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TURTLE EXCLUDER DEVICE REGULATIONS: LAWS SEA TURTLES CAN LIVE WITH

KATHLEEN DOYLE YANINEK*

I. INTRODUCTION

Sea turtles have inhabited the earth for more than 100 million years.¹ However, despite their long history, sea turtles now face unprecedented threats to their survival. In fact, all but one of the seven species of sea turtles are listed in the Endangered Species Act (ESA) as endangered or threatened.² The greatest threat to these animals is probably their incidental catch in shrimp nets. As recently as 1990, a National Academy of Sciences (NAS) study concluded that drowning in shrimp trawls "kills more sea turtles than all other human activities combined."³

The chances of sea turtle survival have been enhanced by the development of a shrimp net insert called a turtle excluder device (TED), a contraption similar to a box-shaped cage with a trap door, thought to be effective at releasing captured sea turtles. The shrimp industry, however, has fought fiercely to prevent the imposition of any regulations requiring TED use.

This article traces the history of the TED regulations, from the enactment of the ESA under which they were issued, through the stormy controversy with the shrimp industry, to recent legislation that would extend TED regulations beyond United States waters. The use of other laws as a means of protecting sea turtles in those areas is also examined.

One might wonder why it matters whether the earth has one sea turtle more or less. The truth is that the effects of losing any species are so complex as to be incomprehensible. But an excerpt from Aldo

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1. Susan Clary, *An Ancient Ritual on Our Beaches*, ST. PETERSBURG TIMES, Sept. 7, 1993, at 4D.

2. The term "endangered species" means any species that is in danger of extinction throughout all or a part of its range. 16 U.S.C. § 1532(6) (1988). The term "threatened species" means any species that is likely to become an endangered species within the reasonable future throughout all or a significant part of its range. *Id.* § 1532(20).

3. DEBORAH CROUSE ET AL., *THE TED EXPERIENCE: CLAIMS AND REALITY* 3 (1992).

Leopold's famous collection of essays, *A Sand County Almanac*, helps to illustrate the consequences:

The last word in ignorance is the man who says of an animal or plant: "What good is it?" If the land mechanism as a whole is good, then every part of it is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering.⁴

Protecting and preserving threatened and endangered species is saving the "cogs" and "wheels" of a biological system which is not completely comprehensible. The consequences of removing a "cog" are uncertain.

There is yet a more practical reason for preserving threatened and endangered species: their potential for increasing man's knowledge in the fields of science and medicine. For example, some scientists are studying the amazing ability of some species of sea turtles, air-breathing reptiles, to swim to great depths in the oceans and remain submerged for long periods of time. Results of such research may some day make man's own exploration of the ocean depths easier.

Other scientists are investigating the ability of sea turtles to navigate. Sea turtle hatchlings, for example, quickly set a course away from land and into the sea, maintaining their bearings day and night.⁵ Years later the juveniles that have survived navigate back, usually to the same nesting beach each season.⁶ Information from these and other sea turtle studies may help man in his own quest for survival.

By endangering other species, man endangers himself, for mankind's interests are intricately interconnected with those of the rest of nature.

II. BACKGROUND

Sea Turtles

There are seven species of sea turtles in the world today;⁷ six are listed as threatened or endangered⁸ and all occur within the jurisdiction of the United States.⁹ These are the green (*Chelonia mydas*), log-

4. ALDO LEOPOLD, *A SAND COUNTY ALMANAC* 176-177 (1966).

5. Kenneth Lohmann, *How Sea Turtles Navigate*, *SCI. AM.*, Jan. 1992, at 100.

6. *Id.* Theories include the sea turtles' use of geomagnetic field; the use of wave direction as orientation cues; and detection and utilization of chemical cues in the water. It is also possible that sea turtles use some combination of these techniques. *Id.* at 102-106.

