

Turtle Excluder Device Regulatory History

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## APPENDIX I

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1970: Hawksbill, Kemp's ridley, and leatherback sea turtles are listed by the U.S. Fish and Wildlife Service (USFWS) as endangered species under the Endangered Species Conservation Act of 1969.

December 28, 1973: Enactment of the Endangered Species Act of 1973 (ESA).

May 20, 1975: NMFS and USFWS publish a proposal to list green, loggerhead, and (Pacific) olive ridley sea turtles as threatened species under the ESA (40 FR 21982, 40 FR 21974). The proposal includes an exception to the ESA takings prohibitions for incidental catch of threatened sea turtles in fishing gear if: (a) the fishing is not in an area of substantial sea turtle breeding or feeding, and (b) the turtles are immediately returned to the water.

July 28, 1978: NMFS and USFWS publish final regulations (43 FR 32800) listing loggerhead, green, and olive ridley sea turtles as threatened species, except for Florida green turtle breeding colony populations and Pacific coast of Mexico olive ridley and green turtle breeding colony populations, which were listed as endangered. Many commenters on the proposal had objected to the "areas of substantial breeding and feeding" language, fearing that a strict interpretation could put many shrimpers out of business. In the final rule, incidental capture of threatened turtles with fishing gear is exempted from the ESA takings prohibitions in all areas, if turtles are returned to the water following resuscitation attempts for unconscious animals. The rule also states that NMFS has developed and is testing a turtle excluder panel installed across the mouth of a shrimp trawl to prevent or substantially reduce the capture of sea turtles, with the objective of completing the development and testing of the panel by the end of the 1978 shrimp season. NMFS states its "goal is to promulgate regulations requiring the use of the panel to prevent, or substantially reduce, incidental catch of sea turtles without significantly reducing shrimp production."

1978: Testing of the turtle excluder panels resulted in preventing 75 percent of encountered turtles from entering the trawls, but shrimp losses (15 to 30 percent) were unacceptable. Research was then directed towards releasing turtles once they entered the trawl versus preventing them from entering the trawl (NMFS 1987).

1978-1981: NMFS attention is turned toward testing and development of a rigid turtle excluder device (TED) that can be inserted farther back in the net. Turtle exclusion and shrimp retention results for the TED are positive. By 1981, the NMFS TED – a large, cage-like device with a metal-framed trap door – has been developed and found to release 97 percent of the turtles caught in shrimp trawls with no loss of shrimp (52 FR 24244, June 29, 1987).

1981-1983: NMFS encourages voluntary use of TEDs in the shrimp fishery.

1983-1986: NMFS operates a formal program which builds and delivers TEDs to shrimp fishermen who agree to use them voluntarily in commercial shrimping operations. The program proves ineffective. As of late 1986, less than three percent of the shrimp fleet had used TEDs (Oravetz 1986).

October-December 1986: NMFS sponsors mediated sessions involving environmental and shrimp industry groups. The negotiations attempt to develop a mutually acceptable implementation of TED requirements and avert threatened litigation from environmental groups. One party to the mediation sessions, the Concerned Shrimpers of Louisiana, refuses to sign the developed agreement and negotiations break down.

1987: A report (Henwood and Stuntz 1987) analyzing observer data from the southeast U.S. shrimp fishery from 1973-1984 conservatively estimates that the shrimp fishery in offshore waters kills 9,874 loggerhead, 767 Kemp's ridley, and 229 green turtles annually.

March 2, 1987: NMFS develops and publishes proposed regulations to require the use of TEDs in most offshore shrimp trawlers (52 FR 6179).

June 29, 1987: NMFS publishes final regulations implementing TED requirements (52 FR 24244). The regulations are codified at 50 CFR parts 217, 222, and 217. Many of the provisions of the rule phase in over a 20-month period. Ultimately, TEDs are required seasonally aboard all shrimp trawlers over 25 feet in length in offshore waters of the Gulf and South Atlantic, except for southwest Florida and the Canaveral area, where they are required year-round. Shrimp trawlers less than 25 feet in length and all trawlers in inshore waters are required to limit their tow-times to a maximum of 90 minutes seasonally, except in southwest Florida and the Canaveral area, where tow-times are required year-round. Exemptions to the TED requirement are included for trawlers fishing for royal red shrimp and rock shrimp. Try nets up to 20 feet in headrope length are also exempted. Four specific designs of hard TEDs – the NMFS TED, the Cameron TED, the Matagorda TED, and the Georgia TED – are included in the regulations as qualified TEDs. The minimum size of the TED escape openings is specified as 32 inches in the Gulf and 35 inches in the Atlantic, but how this opening is measured is not specified. The regulations make provisions for testing and approving additional TED designs that may be developed by NMFS or the shrimping industry. An appendix published with the regulations specifies a scientific protocol for evaluating new TEDs in the Cape Canaveral shipping channel. Candidate TEDs must demonstrate a reduction in the catch of wild turtles, compared to a net with no TED, of greater than 96 percent.

