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**SHRIMPING THE SOUTH ATLANTIC AND THE GULF OF MEXICO: ARE  
FEDERAL AND STATE REGULATIONS ON SHRIMP TRAWLING ADEQUATE?**

**INTRODUCTION**

The purpose of this paper is to show both the positive and the negative effects of federal and state regulations which require the use of turtle excluder devices (TED's) and bycatch reduction devices (BRD's) on commercial shrimp trawling vessels operating in United States waters. The following sections will discuss not only the effect of these regulations on limiting bycatch, but also their effect on shrimp catch. Additionally, reactions from both environmentalists and advocates for the commercial shrimping industry concerning these shrimp trawling regulations will be given. These reactions will show how each side feels these regulations affect them, and how they should be changed, if at all. Finally, a conclusion will be given concerning how regulations governing TED's and BRD's could be improved.

**A. The Debate Over Commercial Shrimping**

Nowhere in the world is the shrimping industry more important than it is in the South Atlantic Ocean and the Gulf of Mexico. The United States ranks as one of the top eleven fishing countries in the world,<sup>1</sup> and domestic shrimping is certainly a reason for this. Commercial shrimping is certainly important. It is the reason that we can go to our favorite grocery stores and restaurants and purchase fresh seafood. It is also the source of income for thousands of U.S. citizens, and for citizens from other countries around the world.<sup>2</sup>

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<sup>1</sup> Gloria Godsell & Mary Penny Thompson, *Issues Surrounding the Gulf of Mexico Red Snapper Fishery and the Impact of the Magnuson Act Reauthorization*, at 26. 9 Tul. Env'tl. L.J. 26 (1996).

<sup>2</sup> See Rediff On the Business News, *WTO Ruling Favours India Against US in Shrimp Case*, at 2. <<http://www.rediff.com/business/1998/apr/07wto.htm>> (accessed April, 13, 2004).

While the commercial shrimping industry is certainly important to our society, it is, however, not without its faults. Environmentalists are constantly attacking the methods of commercial shrimp trawlers, and their effects on the environment. Experts agree that bottom trawlers are one of the worst offenders for destruction of ocean life and habitat.<sup>3</sup> James Lindholm of the National Oceanic and Atmospheric Administration (NOAA), commented on the severity of this issue:

[w]e now know that structures on the seafloor are critical for the future of cod, rockfish, and other commercially important species. But it's only in the last 15 years that we've had the technology to see these habitats, to see that the seafloor is not just an endless flat expanse, and to begin to understand how we are altering deep-sea marine habitats – and fisheries – across the globe.<sup>4</sup>

Advocates for the commercial shrimping industry feel strongly about this issue as well, and they disagree with environmentalists' views on the impact of shrimp trawlers.<sup>5</sup> Robert P. Jones, executive director of the Southeastern Fisheries Association, Inc., is one such advocate.<sup>6</sup> In a speech to the Tulane Law School, Jones stated, “misinformation campaigns and articles that make average citizens think the ocean is doomed or create animosity toward commercial fishermen are counterproductive for solving real problems.”<sup>7</sup> Jones stated that:

The LDFW (Louisiana Department of Fish & Wildlife) has a 20-year database indicating no changes in the stocks of fish and invertebrates in Louisiana estuaries and even shows some species are increasing. Shrimp trawling in federal waters does not occur

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<sup>3</sup> Jessica Brown, *Scientists Urge Managers to Limit Use of Destructive Fishing Gears*, at 1. <[http://www.eurekalert.org/pub\\_releases/2003-02/s-sum021103.php](http://www.eurekalert.org/pub_releases/2003-02/s-sum021103.php)> (accessed February 20, 2004).

<sup>4</sup> Id. at 1.

<sup>5</sup> See Robert P. Jones, Speech, *The Magnuson-Stevens Act: Sustainable Fisheries for the 21<sup>st</sup> Century?* (Tulane Law School Conf., Sept. 9, 1997), <<http://www.southeasternfish.org/Documents/magnusun.htm>> (accessed February 20, 2004); see also Gulf and South Atlantic Fisheries Development Foundation, Inc., *Bycatch and its Reduction in the Gulf of Mexico and South Atlantic Fisheries*, <<http://www.southeasternfish.org/Documents/bycatch.htm>> (accessed February 20, 2004).

<sup>6</sup> Jones, *supra*, at 2.

<sup>7</sup> Id.

primarily over coral and other important outcroppings of fauna and flora. On the contrary, shrimp trawling in the Federal zone in the Atlantic Ocean off Florida is done almost exclusively on smooth ocean bottoms.<sup>8</sup>

## **B. The Evolution of Shrimp Trawling Regulations**

It is hard to imagine that anyone could deny that shrimp trawling has at least some negative effects on the environment. The determination that must be made is how do we balance these negative environmental impacts with the economic benefits that the commercial shrimping industry offers. Federal and state regulations assist the government in performing this balancing act. The target of most federal and state shrimp trawling regulations is to minimize “bycatch.” The term “bycatch” refers to organisms such as finfish, crustaceans, and other sea life, which are harvested from a fishery but are not sold or kept for personal use.<sup>9</sup> Bycatch is broken down into two categories: “economic discards” and “regulatory discards”.<sup>10</sup> “Economic discards” are fish that are the target of the fishery, but are not retained because of size, sex, quality, or other economic reasons.<sup>11</sup> Conversely, “regulatory discards” are fish that are required by regulation to be discarded whenever caught, or kept but not sold.<sup>12</sup> Additionally, some federal regulations address the impact of trawlers on the ocean floor, or benthos.<sup>13</sup> While this effect on the benthos is certainly an important issue, this paper will focus primarily on regulations concerning bycatch.

