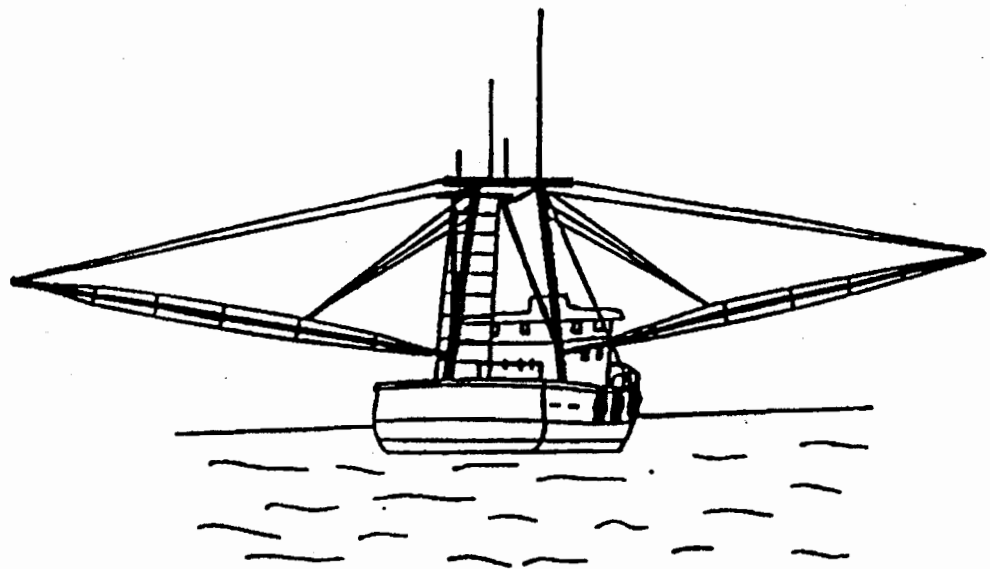


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TURTLE EXCLUDER DEVICES (TEDs)

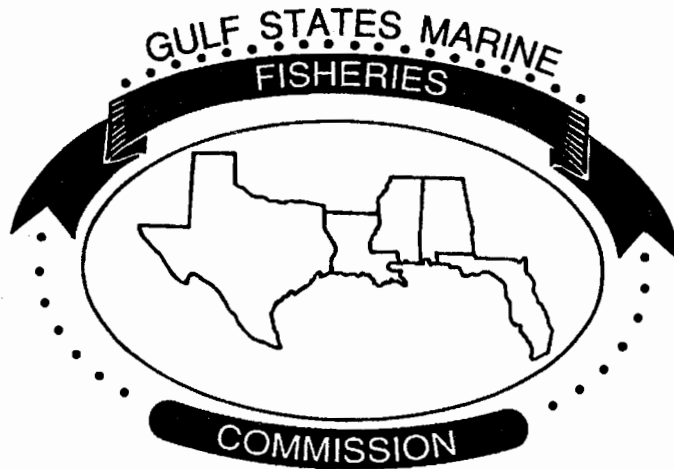
A Handy Guide for Fishermen



March 1995

TURTLE EXCLUDER DEVICES (TEDs)

A Handy Guide for Fishermen



Gulf States Marine Fisheries Commission

March 1995

The GULF STATES MARINE FISHERIES COMMISSION is an organization of the five States, whose coastal waters are the Gulf of Mexico. This Compact, authorized under Public Law 81-66, was implemented by state statute when signed by the representatives of the Governors of the five Gulf States on July 16, 1949. The principal objective of the Compact is conservation, development, and full utilization of the fishery resources of the Gulf of Mexico, to provide food, employment, income, and recreation to the people of the United States.

INTRODUCTION

This document is an unofficial compilation of the laws and regulations related to turtle excluder devices (TEDs). It is designed to provide information to interested people concerning the reason for TEDs, the different variety of TEDs, points of purchase, and other useful information. It is not a definitive document regarding TED laws and regulations and should not be used as such. For information concerning specific TED regulations, contact the National Marine Fisheries Service.

WHAT ARE TEDs?