September 30, 1987: NMFS completes a biological opinion on the implementation of the 1987 regulations. The 1987 opinion addresses the potential adverse effects to listed species of implementation of the rule, and concludes that the regulations would have a positive impact on sea turtles by substantially reducing mortalities. At that time, NMFS' policy on ESA section 7 consultation is to address the potential impacts to listed species of management actions and not to address potential adverse effects of the fishery itself.

The policy is ultimately changed on October 18, 1990, when the Assistant Administrator for Fisheries advises all NMFS Regional Directors that future ESA consultations on fishery management actions would address both the fishery and the proposed management action.

October 5, 1987: NMFS issues a final rule/technical amendment (52 FR 37152) to authorize an additional type of TED, the Morrison TED, which is the first soft TED. It uses an upward-sloping panel of flexible webbing instead of the rigid grid used in hard TEDs.

October 1987 - May 1990: A chaotic array of lawsuits, injunctions, suspensions of law enforcement, legislative actions by several states, legislation by Congress, and temporary rules issued by NMFS and the Department of Commerce follows the initial effective date of the 1987 regulations. The result is a patchwork of times and areas where TEDs are and are not required/enforced.

October 7, 1988: President Reagan signs a bill that requires a study by the National Academy of Sciences to review the question of sea turtle conservation status and the significance of mortality from commercial trawling.

September 1, 1988: NMFS issues a final rule/technical amendment (53 FR 33820) to authorize an additional soft TED, the Parrish TED. It uses a downward-sloping webbing panel leading to a rigid frame.

November 21, 1989: President G. Bush signs Public Law 101-162. Section 609 requires the Department of State, in consultation with the Department of Commerce, to initiate negotiations with foreign countries to develop agreements for sea turtle conservation, with emphasis on countries that have commercial fishing fleets that adversely affect sea turtles. It further requires the United States to ban the importation of commercially harvested shrimp unless the exporting country has been certified by the Department of State as having a regulatory program for sea turtle incidental capture in shrimp trawls that is comparable to the United States' requirements. The certification is due on May 1, 1991, and annually thereafter.

May 1990: The report, "Decline of the Sea Turtles: Causes and Prevention," is released (National Research Council 1990). The report concludes that: (1) combined annual counts of nests and nesting females indicate that nesting sea turtles continue to experience population declines in most of the United States. Declines of Kemp's ridleys on the nesting beach in Mexico and of loggerheads on South Carolina and Georgia nesting beaches are especially clear; (2) natural mortality factors – such as predation, parasitism, diseases and environmental changes – are largely unquantified, so their respective impacts on sea turtle populations remain unclear; (3) sea turtles can be killed by several human activities, including the effects of beach manipulations on eggs and hatchlings and several phenomena that affect juveniles and adults at sea, collisions with boats, entrapment in fishing nets and other gear, dredging, oil-rig removal, power plant entrainment, ingestion of plastics and toxic substances, and incidental capture in shrimp

trawls; (4) shrimp trawling kills more sea turtles than all other human activities combined, and the annual mortality estimate from Henwood and Stuntz (1987) may be low by as much as a factor of four; (5) shrimp trawling can be compatible with the conservation of sea turtles if adequate controls are placed on trawling activities, especially the mandatory use of TEDs in most places at most times of the year; and (6) the increased use of conservation measures on a worldwide basis would help to conserve sea turtles.

October 9, 1990: NMFS issues a final rule/technical amendment (55 FR 41088) to authorize an additional soft TED, the Andrews TED. It uses a net-within-the-net design.

October 9, 1990: NMFS publishes an alternative scientific protocol (55 FR 41092) to the Canaveral test for approving new TED designs. In 1989, there were not enough turtles in the Canaveral Channel to conduct TED testing, necessitating the development of a new protocol. The new small turtle test protocol overcomes some of the other concerns over the Canaveral test. In particular, it uses turtles that are similar in size to wild Kemp's ridleys, the species of greatest conservation concern at the time, and it allows divers to videotape every turtle's encounter with the candidate TED, greatly increasing the understanding of the factors in a TED's design that affect sea turtle exclusion. The small turtle test's limitation, however, is that, since captive animals are used under experimental conditions, the metric used for decisions is a candidate TED's performance relative to a control TED, rather than its straight reduction in sea turtle captures.