In 1987, the Federal Government made a significant step in reducing bycatch by requiring that all shrimp trawlers install an approved turtle excluder device (TED) when operating in U.S. waters.<sup>14</sup> While the purpose of the TED was to prevent the catch of various

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<sup>8</sup> Id.

<sup>9</sup> 16 U.S.C. § 1802(1) (2004); *see also Merriam-Webster's Collegiate Dictionary* 436 (Frederick C. Mish ed., 10th ed., Merriam-Webster, Inc. 2000)(defining “finfish” as a true fish as distinguished from a crustacean).

<sup>10</sup> Id.

<sup>11</sup> 16 U.S.C. § 1802(9).

<sup>12</sup> 16 U.S.C. § 1802(33).

<sup>13</sup> *See* 40 C.F.R. §§ 230.61, 970.701, 971.204 (2004).

<sup>14</sup> *See* 50 C.F.R. § 223.207.

sea turtles, it was also learned that TED's have a significant impact on reducing bycatch of finfish and other ocean life.<sup>15</sup> Subsequently, in 1990, the Federal Government mandated the development of a bycatch reduction research program,<sup>16</sup> which would later result in the implementation of regulations requiring the use of bycatch reduction devices (BRD's) in all federal waters, and most state waters.<sup>17</sup>

### **C. Current Regulations Governing Shrimp Trawling**

In order to govern the United States' domestic fisheries, Congress enacted the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).<sup>18</sup> Several purposes are set out in this act, including, but not limited to, the minimization of bycatch in the commercial fishing industry.<sup>19</sup> To accomplish its purposes, the Magnuson-Stevens Act relies on eight regional management councils to develop fishery management plans for their respective areas.<sup>20</sup> This paper will focus on two of these councils: the South Atlantic Fishery Management Council (SAFMC), which presides over the of the states of North Carolina, South Carolina, Georgia and Florida; and the Gulf of Mexico Fishery Management Council (GMFMC), which presides over the states of Texas, Louisiana, Mississippi, Alabama, and Florida.<sup>21</sup>

While both federal and state regulations have made tremendous strides in reaching a balance between the environmental and economic concerns of the commercial shrimping industry, the question still remains as to whether these regulations are adequate. While federal

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<sup>15</sup> See Billy E. Fuls & Lawrence W. McEachron, *Evaluation of Three Bycatch Reduction Devices in Aransas Bay During 1997 Spring (15 May-15 July) and Fall (15 August-15 December) Commercial Bay-Shrimp Seasons*, <<http://www.cbbep.org/projectupdates/virtuallibrary/ccbnep33.pdf>> (accessed February 20, 2004).

<sup>16</sup> 56 Fed. Reg. 58228-01, \_\_\_\_\_ (Nov. 18, 1991); see also Gulf and South Atlantic Fisheries Development Foundation, Inc., *Bycatch and its Reduction in the Gulf of Mexico and South Atlantic Fisheries*, at 1. <<http://www.southeasternfish.org/Documents/bycatch.htm>> (accessed February 20, 2004).

<sup>17</sup> Fuls, *supra*, at 3.

<sup>18</sup> See *Magnuson-Stevens Fishery Conservation and Management Act*, 16 U.S.C. §§ 1801-1883 (1996).

<sup>19</sup> 16 U.S.C. § 1801(4), (7).

<sup>20</sup> 16 U.S.C. § 1851(a)(2).

<sup>21</sup> 16 U.S.C. § 1852(a)(1)(E). SAFMC can be located at [www.safmc.net](http://www.safmc.net). GMFMC can be located at [www.gulfcouncil.org](http://www.gulfcouncil.org).

and state regulations, require the use of TED's in both federal and state waters,<sup>22</sup> several states bordering the Gulf have refused to implement BRD regulations.<sup>23</sup> Merely the presence of regulations (or the lack there of), however, is not determinative of whether the ocean's resources are being protected. It is important, therefore, to examine the impact of the current regulations, and determine if they are truly adequate.

The following sections will discuss these issues in more depth. As stated above, these sections will examine both the positive and the negative effects of both TED's and BRD's. While both TED's and BRD's do have negative effects, do these negative effects outweigh their positive effects?

## **I. PROTETING THE SEA TURTLE: THE FEDERAL GOVERNMENTS FIRST AND FOREMOST OBJECTIVE**

Five specific species of sea turtles frequent the South Atlantic and the Gulf.<sup>24</sup> These species include the Kemp's ridley, loggerhead, leatherback, green and hawksbill, and all of these species are listed as either "endangered" or "threatened" under the Endangered Species Act of 1973.<sup>25</sup> Prior to 1987, commercial shrimpers were a menace to sea turtles because shrimp trawlers were constantly catching these turtles in their nets. Due to years of lobbying by environmentalists, however, the federal government finally took action to protect the sea turtle.<sup>26</sup> Unlike fish or shrimp, sea turtles must breath air.<sup>27</sup> Thus, when sea turtles are caught in shrimp trawls, they are forced to remain underwater for long periods of time, and ultimately they

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<sup>22</sup> See 50 C.F.R. §§ 223.206, 223.207.

<sup>23</sup> Fuls, *supra*, at 3.