A TED is an apparatus that is placed in front of the cod or narrow end of a shrimp trawl and directs large objects, such as turtles, towards an opening and out of the net. In addition, a funnel may be placed in the net, causing water to accelerate carrying small objects like shrimp past the opening and into the cod end. TEDs are designed to release turtles without appreciable loss of shrimp.

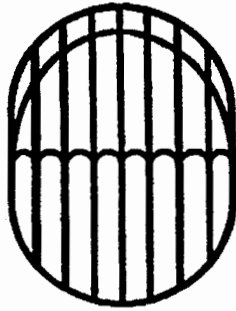
WHY ARE TEDs NEEDED?

All sea turtles that occur in U.S. waters are listed as either endangered or threatened under the Endangered Species Act of 1973 (P.L. 93-205). In the shrimp fisheries in the South Atlantic and Gulf of Mexico regions, there is incidental take and mortality of sea turtles. The Endangered Species Act, and its implementing regulations, prohibit this take of sea turtles unless vessels utilize specified sea turtle conservation measures such as the use of TEDs. The current regulations require most shrimp trawlers operating in the South Atlantic and Gulf regions to have a National Marine Fisheries Service (NMFS)-approved TED installed in each net rigged for fishing, year around. Although most shrimp vessels are required to use these devices, there are some exceptions including bait and royal red shrimpers, vessels using pusher head trawls, skimmer trawls, wing nets, try nets, beam trawls with vertical bars, and trawls retrieved by hand.

WHAT ARE THE DIFFERENT TYPES OF TEDs?

There are three types of TEDs:

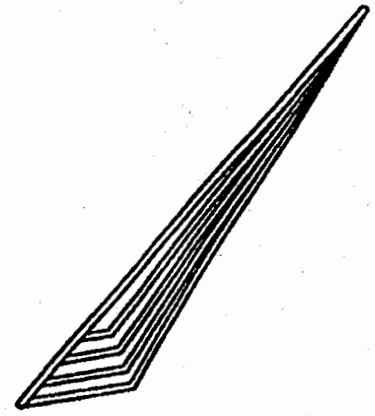
1) Hard TEDs. These TEDs have rigid deflector grids and meet specified generic design criteria. Hard TEDs may be constructed of either solid steel rod with a minimum outside diameter of $\frac{1}{4}$ inch; fiberglass or aluminum rod with a minimum outside diameter of $\frac{1}{2}$ inch; or steel or aluminum tubing with a minimum wall thickness of



Standard Grid TED

$\frac{1}{8}$ inch and a minimum outside diameter of $\frac{1}{2}$ inch. The deflector bars must run from top to bottom of the TED, except that up to four of the bottom bars and two of the top bars, including the frame, may run from side to side. The angle of the deflector bars should be between 30 and 55 degrees. The escape opening must be at the top or bottom of the net when the slope of the deflector bars is either upward or downward respectively. The escape opening must be cut horizontally along the same plane as the TED. For the single grid TEDs, the escape opening must be 32 by 10 inches and the grid must have an inside, horizontal and vertical measurement of at least 28 inches. For hooped hard TEDs, the size of the opening must be 25 by 25 inches and the hoops must have an inside horizontal measurement of at least 32 inches and an inside vertical measurement at least 20 inches. There are two options regarding flotation for TEDs. The first option is that for single grid TEDs with a circumference of 120 inches or more, it is necessary to have: a) one round aluminum (AL) or hard plastic (HP) float 9.8 inches in diameter; b) two expanded polyvinyl chloride (PVC) or expanded ethylene vinyl acetate (EVA) floats, no smaller than $6\frac{3}{4}$ inches by $8\frac{3}{4}$ inches; or c) manufacturer stamped certified flotation equal to or greater than 20 pounds. For single grid TEDs with a circumference of less than 120 inches, it is necessary to have: a) one round AL or HP float, no smaller than 9.8 inches in diameter; b) one PVC or EVA float, no smaller than $6\frac{3}{4}$ inches by $8\frac{3}{4}$ inches; or c) manufacturer stamped certified flotation equal to or greater than 10 pounds. The second option is to have the manufacturer certified TED weight and manufacturer certified flota-