April 1992: The South Atlantic Fishery Management Council (SAFMC) requests consultation on the Shrimp Fishery Management Plan for the South Atlantic, and the Gulf of Mexico Fishery Management Council (GMFMC) requests consultation on Amendment 6 to the Gulf of Mexico Shrimp Fishery Management Plan.

April 30, 1992: NMFS proposes to amend the sea turtle conservation regulations to strengthen their effectiveness and enforceability (57 FR 18446). The proposal would require essentially all shrimp trawlers in the southeast U.S. to use TEDs year-round, even in inshore waters, with only limited exemptions.

August 19, 1992: NMFS completes section 7 consultation and issues a biological opinion that considers the two Council's FMPs, the shrimp fishery itself in the Gulf and South Atlantic, and the implementation of the 1992 revised sea turtle conservation regulations. The opinion concludes that shrimp trawling, as managed by the Councils and in compliance with the proposed sea turtle conservation regulations, is not likely to jeopardize the continued existence of listed species under NMFS' jurisdiction. With respect to leatherback turtles, however, the opinion states, "leatherback mortalities remain a problem that must be addressed to avoid jeopardizing the recovery of this species." The opinion's incidental take statement includes six reasonable and prudent measures (RPMs). Three have to do with items that are implemented through the regulations (required use of TEDs, limitations on the use of tow-times, and resuscitation of comatose turtles). A fourth is the requirement to implement an observer program to monitor turtle take whenever tow-times are authorized as an alternative to TEDs. NMFS

never implements such an observer program. Instead, on the future occasions when NMFS does subsequently issue tow-time authorizations because of hurricane debris or algae blooms, NMFS consults with the state fisheries directors who agree to provide elevated enforcement to ensure compliance with tow-times. A fifth reasonable and prudent measure states that NMFS should develop a program so that all turtle mortalities are reported to the Southeast Regional Office of NMFS in person, by phone, or by letter, within 10 days of return from the fishing trip during which the incidental take occurred. This reporting program is never implemented. The final requirement is to develop and implement a contingency plan to eliminate the episodic take of leatherback turtles by shrimp trawlers. A contingency plan addressing some months along the Atlantic coast is ultimately developed.

September 8, 1992: NMFS publishes an interim final rule implementing some of the provisions of the April 1992 proposed rule.

December 4, 1992: NMFS publishes a final rule (57 FR 57348) implementing the April proposal. The rule includes a phase-in period for inshore vessels with small nets until December 1, 1994. The rule requires all shrimp trawlers in inshore and offshore waters from North Carolina to Texas to have TEDs installed in all nets that are rigged for fishing. Exempted from the TED requirements are: (1) royal red shrimp trawlers; (2) beam and roller trawls, if vertical bars on 4-inch spacings are attached across the mouth of the trawl; and (3) a single try net, up to 20 feet in headrope length, per boat. Also exempted from the TED requirements, if fishermen follow tow-time limits of 55 minutes from April-October and 75 minutes from November-March, are: (1) trawls that are entirely hand-hauled; (2) bait shrimpers, if all shrimp are kept in a live-well with no more than 32 pounds of dead shrimp aboard; (3) pusher-head trawls (i.e., chopsticks rigs), skimmer trawls, and wing nets (i.e., butterfly nets); (4) trawlers in an area and at a time where the Assistant Administrator determines that special environmental conditions make TED use impracticable; and (5) if the Assistant Administrator determines that TEDs are ineffective. Resuscitation measures that fishermen must follow for incidentally caught turtles that come aboard in a comatose condition are modified, and fishermen are allowed to hold turtles on board under certain conditions, while they are being resuscitated. The technical specifications for hard TEDs are rewritten to create more explicit and more flexible descriptions of the required construction characteristics of hard TEDs, rather than require shrimpers to use one of the four named styles of hard TEDs from the 1987 regulation. The specifications for the TED opening dimensions are clarified for single-grid hard TEDs: 35 inches horizontal and, simultaneously, 12 inches vertical in the Atlantic, and 32 inches horizontal and, simultaneously, 10 inches vertical in the Gulf of Mexico. Descriptions of accelerator funnels and webbing flaps – optional modifications to increase shrimp retention – are added. A framework and procedures are established whereby the Assistant Administrator may impose additional restrictions on shrimping, or any other fishing activity, if the incidental taking of sea turtles in the fishery would violate an incidental take statement, biological opinion, or incidental take permit or may be likely to jeopardize the continued existence of a listed species.