<sup>24</sup> *State of La., ex rel. Guste v. Verity*, 853 F.2d 322, 325 (5th Cir. 1988).

<sup>25</sup> See U.S. Fish & Wildlife Service, *Threatened or Endangered Species System (TESS), Listed Animals*. <[http://ecos.fws.gov/tess\\_public/TESSSpeciesReport](http://ecos.fws.gov/tess_public/TESSSpeciesReport)> (accessed April 13, 2004).

<sup>26</sup> *Turtle Island Restoration Network v. Evans*, 284 F.3d 1282, 1284 (Fed. Cir. 2002).

<sup>27</sup> *Id.*

drown.<sup>28</sup> When fitted into shrimp trawls, TED's are designed to prevent sea turtles from entering the trawl's nets.<sup>29</sup> This is typically accomplished by means of a metal grid, which bars larger organisms from entering the nets.<sup>30</sup> The grid bars are placed at the appropriate spacing so that smaller organisms such as shrimp may pass through, but larger organisms, such as sea turtles, are deflected through an escape hatch.<sup>31</sup> This escape hatch is generally a rectangular hole cut in the side of the netting, which allows the organisms to exit the trawl.<sup>32</sup>

As you will see in the sections below, regulations governing TED's have gone through significant changes since their implementation. The question the government must ask itself now, however, is whether or not further changes need to be made.

#### **A. Current Regulations Requiring the Use of TED's**

As stated above, in 1987, the NOAA issued regulations, which required all shrimp trawlers to use federally approved TED's when trawling in all U.S. waters (federal and state).<sup>33</sup> These regulations are set out in the U.S. Code of Federal Regulations (CFR).<sup>34</sup> The CFR defines several relevant terms which are used in the shrimp trawling regulations<sup>35</sup> and understanding these definitions is necessary to properly form an opinion on whether or not the current regulations are adequate. The CFR defines a "Turtle Excluder Device" (TED) as a "device designed to be installed in a trawl net forward of the codend for the purpose of excluding sea turtles from the net."<sup>36</sup> Additionally, the CFR defines a "shrimp trawl net" as "any trawl net that is rigged for fishing and has a mesh size less than 2.50 inches (6.35 cm), as measured between

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<sup>28</sup> Id.

<sup>29</sup> Id.

<sup>30</sup> Id.

<sup>31</sup> Id.

<sup>32</sup> See 50 C.F.R. § 223.207.

<sup>33</sup> 50 C.F.R. § 223.206(d)(2)(i).

<sup>34</sup> See 50 C.F.R. §§ 223.205, 223.206, 223.207, 697.2.

<sup>35</sup> 50 C.F.R. § 697.2(a).

<sup>36</sup> 50 C.F.R. § 697.2(a).

the centers of opposite knots when pulled taught, and each trawl net as defined in...of this chapter, that is rigged for fishing and has a headrope length longer than 16 ft (4.9 m).”<sup>37</sup>

The CFR lists three types of TED’s that are approved for use in the South Atlantic and the Gulf: hooped hard TED’s, special hard TED’s and soft TED’s.<sup>38</sup> Additionally, the CFR sets out exact specifications that these TED’s must meet in order to be approved (i.e. material, grid size, etc.).<sup>39</sup> While these regulations generally require that TED’s be used in all U.S. waters, there are, as with any set of regulations, exceptions to the general rule.<sup>40</sup> The foremost exemption to the rule requiring TED’s is the “alternative tow-time exemption”.<sup>41</sup> This exemption provides that in certain situations, shrimp trawlers may not be required to use TED’s if they trawl times do not exceed certain “tow-times.”<sup>42</sup> These tow-times are listed as 55 minutes during the months of April 1 through October 31 and 75 minutes during the months of November 1 through March 31.<sup>43</sup> In addition to keeping trawls within these time limits, exempt trawlers must also be in one of several categories listed in the regulation.<sup>44</sup> These categories include, but are not limited to, trawlers which have no power or mechanical-advantage trawl retrieval system (i.e. any device used to haul any part of the net aboard), bait shrimpers who retain all live shrimp on board with a circulating seawater system, shrimpers in an area during a period for which tow-time restrictions apply, and shrimp trawlers in which 90 percent (by weight) of all shrimp found on board are royal red shrimp.<sup>45</sup> Additionally, the Assistant Administrator is permitted in some situations to allow shrimpers use these alternative tow-time restrictions in lieu of TED’s if he or

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<sup>37</sup> *Id.*; *see also* Ga. Comp. R. & Regs. R. 391-2-4-.08(2)(f) (2003). “Headrope length” refers to the straight-line length of a rope on the top of the trawl, which extends from the two outermost hanging points.

<sup>38</sup> 50 C.F.R. 697.2(a).

<sup>39</sup> *Id.*

<sup>40</sup> 50 C.F.R. § 223.206(d)(2)(i).

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> 50 C.F.R. § 223.206(d)(3)(i).

<sup>44</sup> 50 C.F.R. § 223.206(d)(2)(ii).