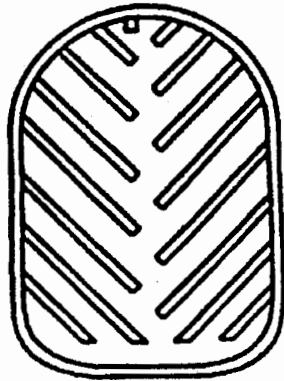
tion clearly stamped on the TED and float. The certified flotation must be equal to or greater than the certified TED weight. All floats must be attached inside or outside the net, behind the rear surface at the top half of the TED with heavy twine or rope. The flap must be constructed of webbing with a stretched mesh size no greater than 1 5/8 inches. There should be no device that holds the flap closed, or restricts the escape opening. The flap should be attached outside the trawl and along its entire forward edge, in front of the escape opening. It must be attached on the sides no more than 6 inches beyond the back edge of the grid and extend no more than 24 inches beyond the back edge of the grid. The webbing material of the funnel must have a stretched mesh size not greater than 1 5/8 inches. The funnel must have an escape opening of at least 39 inches when measured in a stretched position. The funnel must be inserted in the net immediately forward of the TED and the rear edge should not extend past the bars of the TED. The funnel can be attached opposite the escape opening and no more than 1/3 of the funnel should be attached to the TED. The hard TED must be sewn into the trawl around the entire circumference of the TED with heavy twine. There are seven approved hard TEDs; the NMFS, Cameron, Georgia, Matagorda, Super Shooter (inshore and offshore), Weedless (inshore and offshore), and Standard Grid. These TEDs are essentially designed the same. Except the NMFS and Cameron TED, all are single, rigid, oval or rectangle deflector grids made from various materials. The NMFS and Cameron TEDs consist of either two oblong or round end hoops, respectively, that hold the deflector grid which is sewn into the trawl ahead of the cod end.



Super Shooter TED

The NMFS has developed TED regulations summary cards for single grid hard TEDs and soft TEDs and copies of these documents are in Appendix A. These documents were prepared for general information purposes and are not a definitive listing of the regulations.

2) Special hard TEDs. These TEDs are designed for specific applications. They may not strictly adhere to the generic design criteria;

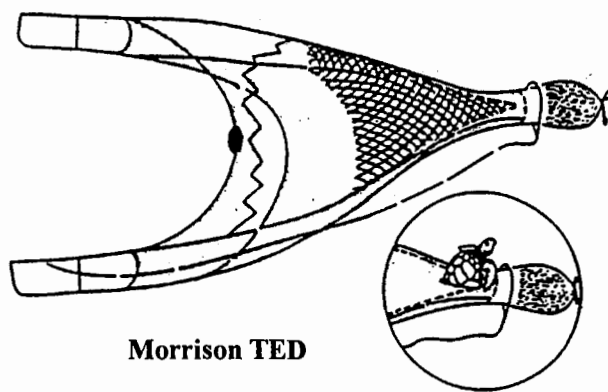


Jones TED

however, they meet the approval criteria. There are two approved special hard TEDs; the Jones and flounder TED. The Jones TED is a single-grid TED, oval in shape with a flattened bottom, which is installed in the trawl ahead of the extension. This TED has diagonal bars attached only at one end to the frame to allow vegetation to slide off the bars into the cod end of the net. The bars are spaced so that small turtles will not pass

through the device and into the cod end. The flounder TED is a large, rectangular, single-grid TED that is installed in the trawl and angled upwards to an exit opening at the top of the net ahead of the extension. It has two openings at the bottom to allow small sharks, large shelled mollusks, and rocks to pass into the cod end of the trawl. This TED is to be used only with a top escape opening and without an accelerator funnel. Also, it may only be used in the Atlantic summer flounder trawl fishery.

3) Soft TEDs. These TEDs have deflector panels made from polypropylene or polyethylene webbing and must meet specific standards of construction and installation. There are three approved soft TEDs; the



Morrison TED

Morrison, Andrews, and Taylor TED. The Morrison TED uses webbing in place of the rigid deflector grids. Depending on the trawl type, the webbing may be installed as one panel or as a main with two side panels. In either case, the webbing must form a complete barrier to large objects inside the trawl net, forward of the cod end.