May 17, 1993: NMFS issues a final rule/technical amendment (58 FR 28795) to authorize an additional soft TED, the Taylor TED. It is similar to the Morrison TED, but uses a smaller panel of smaller-mesh webbing and a flap over the escape opening. A modification of the Morrison TED to use a larger escape opening covered with a flap is also approved. The Taylor TED and modified Morrison TED have escape openings that are large enough to release leatherback turtles.

October 20, 1993: NMFS issues a final rule/technical amendment (58 FR 54066) to create a new category of hard TEDs – special hard TEDs – and to authorize a new special hard TED for the shrimp fishery, the Jones TED. The Jones TED features bars that are set diagonally, rather than vertically, in the face of the grid, and whose bar ends are not attached to other bars or to the TED frame.

May 18, 1994: NMFS issues a final rule/technical amendment (59 FR 25827) to specify a modification that can be made to the escape opening of single grid hard TEDs that will allow the TEDs to exclude leatherback turtles.

June 29, 1994: NMFS issues an interim final rule (59 FR 33447) to require bottom-opening hard TEDs to be modified by attaching floats to the TEDs to keep them from riding hard on the sea floor. Major increases in sea turtle strandings were observed in early 1994 in Texas, and the absence of floats on bottom-opening TEDs was determined to be one contributing factor.

November 14, 1994: NMFS completes section 7 consultation and issues a biological opinion on the impacts of shrimp trawling in the southeastern United States (NMFS 1994). Consultation on the shrimp fishery had been reinitiated as the result of extraordinarily high strandings of sea turtles, particularly the critically endangered Kemp's ridley turtle, in Texas and Louisiana corresponding to periods of heavy nearshore shrimping effort. The opinion concludes that "continued long-term operation of the shrimp fishery in the southeastern U.S., resulting in mortalities of Kemp's ridley turtles at levels observed in the Gulf of Mexico in 1994, is likely to jeopardize the continued existence of the Kemp's ridley population." The jeopardy opinion included a reasonable and prudent alternative (RPA) that would allow the shrimp fishery to continue and avoid the likelihood of jeopardizing Kemp's ridley sea turtles. The RPA specified the following measures that NMFS must take to improve TED regulation compliance: (1) develop an emergency response plan (ERP) to address increases in sea turtle strandings or TEDs noncompliance; (2) deploy a specially trained law enforcement team to respond to high strandings, TEDs noncompliance, or intensive shrimping effort in areas of expected sea turtle abundance; (3) develop and implement a TED enforcement training program for U.S. Coast Guard boarding parties; (4) amplify domestic TED technology programs; and (5) develop a permitting or registration system for offshore shrimpers that would allow sanctioning the permit for TED violations and failing to pay assessed fines. NMFS also was required to re-examine the effectiveness of bottom-shooting hard TEDs and soft TEDs, and mitigate the impacts of intensive nearshore shrimping effort through the identification of areas requiring special turtle management. NMFS ultimately implemented all the elements of the RPA, with the exception of the shrimp fishery

permitting/registration system. The opinion's incidental take statement, in addition to establishing incidental take levels based on observer coverage, sets indicated take levels, based on historical stranding levels. The ITS incorporates all of the RPMs from the 1992 opinion and also adds a number of new RPMs, such as improving the overall observer coverage in the shrimp fishery and stranding network coverage in poorly covered states. NMFS must use this observer and stranding information to implement the actions of the ERP. NMFS must also convene a team of population biologists, sea turtle scientists, and life history specialists to compile and examine information on the status of sea turtle species. The team should attempt to determine the maximum number of individual sea turtles of each species that can be taken incidentally to commercial fishing activities without jeopardizing the continued existence of the species and what the corresponding level of strandings would be. Lastly, NMFS is required to evaluate other human-caused sources of sea turtle mortality and identify measure to reduce those sources of mortality.

March 14, 1995: NMFS issues the details of the ERP, required under the RPA of the 1994 opinion. The ERP is issued to identify monitoring, reporting and enforcement actions, as well as associated management measures that NMFS would consider implementing by emergency rulemaking if strandings become elevated. Briefly, the ERP identifies interim sea turtle management areas (ISMAs) within which enforcement would be elevated from April through November. Two ISMAs were identified: Atlantic Interim Special Management Area, including shrimp fishery statistical Zones 30 and 31 (i.e., northeast Florida and Georgia) and the Northern Gulf Interim Special Management Area, including statistical Zones 13 through 20 (i.e., Louisiana and Texas from the Mississippi River to North Padre Island). NMFS would implement gear restrictions on shrimp trawling through existing rulemaking authority (codified at 50 CFR 227.72(e)(6)) in response to two weeks of elevated strandings at levels approaching (within 75 percent of) the indicated take levels or higher in the ISMAs when no other likely causes of mortality were evident. Outside of the ISMA, implementation of similar restrictions would be considered after four weeks of elevated strandings. Areas monitored were delineated as the NMFS shrimp fishery statistical areas, and restrictions would be implemented within zones of elevated strandings out to 10 nautical miles (nm) offshore.