<sup>45</sup> 50 C.F.R. § 223.206(d)(ii)(A), (B).

she determines that the use of TED's would be impracticable because of a particular water condition (i.e. excessive grass, etc).<sup>46</sup> Conversely, shrimp trawlers may be required to use these alternative tow-time restrictions as a substitute for TED's, if the Assistant Administrator determines, for whatever reason, that TED's are ineffective in protecting sea turtles.<sup>47</sup> In extreme situations, shrimp trawling may be prohibited entirely by the Assistant Administrator if he or she determines that there is an unusually high risk of sea turtle capture.<sup>48</sup>

Notice provisions relating to these alternative tow-time restrictions are also set out in the CFR. Specifically, the Assistant Administrator is required to publish notification concerning any tow-time restriction in the Federal Register and to announce it in summary form on channel 16 of the marine VHF radio.<sup>49</sup> Additionally, the CFR requires that the Assistant Administrator consult with the appropriate fishery officials (i.e. state or federal) concerning the affected fishery and if and when these tow-time restrictions should be levied.<sup>50</sup>

## **B. Current Regulations Concerning Incidental Catch of Sea Turtles**

Regardless of how strict federal and state regulations may be, incidental bycatch of sea turtles is bound to happen. Shrimp trawling regulations account for this however, and provide for procedures to be taken when these incidents occur.<sup>51</sup> Section 223.206 of the CFR requires that "any specimen taken incidentally during the course of fishing...activities must be handled with due care to prevent injury to live specimens...and returned to the water according to the following procedures...."<sup>52</sup> The regulations go on to require that any sea turtle which is "actively moving or determined to be dead...must be released over the stern of the boat...when

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<sup>46</sup> 50 C.F.R. § 223.206(d)(3)(B)(ii); *see also* Tex. Admin. Code tit. 31 §58.160 (2003)(stating that the Assistant Administrator refers to the Assistant Administrator of the NMFS).

<sup>47</sup> 50 C.F.R. § 223.206(d)(3)(B)(iii).

<sup>48</sup> *See* C.F.R. § 223.206

<sup>49</sup> 50 C.F.R. § 223.206(d)(3)(B)(iv).

<sup>50</sup> 50 C.F.R. § 223.206(d)(3)(B)(v).

<sup>51</sup> *See* 50 C.F.R. § 223.206.

<sup>52</sup> 50 C.F.R. § 223.206(d)(1)(i).

fishing...gear is not in use, when the engine gears are in neutral position, and in areas where they are unlikely to be recaptured or injured by other vessels.”<sup>53</sup> Additionally, the regulations require that resuscitation attempts be made on turtles, which are merely comatose or inactive.<sup>54</sup> Section 223.205 of the CFR provides that failure “to follow any of the sea turtle handling and resuscitation requirements specified in § 223.206(d)(1)...” will result in a violation.<sup>55</sup> Subsequently, section 223.206 provides, in detail, the procedures to be taken when attempting to resuscitate a comatose or inactive sea turtle.<sup>56</sup>

### **C. Overall Effectiveness of TED’s**

#### **1. Effect of TED’s in Excluding Sea Turtles**

In order to be approved by the National Marine and Fisheries Service (NMFS), a TED design must be shown to be 97 percent effective in excluding sea turtles by NMFS testing.<sup>57</sup> Environmentalists claim, however, that the government has known for years that while past TED designs were sufficient in saving smaller sea turtles, these designs continue to drown larger sea turtles.<sup>58</sup> For several years, the government required trawlers to use TED’s measuring 35” by 12” when fishing in the Atlantic, and 32” by 10” when fishing in the Gulf of Mexico.<sup>59</sup> Environmentalists argued, however, that these TED grids and TED openings were too small to project larger sea turtles.<sup>60</sup> Thus, in April of 2000, the government announced that it would increase TED sizes to save larger sea turtles.<sup>61</sup> The NMFS received over 8,000 comments

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<sup>53</sup> 50 C.F.R. § 223.206(d)(1)(i)(A).

<sup>54</sup> 50 C.F.R. § 223.206(d)(1)(i)(B).

<sup>55</sup> 50 C.F.R. § 223.205(b)(5).

<sup>56</sup> 50 C.F.R. § 223.206(d)(1)(B)(1).

<sup>57</sup> 68 Fed. Reg. 44722, 44722 (July 30, 2003).

<sup>58</sup> Oceana, *The New Turtle Excluder Device Rule*, at 1. <[http://www.oceana.org/uploads/TEDs\\_Fact\\_Sheet.pdf](http://www.oceana.org/uploads/TEDs_Fact_Sheet.pdf)> (accessed February 20, 2004).

<sup>59</sup> *Id.*

<sup>60</sup> *Id.*

<sup>61</sup> 65 Fed. Reg. 17852-01 (Apr. 5, 2000).

favoring the amendment to the regulations, and in February of 2003, the Bush Administration released a final rule requiring these larger TED's.<sup>62</sup>

During testing of large hooped hard TED's, the NMFS used the average measurements of 15 nesting female leatherback turtles and assembled a pipe-framed model of a leatherback turtle.<sup>63</sup> The model was then taken by a diver into a trawl, where the diver repeatedly attempted to push the model through the TED opening.<sup>64</sup> On each attempt, the diver was able to push the model through with ease.<sup>65</sup> Even when the model was inverted (simulating the dorsal surface of the turtle oriented against the TED frame), the diver had no problems pushing the model through the TED grid.<sup>66</sup> In order to test the ability of the TED to release smaller turtles, another test was performed using the large hooped hard TED.<sup>67</sup> To perform this test, a hinged door was positioned to cover the escape portal to within 12 inches (30 cm) of the back edge of the opening.<sup>68</sup> 25 turtles were then released, one at a time, into a trawl towed at 2.5 knots.<sup>69</sup> Each turtle was given 5 minutes to escape from the trawl.<sup>70</sup> If the turtle was unable to escape within the allotted 5 minutes, the diver retrieved the turtle, and it was considered to have been captured.<sup>71</sup> Of the 25 turtles tested, all 25 escaped easily with an average escape time of 68 seconds.<sup>72</sup>

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<sup>62</sup> Oceana, *supra*, at 2.