The Andrews TED is constructed of webbing that is sewn around the entire perimeter on the inside of the trawl. This TED is essentially a trawl within a trawl. The Taylor TED is a triangular piece of webbing that angles upward within the trawl to an exit opening on the top of the

trawl ahead of the extension. The TED was designed to allow to installation of a "Morrison-type" TED in smaller trawls.

WHAT TEDs ARE MOST COMMONLY USED IN THE GULF AND WHERE?

Hard-grid TEDs with bottom openings, primarily the Super Shooter and Anthony Weedless are by far the most commonly used TEDs in the Gulf of Mexico; however, other hard-grid TEDs of varying designs are also used. Hard-grid TEDs are almost exclusively used in the north, central Gulf of Mexico from the Florida panhandle to central Texas. Soft TEDs, primarily bottom shooting Andrews, are used minimally in south Texas and south Florida waters.

WHERE CAN I PURCHASE TEDs?

There are a wide variety of manufacturers who construct both hard and soft TEDs. The NMFS is currently in the process of certifying manufacturers and once the certification process is complete, these dealers will be approved to construct certified TEDs. A list of manufacturers who currently construct hard and/or soft TEDs is at the back of this booklet.

HOW DO I INSTALL TEDs?

Once the proper TED is purchased, it should be installed by qualified personnel. You can contact your local marine extension agent, local TED manufacturer or the NMFS. They will be able to assist you in either installing it yourself or put you in contact with other qualified installers. A list of marine extension agents, local manufacturers, and the NMFS offices is at the back of this booklet.

HOW DO I GET A TED DESIGN CERTIFIED?

If you have developed a TED and would like to get the design certified, there are several steps you must follow.

- 1) A written letter requesting a TED design be certified must be sent to Chuck Oravetz, NMFS Regional Office, 9721 Executive Center Drive, St. Petersburg, Florida 33702.
- 2) The NMFS will request a schematic drawing of the proposed TED and provide the written request and drawing to a gear review panel.
- 3) The panel will review the information and determine if further examination of the TED is necessary.
- 4) If the panel recommends the proposed design, the fisherman is asked to provide data regarding the ability of the TED to retain shrimp. To collect this type of data, a special permit to pull a non-certified TED is required and this permit will be provided by the NMFS.
- 5) If the TED retains an adequate amount of shrimp, it will then be tested for its ability to exclude turtles using the published TED certification protocol.
- 6) If the TED passes the certification test criteria, the proposed TED is then reviewed by another panel comprised of shrimp industry and turtle conservation personnel. The panel reviews the shrimp retention data and turtle exclusion test results and recommends that the proposed TED be certified or not based on the reviewed material. Then, the recommendation is provided to the NMFS Regional Director.

HOW DO I GET INVOLVED IN BYCATCH AND GEAR DESIGN TESTING?

If you are interested in industry-coordinated testing to improve bycatch calculations and gear design, you can contact Judy Jamison or Steve Branstetter, Gulf and South Atlantic Fisheries Development Foundation at (813) 286-8390; Wilma Anderson, Texas Shrimp Association at (512) 758-5024; Gary Graham, Texas A&M University at (409) 762-9800; or Jim Nance, NMFS at (409) 766-3500.

Marine Extension Agents

Charles Moss
Sea Grant Advisory Service
Route 2, 1800, CR#171
Angleton, TX 77515
(409) 849-5711

Louisiana Sea Grant College Program
Coastal Studies Building
Louisiana State University
Baton Rouge, LA 70803
(504) 388-6710

Texas Sea Grant College Program
Texas A&M University
College Station, TX 77843-4115
(409) 845-1245

David Bankston
Louisiana Cooperative
Extension Service
174 Knapp Hall
Baton Rouge, LA 70803
(504) 388-2229

Tony Reisinger
CEHA
County Building
San Benito, TX 78586
(210) 399-4412

Thomas Hymel
Louisiana Cooperative
Extension Service
P.O. Box 10407
New Iberia, LA 70562-0407
(318) 369-4437