March 24, 1995: NMFS issues a final rule/technical amendment (60 FR 15512) to finalize the float requirement and implement a variety of other minor changes to TED technical specifications. One of these specifies that the width of the cut for a hard TED's escape opening must extend at least from the outermost bar of the grid to the opposite outermost bar of the grid.

May-August 1995: NMFS implements gear restrictions based on the ERP through temporary rulemaking four times during 1995: twice in the Gulf of Mexico and twice in the Atlantic (60 FR 21741, May 3, 1995; 60 FR 26691, May 18, 1995; 60 FR 31696, June 16, 1995; 60 FR 32121, June 20, 1995; 60 FR 42809, August 17, 1995; 60 FR 43106, August 18, 1995; 60 FR 44780, August 29, 1995).

May 12, 1995: NMFS issues an interim rule (60 FR 25620) to establish all inshore and offshore waters from Cape Canaveral, Florida (28° 24.6'N) to the North Carolina-



Virginia border (36° 30.5'N) as the leatherback conservation zone and to provide for short-term closures of areas in that zone when high abundance levels of leatherback turtles are documented (i.e., “the leatherback contingency plan”). Upon such documentation, NMFS would prohibit, in the closed areas, fishing by any shrimp trawler required to have a TED installed in each net that is rigged for fishing, unless the TED installed is specified in the regulations as having an escape opening large enough to exclude leatherback turtles. NMFS also proposes (60 FR 25663) to adopt as final this interim rule establishing the leatherback conservation zone.

June 2, 1995: NMFS temporarily amends the regulations (60 FR 28741) protecting sea turtles to allow compliance with tow-time limits as an alternative to the use of TEDs in a 30-square mile (48.3-square km) area off the coast of North Carolina to allow shrimp fishermen to fish under conditions of high concentrations of red and brown algae that make trawling with TEDs impracticable while maintaining adequate protection for sea turtles in this area.

September 14, 1995: NMFS issues a final rule (60 FR 47713) establishing the leatherback conservation zone and leatherback contingency plan in the Atlantic.

April 24, 1996: NMFS proposes (61 FR 18102) prohibiting the use of all previously approved soft TEDs; requiring the use of approved hard TEDs in try nets with a headrope length greater than 12 feet (3.6 m) or a footrope length greater than 15 feet (4.6 m); establishing Shrimp Fishery Sea Turtle Conservation Areas (SFSTCAs) in the northwestern Gulf of Mexico and in the Atlantic along the coasts of Georgia and South Carolina; and, within the SFSTCAs, prohibiting soft TEDs, imposing the new try net restrictions, and prohibiting the use of bottom-opening hard TEDs.

June 11, 1996: NMFS completes section 7 consultation and issues a biological opinion on the impacts of shrimp trawling in the southeastern United States (NMFS 1996). Consultation on the shrimp fishery had been reinitiated to evaluate the effects of the April 24, 1996 proposed rule, a plan to implement a shrimp vessel registration system, and to consider the effects of strandings-based incidental take levels that had been exceeded. The opinion concludes that continued operation of the shrimp fishery is not likely to jeopardize listed sea turtles, with implementation of the proposed TED rule changes and of a shrimp vessel registration system, which the opinion requires to be proposed formally by the end of 1996. The opinion also eliminates the strandings-based incidental take levels that had been in place since the introduction of the ERP in March 1995. The ERP is replaced instead with a more flexible requirement for NMFS to consult with state stranding coordinators to identify significantly local stranding event and to implement 30-day restrictions on shrimping in response, as appropriate.

June 27, 1996: NMFS issues temporary additional restrictions (61 FR 33377) on shrimp trawlers fishing in the Atlantic Area in inshore waters and offshore waters out to 10 nautical miles (18.5 km) from the COLREGS line between the Georgia-Florida border and the Georgia-South Carolina border. The restrictions include prohibitions on the use of soft TEDs and try nets with a headrope length greater than 12 feet (3.6 m) or a

footrope length greater than 15 feet (4.5 m), unless the try nets are equipped with approved TEDs other than soft TEDs. The restrictions are in response to elevated sea turtle mortality.