<sup>63</sup> 68 Fed. Reg. 44722, 44723.

<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

## 2. Effect of TED's on Shrimp Catch

In a test performed by the Gulf and Atlantic Fisheries Development Foundation, Inc., two hard TED's (a Georgia grid style and an Anthony Weedless) were tested against each other.<sup>73</sup> None of the tests indicated that the hard TED's contributed to any shrimp loss.<sup>74</sup> Additionally, specific attention was paid to the testing of two soft TED's (Andrews 5" and Morrison).<sup>75</sup> When tested against the naked net, the Andrews 5" had a shrimp loss rate of 16 percent.<sup>76</sup> Similarly, when tested against the two different hard TED's, the Morrison soft TED experienced shrimp losses of 13 percent.<sup>77</sup>

After multiple tests were conducted in both the South Atlantic and the Gulf of Mexico, shrimp loss was greater with soft TED's than with hard TED's.<sup>78</sup> In the South Atlantic study, the Morrison soft TED lost 10-15 percent more shrimp than a naked net, with the specific value dependent on the area shrimped and time of testing.<sup>79</sup> These numbers were very similar to the tests conducted in Gulf waters.<sup>80</sup> Additionally, the Andrews 5" soft TED lost more shrimp than the Morrison soft TED.<sup>81</sup> The Andrews TED caught 16 percent less shrimp than the naked net, which resulted in 6 percent less shrimp than the Morrison soft TED.<sup>82</sup>

The next issue concerns regulations requiring the use of BRD's. Again, the question raised is whether the positive or negative effects of these regulations are greater.

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<sup>73</sup> Id.

<sup>74</sup> Id.

<sup>75</sup> Id.

<sup>76</sup> Id.

<sup>77</sup> Id.

<sup>78</sup> Id.

<sup>79</sup> Id.

<sup>80</sup> Id.

<sup>81</sup> Id.

<sup>82</sup> Id.

## II. THE BYCATCH REDUCTION DEVICE: A BIG STEP IN PROTECTING NON-TARGET FISH STOCKS

### A. Current Federal Regulations Regarding BRD's

Unlike the federal TED requirements, federal bycatch reduction device (BRD) requirements are not imposed on the states. Therefore, it is left to the states to implement BRD requirements in state waters. Section 622.41 of the CFR sets out the BRD requirements for federal waters.<sup>83</sup> This section provides that shrimp trawlers in the South Atlantic federal waters are only required to use BRD's if they are a penaeid shrimp trawler.<sup>84</sup> However, it provides no requirements for trawlers targeting rock, white, or other species of shrimp. The section states that penaeid shrimp trawlers in the South Atlantic with mesh sizes less than 2.50 inches (6.35 cm) and each try net that is rigged for fishing and has a headrope length longer than 16.0 ft (4.9 m), must have a certified BRD installed.<sup>85</sup> The CFR lists only three types of certified BRD's: extended funnel, expanded mesh and fisheye.<sup>86</sup> Procedures are listed, however, that indicate how to have another type of BRD certified.<sup>87</sup>

Section 622.41 provides the BRD requirements for shrimp trawlers in the federal Gulf waters.<sup>88</sup> These regulations are more complicated than the regulations for the South Atlantic, and they are certainly more lenient. While 622.41 provides that all shrimp trawlers in federal Gulf waters are required to use BRD's, the regulations have different requirements for trawlers to the east and west of longitude 85° 30' W.<sup>89</sup> The section provides that trawlers to the west of the stated longitude are permitted to use one of three certified BRD's: fisheye, Gulf fisheye, and

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<sup>83</sup> See 50 C.F.R. § 622.41.

<sup>84</sup> Id.

<sup>85</sup> 50 C.F.R. § 622.41(g)(1).

<sup>86</sup> 50 C.F.R. § 622.41(g)(2).

<sup>87</sup> 50 C.F.R. § 622.41(g)(3).

<sup>88</sup> See 50 C.F.R. § 622.41(h).

<sup>89</sup> 50 C.F.R. § 622.41(h).

Jones-Davis.<sup>90</sup> Trawlers to the east of the stated longitude, however, have four different certified BRD's to choose from: fisheye, Gulf fisheye, Jones-Davis, extended funnel, and expanded mesh.<sup>91</sup> Procedures for having additional BRD's certified are offered for shrimp trawlers in the Gulf as well.<sup>92</sup>

Finally, the CFR offers several exemptions to the BRD requirements for trawlers in the Gulf.<sup>93</sup> The first of these exemptions states that shrimp trawlers that have on board 90 percent royal red shrimp, are not required to have BRD's.<sup>94</sup> Additionally, the CFR allows exemptions for shrimp trawlers with headrope lengths of 16 ft (4.9m) or less, and for roller trawls that are 16 ft (4.9m) or less in length.<sup>95</sup>

## **B. Current State Regulations Regarding BRD's**

All of the states bordering the South Atlantic (North Carolina, South Carolina, Georgia and Florida) require the use of BRD's in state waters.<sup>96</sup> Of the Gulf states, however, Texas and Florida, are the only two that require BRD's.<sup>97</sup> Louisiana, Mississippi, and Alabama are yet to implement BRD requirements in their respective states' waters.<sup>98</sup>

### **1. North Carolina**

BRD regulations for North Carolina state waters are set out in the North Carolina Administrative Code.<sup>99</sup> However, these regulations do not offer much guidance to North Carolina shrimp trawlers. The North Carolina Administrative Code provides that “[t]he

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<sup>90</sup> Id.