Joe Surovik
CEHA
P.O. Box 86
Port Lavaca, TX 77979
(512) 552-9747

David Veal
Mississippi Sea Grant Advisory Service
2710 Beach Boulevard, Suite 1E
Biloxi, MS 39531
(601) 388-4710

Willie Younger
CEHA
County Courthouse, Room 326
Bay City, T 77414
(409) 245-4100

Mississippi-Alabama Sea
Grant Consortium
P.O. Box 7000

Gary Graham
TAMU at Galveston
P.O. Box 1675-Sea Grant
Galveston, TX 77553-1675
(409) 762-9800

Ocean Springs, MS 39564-7000
(601) 875-9341

Jerald Horst
Louisiana Cooperative
Extension Service
1825 Bonnie Ann Drive
Marrero, LA 70072
(504) 341-7271

Richard Wallace
Alabama Sea Grant Extension Service
Auburn University Marine Extension
and Research Center
4170 Commanders Drive
Mobile, AL 36615
(334) 438-5690

Marine Extension Agents (continued)

Douglas Gregory
Marine Agent/Extension Director
Monroe Cooperative
Extension Service
5100 College Road
Key West, FL 33040
(305) 292-4501

Don Pybas
4600 Rickenbacker Causeway
Rosenstiel School
Miami, FL 33149
(305) 361-4017

Will Sheftall
Sea Grant Extension Program
6900 Florida Street
Punta Gorda, FL 33950
(813) 639-6255

Scott Andree
Florida Cooperative Extension Service
University of Florida
615 Paul Russell Road
Tallahassee, FL 32301-7099
(904) 487-3007

Sonya Wood
Sea Grant Extension Program
P.O. Box 7154
Pensacola, FL 32514
(904) 477-0935

Florida Sea Grant College Program
University of Florida
Building 803
Gainesville, FL 32611-0341
(904) 392-5870

Hard or Soft TEDs Manufacturers

Jack's Net Shop
P.O. Box 1182
101 Allen Blvd.
Aransas Pass, TX 78336
(512) 758-2882

Clifford S. Herbert
P.O. Box 551
Sabine Pass, TX 77655
(409) 971-2718

Bill Conner
Sea Garden Sales
P.O. Box 3160
Brownsville, TX 78523
(201) 831-4291

Steve & Sabrina Parrish
S & S Net Shop
896 Stanbury Road, S.W.
Supply, NC 28462
(919) 842-9197

Bayside Net and Twine Co.
P.O. Box 959
Port Isabel, TX 78578
(512) 943-1933

Joe Floyd Sales
P.O. Box 111
Mayport, FL 32267
(904) 241-0546

Ogeechee Net Shop
Route 4, Box 432-E
Savannah, GA 31405
(912) 925-3409

Anthony R. Lettich
Beaufort Marine Supply, Inc.
7022 Savannah Highway
Burton, SC 29902
(803) 525-1611

Hard or Soft TEDs Manufacturers (continued)

Buford Golden
Golden's Net Shop
P.O. Box 107
Eastpoint, FL 32328
(904) 670-8676

Clarence "Rosco" Guidry
1136 Isidore St.
Lafitte, LA 70067
(504) 689-3343

David Hardee
Standard Marine Hardware
P.O. Box 477
St. Augustine, FL 32034

Hard TEDs Manufacturers

Sinkey Boone
Edge, Inc.
P.O. Box 435
Darien, GA 31305
(912) 437-4000

Ernest M. Anthony
Inventor's Machine Shop
Route 2, Box 509
Lacombe, LA 70445
(504) 882-7811

Billy Burbank
Burbank Trawls
P.O. Box 752
Fernandina Beach, FL 32034
(904) 261-3671

Paul Touchard
Chalmette Net & Trawl Supply
2203 Paris Road
New Orleans, LA 70128
(504) 277-1753

Noah Saunders
TED Inc.
307 Pine Street
Biloxi, MS 39530
(601) 436-3334

Tommy Goins
Goins Fabrication Inc.
Route 1, Box 0350
Sharp Road
Marrero, LA 70072
(504) 689-2280

Lawrence Harris
D's Enterprises
P.O. Box 503
Sabine Pass, TX 77655
(409) 971-2235