November 13, 1996: NMFS completes section 7 consultation and issues a biological opinion on the impacts of shrimp trawling in the southeastern United States (NMFS 1996). Consultation on the shrimp fishery had been reinitiated to evaluate the effects of the final rule implementing the April 24, 1996 proposed rule and of elevated loggerhead strandings that occurred during 1996. The opinion concludes that continued operation of the shrimp fishery is not likely to jeopardize listed sea turtles, with the publication of the final rule, which implements the RPA component of the 1994 opinion requiring NMFS to address mortalities resulting from incorrect installation of TEDs and the certification of TEDs which do not effectively exclude sea turtles. The opinion extends the deadline for finalizing the shrimp vessel registration requirement through February 1997.

December 19, 1996: NMFS issues a final rule (61 FR 66933) requiring that TEDs be installed in try nets with a headrope length greater than 12 feet (3.6 m) and a footrope length greater than 15 feet (4.6 m); removing the approval of the Morrison, Parrish, Andrews, and Taylor soft TEDs; establishing SFSTCAs, and within the SFSTCAs, imposing the new TED requirement for try nets, removing the approval of soft TEDs, and modifying the requirements for bottom-opening hard TEDs.

March 24, 1998: NMFS completes section 7 consultation and issues a biological opinion on the impacts of shrimp trawling in the southeastern United States (NMFS 1998). Consultation on the shrimp fishery had been reinitiated to evaluate the effects of approving the use of a new soft TED, to discuss the decision not to implement a mandatory shrimp vessel registration system (part of the 1994 biological opinion's RPA), and to evaluate recent data on sea turtle populations and strandings. The opinion concludes that continued operation of the shrimp fishery is not likely to jeopardize listed sea turtles, with continued improved enforcement of the sea turtle conservation regulations and expanded education and outreach programs.

April 13, 1998: NMFS issues an interim final rule (63 FR 17948) authorizing the use of a new soft TED – the Parker TED – in certain trawl net styles for an 18-month trial period, during which its performance will be evaluated to ensure that it remains effective at excluding sea turtles during extended commercial use.

October 14, 1998: NMFS issues a temporary rule (63 FR 55053) effective through November 6, 1998, to allow the temporary use of limited tow times by shrimp trawlers in Alabama inshore waters as an alternative to the requirement to use TEDs in order to address difficulty with TED performance due to large amounts of debris in Alabama's bays in the aftermath of a hurricane.

May-June 1999: NMFS issues four temporary rules (64 FR 25460, May 12, 1999; 64 FR 27206, May 19, 1999; 64 FR 28761, May 27, 1999; 64 FR 29805, June 3, 1999) to protect leatherback sea turtles within the leatherback conservation zone.

October 13, 1999: NMFS issues an interim final rule (64 FR 55434) extending the authorized use of the Parker TED for an additional 12 months, as the results of the Parker TED's evaluation have been inconclusive.

December 13, 1999: NMFS issues a 30-day rule (64 FR 69416) imposing an additional restriction on shrimp trawlers required to have a TED installed in each net that is rigged for fishing, operating in Atlantic offshore waters out to 10 nautical miles from the coast of Florida between 28°N latitude and the Georgia-Florida border. Shrimp vessels operating in this area must use the leatherback modification for hard TEDs or the leatherback modification for the Parker soft TED. The restrictions are in response to greatly elevated leatherback sea turtle strandings in the area. The strandings occur during a time when the leatherback contingency plan does not apply, necessitating the use of the 30-day rule.

October 25, 1999: NMFS issues a temporary rule (64 FR 57397) to allow the use of limited tow times by shrimp trawlers as an alternative to the use of TEDs in the Matagorda Bay area of Texas. This action is required due to extraordinarily high concentrations of a bryozoan lodging in TEDs, rendering them ineffective in expelling sea turtles as well as negatively impacting fishermen's catches.

April 5, 2000: NMFS issues an advance notice of proposed rulemaking to announce that it is considering technical changes to the requirements for TEDs. NMFS proposes to modify the size of the TED escape opening, modify or decertify hooped hard TEDs and weedless TEDs, and change the requirements for the types of flotation devices allowed. NMFS also proposes to consider modifications to the leatherback conservation zone regulations to provide better protection to leatherback turtles.

April 25, 2000: NMFS issues a 30-day rule (65 FR 24132) imposing an additional restriction on shrimp trawlers required to have a TED installed in each net that is rigged for fishing, operating in Gulf of Mexico offshore waters out to 10 nautical miles between Port Mansfield Channel and Aransas Pass, Texas. Shrimp vessels operating in this area must use the leatherback modification for hard TEDs or the leatherback modification for the Parker soft TED. The restrictions are in response to leatherback sea turtle strandings in the area. The strandings occur in an area where the leatherback contingency plan does not apply, necessitating the use of the 30-day rule.