<sup>91</sup> 50 C.F.R. § 622.41(h)(2)(i), (ii).

<sup>92</sup> See 50 C.F.R. § 622.41(h).

<sup>93</sup> See 50 C.F.R. § 622.41

<sup>94</sup> 50 C.F.R. § 622.41(h)(1)(iii).

<sup>95</sup> 50 C.F.R. § 622.41(h)(1)(iv), (v).

<sup>96</sup> Fuls, *supra*, at 3.

<sup>97</sup> See Fla. Admin. Code Ann. r. 68B-31 (2004); Tex. Admin. Code tit. 31 §58.160 (2003). See also Fuls, *supra*, at 3.

<sup>98</sup> Id.

<sup>99</sup> See 15A N.C. Admin. Code 3J.0104 (2004).

Fisheries Director may, with prior consent of the Marine Fisheries Commission, by proclamation, require bycatch reduction devices or codend modifications in trawl nets to reduce the catch of finfish that do not meet size limits or are unmarketable as individual foodfish by reason of size.”<sup>100</sup> No further guidance is offered by North Carolina with regard to BRD regulations.

## 2. South Carolina

BRD regulations for South Carolina state waters are set out in the Code of Laws of South Carolina,<sup>101</sup> and these regulations offer much more guidance than the BRD regulations in the North Carolina. Section 50-5-770 of the South Carolina Code provides that any shrimp trawler in South Carolina state waters with less than two and one-half inches stretched mesh and exceeding head rope length of 16 feet must utilize one of more department-approved BRD’s.<sup>102</sup> Thus, unlike in North Carolina, commercial shrimpers may simply look to this statute to determine how to comply with the South Carolina BRD regulations.

## 3. Georgia

Georgia’s BRD regulations are also set out in the State’s administrative code.<sup>103</sup> In sum, the Georgia BRD regulations provide that BRD’s are required on all shrimp trawlers in Georgia state waters with headrope lengths of greater than 16 feet.<sup>104</sup> Additionally, the Georgia regulations set out several types of certified BRD’s and specifications for how they are to be installed.<sup>105</sup>

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<sup>100</sup> 15A N.C. Admin. Code 3J.0104 (d).

<sup>101</sup> See *South Carolina Marine Resources Act of 2000*, S.C. Code Ann. §§ 50-5-10 - 50-5-2740 (2004).

<sup>102</sup> SC Code Ann. §50-5-770(A)(2004).

<sup>103</sup> Ga. Comp. R. & Regs. R. 391-2-4-.08 (2003).

<sup>104</sup> Id.

<sup>105</sup> Id.

#### 4. Florida

Florida has the most extensive shrimp trawling regulations of the all the South Atlantic and Gulf States. Florida, like North Carolina and Georgia, also sets out its BRD regulations in their administrative code.<sup>106</sup> These regulations require that no otter or skimmer trawl (two types of shrimp trawls) may shrimp in Florida state waters without a certified BRD.<sup>107</sup> Florida's regulations, however, unlike other state and federal regulations, do not place specifications on headrope or footrope lengths with regard to BRD's.<sup>108</sup> Basically, all legal trawl nets are required to have a certified installed BRD. Additionally, Florida, also lists several state certified BRD's, and procedures that may be taken to have an additional BRD certified.<sup>109</sup>

#### 5. Texas

Texas is the most recent Gulf state to require the use of BRD's in state waters, having just implemented BRD regulations in September of 2001.<sup>110</sup> The Texas BRD regulations require all shrimp trawlers in Texas state waters to have a certified BRD, unless the trawler meets one of three exemptions set out in the regulations.<sup>111</sup> Basically, these exemptions provide that trawlers shrimping under a commercial bait shrimping license, trawlers shimping under an individual bait-shrimp trawl tag, trawlers that have been allowed or required to substitute BRD's for tow-time restrictions as set out by the Assistant Administrator, and trawlers trawling with only a single try net that is 21 feet or less in total width, are not required to use a certified BRD.<sup>112</sup>

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<sup>106</sup> See Fla. Admin. Code Ann. r. 68B-31.003 (2004).

<sup>107</sup> Id.

<sup>108</sup> Id.

<sup>109</sup> Id.

<sup>110</sup> See Tex. Admin. Code tit. 31 §58.160 (2003).

<sup>111</sup> Tex. Admin. Code tit. 31 §58.160(e)(2).

<sup>112</sup> Tex. Admin. Code tit. 31 §58.160(e)(2), (3).