Joey Duhon
Route 1, Box 63
Creole, LA 70632
(318) 542-4619

Don Davis
American Welding Service
1646 Eyota Drive
Ocean Isle Beach, NC 28469
(919) 754-6991

Clark Touchard
Roy's Net Shop
P.O. Box 318
Delcambre, LA 70528

Soft TEDs Manufacturers

Ray Vaughn
No. 1 Net Shop
P.O. Box 166
McClellanville, SC 29900
(803) 887-3486

Ralph Andrews Net Shop
18339 Cutlass Drive
Ft. Myers Beach, FL 33931-2330
(813) 463-6387

Joe Nguyen
Matagorda Net Shop
P.O. Box 1027
Port Lavaca, TX 77979
(512) 552-2649

Medford Daniels
Daniels Net Shop
Route 2, Box 4630
Bellhaven, NC 27810
(919) 964-4115

National Marine Fisheries Service Laboratories

National Marine Fisheries Service
Southeast Regional Office
9721 Executive Center Drive
St. Petersburg, FL 33702
(813) 893-3366

National Marine Fisheries Service
Galveston Laboratory
4700 Avenue U
Galveston, TX 77551-5997
(409) 766-3500

National Marine Fisheries Service
Southeast Fisheries and Science Center
75 Virginia Beach Drive
Miami, FL 33149
(305) 361-4225

National Marine Fisheries Service
Pascagoula Laboratory
P.O. Box 1207
Pascagoula, MS 39568-1207
(601) 762-4591

Appendix A.

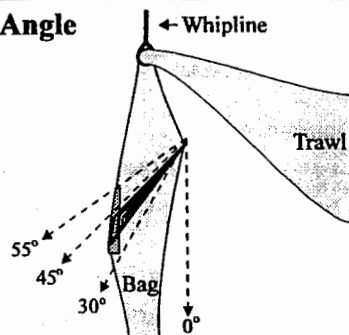
Single Grid Hard TEDs



TED Regulations Summary Card Single Grid Hard TEDs



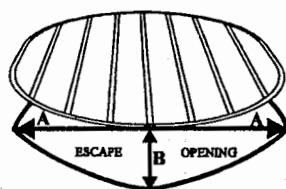
TED Angle



The angle of the deflector bars must be between 30 degrees and 55 degrees from the normal, horizontal flow through the interior of the trawl.

Note: Single grid TEDs may be used in top or bottom opening configuration.

Escape Opening Dimension



Gulf of Mexico

The escape opening must measure at least 32 inches (81.3 cm) in horizontal taut length (A) and, simultaneously, 10 inches (25.4 cm) in vertical taut height (B).

Atlantic Area

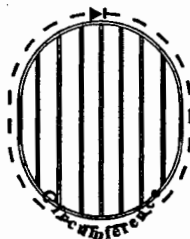
The escape opening must measure at least 35 inches (88.9 cm) in horizontal taut length (A) and, simultaneously, 12 inches (30.5 cm) in vertical height (B).

Note: the cut in the trawl webbing for the escape opening cannot be narrower than the outside width of the grid minus 8 inches (20.3 cm), when measured as a straight line width.

Flotation:

(Required on Bottom Opening Hard TEDs)

Allowable Floats
expanded polyvinyl chloride (PVC),
expanded ethylene vinyl acetate (EVA),
aluminum (AL), or hard plastic (HP)



Floats must be attached to top one-half of all hard TEDs with bottom escape openings.

Side View

Minimum Number and Size of Floats Required

OPTION 1

TED circumference 120 inches (304.8 cm) or more

1. Two PVC or EVA floats 6.75 inches (17.2 cm) in diameter by 8.75 inches (22.2 cm) in length.
2. One AL or HP float 9.8 inches (25 cm) in diameter
3. Manufacturer stamped certified flotation equal to or greater than 20 lbs (9.1 kg).

