interior installation, the flap may be sewn to the interior of the TED extension along the leading edge and sides to a point intersecting the TED frame; however, the flap must be sewn to the exterior of the TED

extension from the point at which it intersects the TED frame to the trailing edge of the flap. Chafing webbing described in paragraph (d)(4) of this section may not be used with this type of flap.

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(v) *Small turtle TED flap.* If the angle of the deflector bars of a bent bar TED used by a skimmer trawl exceeds 45°, or if a double cover opening straight bar TED (at any allowable angle) is used by a skimmer trawl, the flap must consist of twine size not greater than number 15 (1.32-mm thick) on webbing flaps described in paragraph (d)(3)(i), (ii), (iii), or (iv) of this section.

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