### C. Overall Effectiveness of BRD's

#### 1. Effect of BRD's in Excluding Finfish

In a 1998 study conducted by NMFS, 16 different BRD designs were tested in both the South Atlantic and the Gulf.<sup>113</sup> These designs included three fisheye BRD designs, three funnel designs, a modified funnel design, a Supershooter TED design and a snake eye BRD design (TED's also have a bycatch reduction effect, and are therefore often tested along with other specifically designed BRD's).<sup>114</sup> The finfish reduction rates for these designs varied greatly. The greatest total fish reduction was demonstrated by the Jones/Davis BRD and extended funnel designs, which indicated a 58 percent reduction in finfish bycatch.<sup>115</sup> Additionally, the 12x5 (30 mesh) fisheye design indicated a significant finfish reduction rate of 44 percent.<sup>116</sup>

Reduction rates for key species such as red snapper and weakfish were significant as well. The 12x5 (30 mesh) fisheye accounted for the most reduction in red snapper bycatch with a reduction rate of 59 percent, while the extended funnel design was the most effective in excluding weakfish with a 55 percent reduction rate.<sup>117</sup> Additionally, the extended funnel design was also the most effective in reducing Spanish mackerel (another highly caught species) bycatch with an 84 percent reduction rate.<sup>118</sup>

In comparison, another NMFS-supported research project was performed in the South Atlantic and the Gulf in 1997.<sup>119</sup> This research project was conducted in offshore federal waters and was compiled over a six-year period (1990-1996).<sup>120</sup> BRD designs for this research project

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<sup>113</sup> Nat. Oceanic and Atmospheric Admin., U.S. Dept. of Comm., *Southeastern United States Shrimp Trawl Bycatch Program*, at 34. <<http://galveston.ssp.nmfs.gov/galv/reports/conbyrep98.pdf>> (accessed Feb. 20, 2004).

<sup>114</sup> Id.

<sup>115</sup> Id. at 36.

<sup>116</sup> Id.

<sup>117</sup> Id. at 37.

<sup>118</sup> Id.

<sup>119</sup> Fuls, *supra*, at 6.

<sup>120</sup> Id.

consisted of the Jones/Davis BRD design, the Andrews TED design, the fisheye design, and the large mesh extended funnel design.<sup>121</sup> Overall total finfish reduction rates by weight for these designs were 58 percent for the Jones/Davis BRD, 57 percent for the Andrews TED, 37 percent for the fisheye, and 35 percent for the large mesh extended funnel.<sup>122</sup>

Bycatch reduction studies in coastal bays are somewhat limited when compared to offshore research.<sup>123</sup> However, some of this inshore research was conducted in certain bay areas of North Carolina.<sup>124</sup> The results from these tests indicated a 0 to 76 percent reduction in finfish catch by weight for the fisheye design, a 0 to 65 percent reduction by weight for the large mesh extended funnel design, and a 0 to 12 percent reduction by weight for the snake eye BRD design.<sup>125</sup>

## 2. Effect of BRD's on Shrimp Catch

In the above-mentioned 1998 study conducted by NMFS, shrimp loss from the various BRD designs ranged from 0 to 11 percent, with the greatest shrimp loss coming from the 6x6 fisheye design.<sup>126</sup> The 12x5 fisheye offset design and the 4x7 fisheye design also had significant shrimp losses with 8 percent and 7 percent respectively.<sup>127</sup> Conversely, the Supershooter TED performed the best in this area with a 0 percent shrimp loss in both the South Atlantic and the Gulf.<sup>128</sup> The 12x5 fisheye (5 mesh) and the extended funnel designs also performed very well in the Gulf, losing only 1 percent of the shrimp catch.<sup>129</sup> Additionally, the 12x5 (offset) fisheye and

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<sup>121</sup> Id.

<sup>122</sup> Id.

<sup>123</sup> Id.

<sup>124</sup> Id.

<sup>125</sup> Fuls, *supra*, at 2-3.

<sup>126</sup> Nat. Oceanic and Atmospheric, *supra*, at 37.

<sup>127</sup> Id.

<sup>128</sup> Id.

<sup>129</sup> Id.

the Burbank TED performed very well in the South Atlantic tests losing only 1 percent of the shrimp catch.<sup>130</sup>

### III. REACTIONS TO TED AND BRD REGULATIONS

As noted earlier, environmentalists spurred the movement that led to TED regulations. It was concerns from environmentalists that led the TED regulation amendments and which brought about the requirement for larger TED's. Oceana was one of the leading environmental organizations in bringing about such regulations.<sup>131</sup> Of the 8,200 comments that the government received favoring the implementation of larger TED requirements, 7,700 of these comments were by Oceana supporters.<sup>132</sup> An article found on Oceana's website entitled "The New Turtle Excluder Device Rule," Oceana seems cautiously optimistic about the new TED regulations. The article states, "[g]overnment scientists estimate that the new regulations will decrease leatherback shrimp-related mortality by 97% and loggerhead shrimp-related mortality by 94%. But even with the new, larger escape hatches, the government estimates that up to 4,000 sea turtles annually will be drowned."<sup>133</sup> Additionally, state agencies have shown their support for the new TED regulations. The Florida Department of Natural Resources (FDNR) is quoted as stating the following regarding the new regulations "Florida has one of the two largest nesting populations of loggerhead turtles in the world. It is vital to safeguard the loggerheads that migrate to Florida to breed, and protect those that are resident in Florida year-round."<sup>134</sup> The Georgia Department of Natural Resources (GDNR) also commented on the issue. It stated, "TED's are not as efficient as originally intended and opening sizes must be increased to offer

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<sup>130</sup> Id.

<sup>131</sup> Oceana, *supra*, at 2.

<sup>132</sup> Id.

<sup>133</sup> Id.