May 2000: NMFS issues two temporary rules (65 FR 25670, May 3, 2000; 65 FR 33779, May 25, 2000) to protect leatherback sea turtles within the leatherback conservation zone.

August 29, 2000: NMFS issues a temporary rule (65 FR 52348) to allow the use of limited tow times by shrimp trawlers as an alternative to the use of TEDs in inshore waters of Galveston Bay, Texas. Dense concentrations of marine organisms documented in this area were clogging TEDs, rendering them ineffective in expelling sea turtles from shrimp nests as well as negatively impacting fishermen's catches.

January 9, 2001: NMFS issues a final rule (66 FR 1601) permanently approving the use of the Parker soft TED. Although industry use of the Parker TED is extremely low, NMFS' evaluation of its effectiveness does not find significant problems with compliance with the TED's specifications or with sea turtle captures.

May 14, 2001: NMFS issues an interim final rule (66 FR 24287) approving the use of an additional style of single-grid hard TED – the double cover flap TED.

October 2, 2001: NMFS issues a proposed rule (66 FR 50148) to amend the sea turtle conservation regulations to enhance their effectiveness in reducing sea turtle mortality resulting from shrimp trawling in the Atlantic and Gulf Areas of the southeastern United States. NMFS determines that modifications to the design of TEDs need to be made to exclude leatherbacks and large loggerhead and green turtles; several approved TED designs are structurally weak and do not function properly under normal fishing conditions; and modifications to the trynet and bait shrimp exemptions to the TED requirements are necessary to decrease lethal takes of sea turtles.

December 20, 2001: NMFS issues a 30-day rule (66 FR 65658) imposing an additional restriction on shrimp trawlers required to have a TED installed in each net that is rigged for fishing, operating in Atlantic offshore waters out to 10 nautical miles from the coast of Florida between 28°N latitude and the Georgia-Florida border. Shrimp vessels operating in this area must use the leatherback modification for hard TEDs or the leatherback modification for the Parker soft TED. The restrictions are in response to greatly elevated leatherback sea turtle strandings in the area. The strandings occur during a time when the leatherback contingency plan does not apply, necessitating the use of the 30-day rule.

December 31, 2001: NMFS issues a final rule (66 FR 67495) amending the sea turtle handling and resuscitation regulation.

April-May 2002: NMFS issues three temporary rules (67 FR 20054, April 24, 2002; 67 FR 21585, May 1, 2002; 67 FR 34622, May 15, 2002) to protect leatherback sea turtles within the leatherback conservation zone.

May 30, 2002: NMFS issues a 30-day rule (67 FR 37723) imposing additional restrictions on shrimp trawlers in offshore Atlantic waters west of approximately Cape Fear, North Carolina and north of approximately St. Augustine, Florida. Shrimp fishermen operating in this area are required to use TEDs with escape openings modified to exclude leatherback turtles and are prohibited from fishing at night between one hour after sunset and one hour before sunrise. These restrictions are implemented in response to greatly elevated strandings of loggerhead turtles and an apparent change in effort and behavior of the local fishery.

November 7, 2002: NMFS issues a temporary rule (67 FR 67793) effective through December 2, 2002, to allow the temporary use of limited tow times by shrimp trawlers in Louisiana state waters east of 92° 20'W (approximately at Fresh Water Bayou in

Vermilion Parish, Louisiana) and inshore Alabama waters of Bon Secour Bay, Mobile Bay, and Mississippi Sound, south of the Intracoastal Waterway, due to large amounts of debris in the wake of Tropical Storm Isidore and Hurricane Lili.

February 21, 2003: NMFS publishes a final rule amending sea turtle conservation measures to reduce sea turtle mortality in the shrimp trawl fisheries (68 FR 8456). Specifically, it requires the use of larger TEDs to allow the escapement of leatherback and large loggerhead and green sea turtles. The effective date is April 15, 2003, for the South Atlantic, and August 21, 2003, in the Gulf of Mexico.

September 28, 2005: NMFS issues a temporary rule (70 FR 56593) effective through October 24, 2005, to allow the temporary use of limited tow times by shrimp trawlers in state and federal waters from the Florida/Alabama border, westward to the boundary of Cameron Parish, Louisiana (approximately 92°37'W), and extending offshore 50 nautical miles. This action is necessary because environmental conditions resulting from Hurricane Katrina are preventing some fishermen from using TEDs effectively.

October 14, 2005: NMFS issues a temporary rule (70 FR 60013) effective through November 10, 2005, to allow the temporary use of limited tow times by shrimp trawlers in state and federal waters off Cameron Parish, Louisiana (approximately 92°37'W), westward to the boundary shared by Matagorda and Brazoria Counties, Texas, and extending offshore 50 nautical miles. This action is necessary because environmental conditions resulting from Hurricane Rita are preventing some fishermen from using TEDs effectively.