7. GREENPEACE INTERNATIONAL, *TURTLES* 8 (1990).

8. The Australian flatback sea turtle (*Natator depressa*) is not yet considered to be threatened or endangered.

9. GREENPEACE INTERNATIONAL, *supra* note 7.

gerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), Kemp's ridley (*Lepidochelys kempi*), and olive ridley (*Lepidochelys olivacea*) sea turtles.¹⁰ All but the olive ridley, which is most commonly found in the eastern Pacific region,¹¹ occur in the waters of the southeastern United States and the Gulf of Mexico.

Sea turtles, which can live to be more than 100 years old, are reptiles. They live in the water, but they breathe air.¹² Most species appear to need to surface at least once an hour in order to breathe.¹³

Usually only female sea turtles go onto the land.¹⁴ They do so only to lay their eggs, which are deposited on beaches in the higher dunes above the high-tide line.¹⁵ Although undocumented, some females are believed to return to nest in the same general area where they were hatched.¹⁶

Sea turtles, depending on the species, often swim enormous distances to nest on specific beaches. These migrations are among the most puzzling phenomena in nature. During most of the year the marine turtles are scattered in the oceans, but at mating time they begin to move toward the nesting sites.¹⁷ They gather first in small groups and then gradually merge until many sea turtles are travelling together.¹⁸ Sea turtle researcher Archie Carr and others have shown that "in these repeated migrations — at least in the case of the green turtle, the loggerhead turtle, and the leatherback turtle . . . it is always the same animals that form each group."¹⁹

Once on the beach, the females dig holes with their hind paddles and lay between 60 and 200 eggs in them.²⁰ Then they cover the eggs with sand and smooth out the nest site before crawling back to sea. This egg-laying process takes about an hour. When the eggs hatch about sixty days later, the vulnerable young turtles must get to the ocean as soon as possible. While some researchers believe that chemical cues or geomagnetism guide the turtles, others speculate that the

10. *Id.* at 2.

11. *Id.* at 3.

12. Jack Rudloe and Anne Rudloe, *Shrimpers and Lawmakers Collide over a Move to Save the Sea Turtles*, SMITHSONIAN, Dec. 1989, at 45.

13. *Id.*

14. M. MLYNARSKI AND H. WERMUTH, 6 GRZIMEK'S ANIMAL LIFE ENCYCLOPEDIA 109 (1985).

15. *Id.* at 110.

16. Sheryan P. Epperly et al., *The Natural Resources Associated with Mobil's Proposed Drilling Site: Sea Turtles in North Carolina* (PROCEEDINGS OF MARINE EXPO '89, Wilmington, North Carolina) 1 (1989).

17. MLYNARSKI AND WERMUTH, *supra* note 14, at 110.

18. *Id.*

19. *Id.*

20. GREENPEACE INTERNATIONAL, *supra* note 10, at 4.

hatchlings find the right direction "solely because of the relative brightness above the surface of the sea, which provides a cue even when they emerge at night."²¹ These researchers believe the bright lights in highly-developed beachfront areas can confuse the young turtles, causing them to go in the wrong direction and never make it to the ocean. Beachfront development is just one of the many different forces that has contributed to the decline in the world's sea turtle populations. Each of the six sea turtle species common to U.S. waters and its status will now be examined.

Kemp's ridley

STATUS: Endangered

The Kemp's ridley is the most endangered species of sea turtle.²² These turtles were featured in an International Union for Conservation of Nature and Natural Resources (IUCN) Special Report, for which scientists from around the world chose twenty-four species to represent all those species now seriously threatened with extinction.²³ Kemp's ridleys seldom nest in the United States, doing so primarily on only one beach located near Rancho Nuevo, in the state of Tamaulipas, Mexico.²⁴ In the late 1940s about 40,000 Kemp's ridleys were found laying eggs on Rancho Nuevo in a single day, but today this number is drastically reduced to about 500 Kemp's ridleys returning to the Mexican beach to nest in a single day.²⁵

The Kemp's ridleys range in the western Atlantic Ocean from Nova Scotia and possibly Newfoundland south to Bermuda.²⁶ They inhabit coastal waters from south Texas to Massachusetts during the warmer periods of the year. Adults stay almost exclusively in the Gulf of Mexico in both U.S. and Mexican jurisdiction. When they do come on shore, these turtles prefer the shallow water in coastal and lagoon areas, including bays and estuaries.²⁷

The Kemp's ridleys feed on crustaceans, mollusks, jellyfish, and fish.²⁸ They are the smallest of the sea turtles with a shell length not

21. *Id.*

22. *Id.* at 3.