<sup>134</sup> Oceana, *supra*, at 3.

additional protection to large juvenile and adult loggerhead turtles.... A larger opening size is necessary to protect leatherbacks and eliminate costly fishery closures that are often ineffective because they are generally implemented following fishery related mortality events.”<sup>135</sup>

On the other hand, advocates for the commercial shrimping industry are strongly opposed to TED regulations.<sup>136</sup> Specifically, the commercial shrimpers feel that shrimp losses which result from using devices such as TED’s are simply too costly. In “Bycatch and its Reduction in the Gulf of Mexico and South Atlantic Fisheries,” an article published by Southeastern Fisheries Association, Inc., the negative impact of TED’s was brought to life:<sup>137</sup>

although TED’s do lose some shrimp, annual production of shrimp in the southeast U.S. has been relatively stable; individuals trawlers may be producing less, but overall the fishery is continuing to produce an equivalent amount of shrimp. On the other hand, if a loss per trip or per trawler does equate to an actual reduction in landings (annual production)for that owner, this may substantially impact the economics of that particular operation.<sup>138</sup>

BRD regulations have caused an even bigger controversy. Environmentalists are concerned that shrimp trawlers capture and kill far too many non-target species of ocean life, and that this bycatch is merely discarded because it cannot be marketed. Elliot Norse of the Marine Conservation and Biology Institute stated, “[t]he first time I was on a trawler, I was appalled to see that for every pound of shrimp caught there was 20 pounds of sharks, rays, crabs and starfish killed. The shrimpers called this bycatch “trawl trash’ – I call it biodiversity.”<sup>139</sup>

The commercial shrimping industry is extremely adamant on this issue as well, however. In his speech to the Tulane Law School, Robert Jones stated that “we have been told that a 6 percent loss of shrimp can be expected with the use of BRD’s that have been approved.

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<sup>135</sup> Id.

<sup>136</sup> *Turtle Island Restoration Network v. Evans*, 284 F.3d 1282, 1284 (Fed. Cir. 2002).

<sup>137</sup> *Gulf and South Atlantic Fisheries*, *supra*, at 12.

<sup>138</sup> Id.

<sup>139</sup> *Brown*, *supra*, at 1.

According to one fleet owner who has 11 shrimp vessels, this 6 percent loss in shrimp harvest equates to a 58 percent loss in profit for his business.”<sup>140</sup> Additionally, Jones questioned why there were no similar regulations on the recreational fishing industry.<sup>141</sup> Jones stated, “[c]onversly there is no program to cap or reduce the number of recreational fishing vessels or limit saltwater anglers, which in my home state of Florida is approaching 1,000,000 recreational saltwater licenses being sold annually.... The bycatch from these 1,000,000 plus recreational hooks deserves serious attention if the goal of the NMFS is to reduce bycatch and reduce overfishing wherever it occurs.”<sup>142</sup>

#### IV. CONCLUSION

The commercial shrimping industry is certainly important to our society, but we need to find a way to enjoy the economic benefits that it offers without suffering from excessive negative environmental impacts. It seems unlikely that we will ever reach a perfect balance between the economic and environmental concerns of the commercial shrimping industry, thus society is forced to choose which side of the issue it supports more. On the one hand, we want to have a prosperous commercial shrimping industry to provide jobs, revenues, and other economic benefits, but on the other hand, we want to protect ocean life and habitat from being destroyed.

After considering all of the data, it seems apparent that further regulations on the commercial shrimping industry are still needed. While TED regulations appear to be adequate, these regulations do have their flaws. Additionally, BRD regulations appear on their face to be inadequate. For instance, BRD regulations are still not required in several Gulf states<sup>143</sup>, and

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<sup>140</sup> Jones, *supra*, at 3.

<sup>141</sup> *Id.* at 2.

<sup>142</sup> *Id.*

<sup>143</sup> *See* Fuls, *supra*, at 3.

some of the states that do have BRD regulations have done a poor job of codifying these regulations.<sup>144</sup> Additionally, both federal and state TED regulations are subject to several exemptions that allow trawlers to pull nets without certified TED's.<sup>145</sup> Allowing these shrimp trawlers to pull nets without certified TED's, regardless of the reason, subjects endangered sea turtles to capture.

Remedying the flaws in these regulations is controversial subject. For instance if exemptions from TED requirements, such as "alternative tow-time" exemptions are prohibited by the NOAA, commercial shrimpers stand to lose large amounts of income due to reductions in yearly shrimp catches.<sup>146</sup> Additionally, similar income losses are likely if adequate BRD requirements are required by all states.<sup>147</sup> While these are potential negative effects of stricter shrimp trawling regulations, the potential positive effects of these stricter regulations are tremendous. The data listed above indicates the effects these devices have on reducing bycatch. Eliminating the exemptions from these regulations and requiring all states to use BRD's would give much needed relief to our oceanic resources.

Ultimately, society must decide what value it puts on the ocean and the creatures that live within it. Should we allow shrimp trawlers to continue to trawl with the regulations we have in place today, or should we tighten these regulations to ensure that every possible precaution is taken to protect sea turtles, finfish, and other non-target sea life. No one is proposing that shrimp trawling be stopped, this would be too extreme and ultimately counterproductive. The proposal made here is that we improve shrimp trawling regulations to ensure that every possible step is taken to protect the many valuable resources that the ocean has to offer.

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<sup>144</sup> See 15A N.C. Admin. Code 3J.0104 (2004).

<sup>145</sup> See 50 C.F.R. § 223.206(d)(2)(i).

<sup>146</sup> See Jones, *supra*, at 3 (discussing the effect of shrimp loss on commercial shrimpers' profits).

<sup>147</sup> *Id.*