TED circumference less than 120 inches (304.8 cm)

1. One PVC or EVA float 6.75 inches (17.2 cm) in diameter by 8.75 inches (22.2 cm) in length
2. One AL or HP float 9.8 inches (25 cm) in diameter
3. Manufacturer stamped certified flotation equal to or greater than 10 lbs (4.5 kg)

OPTION 2

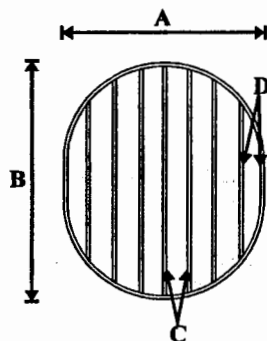
Manufacturer stamped certified TED weight and manufacturer stamped certified flotation

1. Manufacturer certified stamped flotation equal to or greater than manufacturer certified TED weight

Prepared by
National Marine Fisheries Service
Southeast Fisheries Science Center
Mississippi Laboratories
Harvesting Systems Division

Single Grid Hard TEDs (continued)

Grid Dimensions and Material Specifications



Construction Materials

1. Solid steel rod, minimum outside diameter of 1/4-inch (0.64 cm)
2. Fiberglass or aluminum rod, minimum outside diameter of 1/2-inch (1.27 cm)
3. Steel or aluminum tubing, minimum outside diameter of 1/2-inch (1.27 cm) and minimum wall thickness of 1/8-inch (0.32 cm)

Grid Dimensions

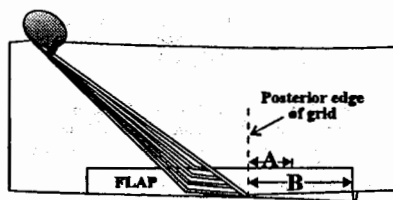
Gulf of Mexico

1. Inside horizontal (A) and vertical (B) measurement of at least 28 inches (71.1 cm)
2. Space between deflector bars (C) and between deflector bars and frame (D) must not exceed 4 inches (10.2 cm)

Atlantic Area

1. Inside horizontal (A) and vertical (B) measurement of at least 30 inches (76.2 cm)
2. Space between deflector bars (C) and between deflector bars and frame (D) must not exceed 4 inches (10.2 cm)

Flap Specifications (allowable modification)



- Constructed of webbing no larger than 1 5/8-inch (4.1 cm) stretched mesh
- Attached along entire forward edge, forward of escape opening
- Must lie on outside of trawl
- Cannot be attached on the sides beyond the row of meshes which lies 6 inches (15.2 cm) behind the posterior edge of the grid (A)
- Cannot extend more than 24 inches (61.0 cm) beyond the posterior edge of the grid (B)

Other Allowable Modifications (See 50 CFR parts 217 & 227 for specifics)

- Accelerator funnel
- Chafing gear
- Roller gear

Other Requirements (See 50 CFR parts 217 & 227 for specifics)

- Float placement and method of attachment
- Position of the escape opening cut
- Method of grid attachment
- Direction of grid bars

This document was prepared for general informational purposes in February 1995 and has no legal force or effect. Please refer to the federal TED regulations, 50 CFR parts 217, 222, 227 and the Federal Register for specific and controlling TED requirements.

For additional information:
Enforcement: (813) 570-5344
Regulations: (813) 570-5312
Technical: (601) 762-4591

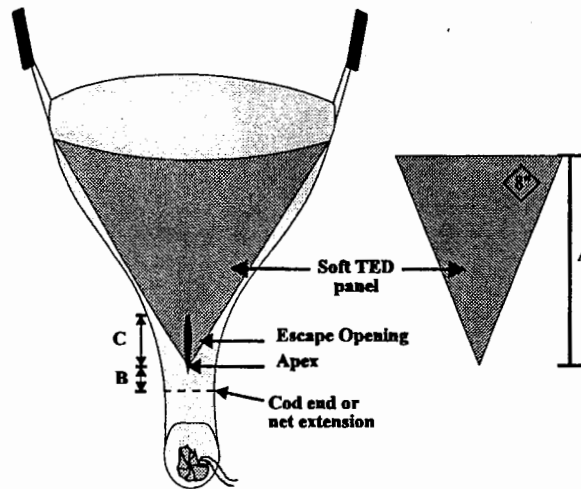
Soft TEDs



TED Regulations Summary Card Soft TEDs



Morrison TED



- Panel Materials - Webbing must be #42 (3 mm) or larger polypropylene or polyethylene
- Panel Mesh Size - Stretched mesh size may not exceed 8 inches (20.3 cm)
- Panel Length - Horizontal taut length (A) may not be less than 15 feet (4.6 m)
- TED panel must form a complete barrier inside the trawl, forward of the codend
- T (50.8 cm) forward of the codend or trawl extension/ trawl body intersection (B)
- Escape opening must be at least 4 feet 8 inches (1.4 m) in taut length (C) cut in a fore-aft direction at the top of the trawl immediately forward of the apex of the panel webbing