October 27, 2005: NMFS issues a temporary rule (70 FR 61911) effective through November 23, 2005, to allow the temporary use of limited tow times by shrimp trawlers in inshore and offshore waters from the Florida/Alabama border, westward to the boundary shared by Matagorda and Brazoria Counties, Texas, and extending offshore 50 nautical miles. This action is necessary because environmental conditions resulting from Hurricanes Katrina and Rita are preventing some fishermen from using TEDs effectively.

November 24, 2005: NMFS issues a temporary rule (70 FR 71406) effective through December 23, 2005, to allow the temporary use of limited tow times by shrimp trawlers in inshore and offshore waters from the Florida/Alabama border, westward to the boundary shared by Matagorda and Brazoria Counties, Texas, and extending offshore 20 nautical miles. This action is necessary because environmental conditions resulting from Hurricanes Katrina and Rita are preventing some fishermen from using TEDs effectively.

December 29, 2005: NMFS issues a temporary rule (70 FR 77054) effective through January 23, 2006, to allow the temporary use of limited tow times by shrimp trawlers in inshore and offshore waters from the Florida/Alabama border, westward to the Louisiana/Texas border, and extending offshore 20 nautical miles. This action is necessary because environmental conditions resulting from Hurricanes Katrina and Rita are preventing some fishermen from using TEDs effectively.

February 22, 2006: NMFS issues a temporary rule (71 FR 8990) effective through March 20, 2006, to allow the temporary use of limited tow times by shrimp trawlers in inshore and offshore waters from the Florida/Alabama border, westward to the Louisiana/Texas border, and extending offshore 10 nautical miles. This action is necessary because environmental conditions resulting from Hurricanes Katrina and Rita are preventing some fishermen from using TEDs effectively.

October 1, 2008: NMFS issues a temporary rule (73 FR 57010) effective through October 27, 2008, to allow the temporary use of limited tow times by shrimp trawlers in state and federal waters offshore of Louisiana (from the Mississippi/Louisiana boundary to the Texas/Louisiana boundary) extending offshore 20 nautical miles. This action is necessary because environmental conditions resulting from Hurricanes Gustav and Ike are preventing some fishermen from using TEDs effectively.

October 14, 2008: NMFS issues a temporary rule (73 FR 60038) effective through November 7, 2008, to allow the temporary use of limited tow times by shrimp trawlers in state and federal waters offshore of Texas (from the Texas/Louisiana boundary southward to the boundary shared by Matagorda and Brazoria Counties; approximately 95° 32'W) extending offshore 20 nautical miles. This action is necessary because environmental conditions resulting from Hurricane Ike are preventing some fishermen from using TEDs effectively.

November 3, 2008: NMFS issues a temporary rule (73 FR 65277) effective through November 28, 2008, to allow the temporary use of limited tow times by shrimp trawlers in state and federal waters off Louisiana from the western end of Timbalier Island (approximately 90° 33'W) eastward to the Plaquemines/Jefferson Parish line (approximately 89° 54'W), and extending offshore 15 nautical miles. This action is necessary because environmental conditions resulting from Hurricanes Gustav and Ike are preventing some fishermen from using TEDs effectively.

November 12, 2008: NMFS issues a temporary rule (73 FR 66803) effective through December 7, 2008, to allow the temporary use of limited tow times by shrimp trawlers in state and federal waters offshore of Texas (from the Texas/Louisiana boundary southward to the boundary shared by Matagorda and Brazoria Counties; approximately 95° 32'W) extending offshore 9 nautical miles. This action is necessary because environmental conditions resulting from Hurricane Ike are preventing some fishermen from using TEDs effectively.

September 2, 2010: NMFS issues a proposed rule (75 FR 53925) to revise TED requirements to allow the use of new materials and modifications to existing approved TED designs. Specifically, proposed allowable modifications include the use of flat bar, rectangular pipe, and oval pipe as construction materials in currently-approved TED grids; an increase in maximum mesh size on escape flaps from 15/8 to 2 inches (4.1 to 5.1 cm); the inclusion of the Boone Big Boy TED for use in the shrimp fishery; the use of three large TED and Boone Wedge Cut escape openings; and the use of the Chauvin shrimp deflector to improve shrimp retention. NMFS also proposes to allow a new TED

for use in the summer flounder fishery. Additionally, there are proposed corrections to the TED regulations to rectify an oversight regarding the maximum size chain that can be used on the Parker TED escape opening flap, and the proposed addition of a brace bar as an allowable modification to hard TEDs.

## **References**

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