23. William Robert Irvin, *When Survival Is at Stake: A Proposal for Expanding the Emergency Exception to the Sixty-Day Notice Requirement of the Endangered Species Act's Citizen Suit Provision*, 14 HARV. ENVTL. L. REV. 343 n.3 (1990).

24. Rudloe and Rudloe, *supra* note 12, at 47.

25. *Id.* This is an often-quoted example of the decimation of this sea turtle's population.

26. CARL H. ERNST AND ROGER W. BARBOUR, *TURTLES OF THE WORLD* 126 (1989).

27. Epperly et al., *supra* note 16, at 2.

28. *Id.*

exceeding thirty inches and a weight ranging from 80 to 100 pounds.²⁹ The oval-shaped shell is usually gray but can range from black (on younger turtles) to olive-gray.³⁰

Hawksbill

STATUS: Endangered

This sea turtle has an attractively colored shell of thick, overlapping scales, which most people refer to as "tortoise shell."³¹ Hawksbills usually dwell in tropical coastal waters near coral reefs but have been reported from New England to southern Brazil and Argentina.³² The hawksbills also inhabit the shoals and lagoons of oceanic islands and continental shelves in water between fifty and sixty feet deep.³³ Young hawksbills live in masses of floating sea plants until they are able to dive.³⁴

The hawksbills nest high up on the beach, often in vegetation.³⁵ They forage primarily on sponges, but also consume sea grasses, jellyfish, and sea urchins.³⁶ They have a distinct, hawk-like beak and weigh between 100 and 200 pounds, with a shell length of between thirty and thirty-six inches.³⁷

Leatherback

STATUS: Endangered

The most distinctive attribute of this type of sea turtle is that it is highly pelagic or migratory.³⁸ It swims throughout the Atlantic, Pacific, and Indian Oceans from Labrador, Iceland, the British Isles, Norway, Alaska, and Japan south to Argentina, Chile, Australia, and the Cape of Good Hope, and has been known to enter the Mediterranean Sea.³⁹ As is apparent from its ocean-going character, the leath-

29. SOUTHEAST FISHERIES CENTER, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, SEA TURTLES OF THE ATLANTIC AND GULF COAST OF THE UNITED STATES AND THEIR STATUS UNDER THE ENDANGERED SPECIES ACT (ESA) (1986).

30. *Id.*

31. Millions of hawksbills have been killed so that expensive jewelry and eyewear could be made out of their uniquely patterned shells. Until the Japanese government imposed a ban in December 1992, the people of that country had been major importers of hawksbill shell to be used in this manner, despite international treaties prohibiting trade in endangered species.

32. Epperly et al., *supra* note 16, at 2.

33. CLIFFORD H. POPE, TURTLES OF THE UNITED STATES AND CANADA 271-272 (1946).

34. *Id.* at 272.

35. GREENPEACE INTERNATIONAL, *supra* note 7, at 2.

36. SOUTHEAST FISHERIES CENTER, *supra* note 29.

37. *Id.*

38. Epperly et al., *supra* note 16.

39. ERNST AND BARBOUR, *supra* note 26, at 117.

erback is more adapted to marine life than any other sea turtle.⁴⁰ It is usually found in oceanic and near-shore waters although it has been known to enter inshore waters.⁴¹ This circum-global turtle likes to eat jellyfish,⁴² sea urchins, squid, crustaceans, mollusks, tunicates, fish, blue-green algae, and floating seaweed.⁴³ This sea turtle is black with white blotches, and its shell is soft and similar in texture to firm rubber.⁴⁴ The shell is without scales and is characterized by seven longitudinal ridges.⁴⁵ The leatherback is the largest of the sea turtles. It can reach six feet in length and weigh up to 1,300 pounds.⁴⁶

Olive ridley

STATUS: Endangered for Mexican Pacific coast breeding population; threatened elsewhere.