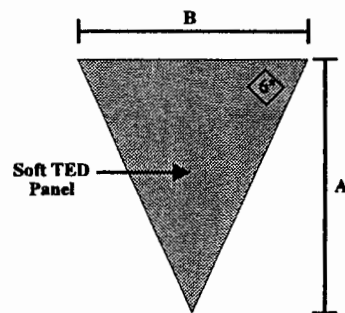
OTHER REQUIREMENTS (See 50 CFR parts 217 & 227)

- Panel placement
- Panel attachment

ALLOWABLE MODIFICATIONS (See 50 CFR parts 217 & 227)

- Flap modification

Taylor TED



- Panel Materials - Webbing must be polypropylene or polyethylene
- Panel Mesh Size - Stretched mesh size may not exceed 6 inches (15.2 cm)
- Panel Length - Horizontal taut length (A) may not be less than 120 inches (305 cm)
- Panel Width - The panel leading edge (B) may not be less than 228 inches (580 cm)
- The horizontal escape opening must measure no less than 72 inches (183.6 cm)
- TED panel must form a complete barrier inside the trawl forward of the codend

OTHER REQUIREMENTS (See 50 CFR parts 217 & 227 for specifics)

- Position of top escape opening
- Installation of escape opening
- Flap installation

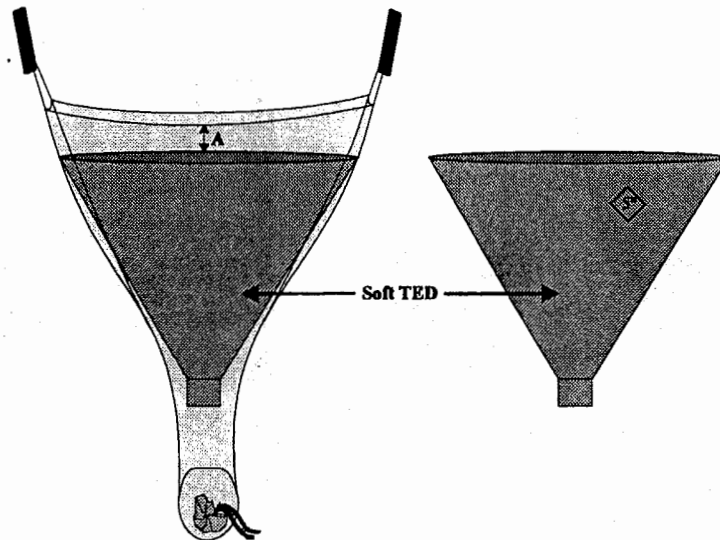
ALLOWABLE MODIFICATIONS (See 50 CFR parts 217 & 227 for specifics)

- Squared off apex

Prepared by
National Marine Fisheries Service
Southeast Fisheries Science Center
Mississippi Laboratories
Harvesting Systems Division

Soft TEDs (continued)

Andrews TED



- Materials - TED webbing must be polypropylene or polyethylene
- Mesh Size - Stretched mesh size may not exceed 5 inches (12.7 cm)
- TED forms a funnel within the trawl
- Leading edge of TED must be attached 20 meshes (A) behind the footrope
- TED funnel must taper to an escape opening in the bottom of the trawl
- The horizontal escape opening must be at least 96 inches (243.8 cm) in circumference

OTHER REQUIREMENTS (See 50 CFR parts 217 & 227 for specifics)

- TED attachment to trawl
- Position of escape opening
- Webbing flap materials and dimensions
- Webbing flap installation

ALLOWABLE MODIFICATIONS (See 50 CFR parts 217 & 227 for specifics)

- Three panel design

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