This sea turtle is found mainly in the tropical Pacific and Indian Oceans, with nesting sites in Mexico, Costa Rica, and India.⁴⁷ In the Atlantic Ocean it has been found off the west coast of Africa and the coasts of northern Brazil, French Guiana, Surinam, Guyana, and Venezuela in South America.⁴⁸ It has also been found in the Caribbean Sea as far north as Puerto Rico.⁴⁹

This species's distinguishing characteristic is its habit of nesting in large groups called "arribazones."⁵⁰ As part of this phenomenon, thousands of turtles gather together over the course of a few nights, often digging up eggs that were laid previously.⁵¹ The olive ridley is highly carnivorous, eating fish, crabs, snails, oysters, sea urchins, jellyfish, and, occasionally, sea grasses.⁵² This is the smallest of sea turtles, usually weighing less than eighty-eight pounds with a shell length of about twenty-six inches.⁵³

40. It seems to prefer waters deeper than 150 feet. Sometimes a leatherback will float on the surface while sleeping. See POPE, *supra* note 33, at 291.

41. Epperly et al., *supra* note 16, at 1-2.

42. Plastic bags have been found in the stomachs of several dead leatherbacks. It is thought that the bags were mistaken for jellyfish.

43. ERNST AND BARBOUR, *supra* note 26, at 118.

44. SOUTHEAST FISHERIES CENTER, *supra* note 29.

45. *Id.*

46. Dianne Dumanoski, *Commerce Department Again Orders Shrimpers to Protect Sea Turtles*, BOSTON GLOBE, Sept. 6, 1989, at 16.

47. GREENPEACE INTERNATIONAL, *supra* note 7, at 3. It has not been reported from the coast of North America. See EPPERLY, *supra* note 16.

48. ERNST AND BARBOUR, *supra* note 26, at 127.

49. *Id.*

50. GREENPEACE INTERNATIONAL, *supra* note 7, at 3.

51. *Id.*

52. ERNST AND BARBOUR, *supra* note 26, at 128.

53. GREENPEACE INTERNATIONAL, *supra* note 7, at 1.

Green sea turtle

STATUS: Endangered for Florida and East Pacific (Mexico) breeding populations; threatened elsewhere.

This sea turtle has an oval-shaped, greenish-brown shell with a mottled pattern of dark markings on its shell.⁵⁴ Its head is small compared to those of other sea turtle species.⁵⁵

The green sea turtle is highly migratory, swimming throughout the Atlantic, Pacific, and Indian Oceans, primarily in the tropics.⁵⁶ Although it has been reported as far north as New England and as far south as Brazil and Argentina,⁵⁷ it usually remains within 35 degrees of the equator.⁵⁸ The green sea turtle was abundant in the North Carolina sounds until its population was decimated by turtle hunters during the nineteenth century.⁵⁹ Young green sea turtles are still common in Florida waters, especially in areas abundant in sea grasses.⁶⁰ The main nesting grounds are in Australia, Indonesia, Ascension Island, and Costa Rica.⁶¹

Although juvenile green sea turtles are mainly carnivorous,⁶² adults are chiefly herbivorous, feeding on algae and sea grasses.⁶³ The green sea turtles grow slowly and do not reach sexual maturity until an estimated twenty or thirty years of age.⁶⁴ These medium-sized turtles have a shell length of between thirty-six and forty-eight inches and weigh an average of 300 pounds.⁶⁵

Loggerhead

STATUS: Threatened

This is the most common sea turtle in the waters of the southeastern United States.⁶⁶ It is also found in other parts of the Atlantic, in the Pacific and Indian Oceans and in the Caribbean and Mediterranean Seas.⁶⁷ Along the Atlantic coast of the United States, the loggerhead's nesting area is centered in Florida and extends north to the

54. SOUTHEAST FISHERIES CENTER, *supra* note 29.

55. *Id.*

56. ERNST AND BARBOUR, *supra* note 26, at 120.

57. Epperly, *supra* note 16.

58. POPE, *supra* note 33, at 260.

59. *Id.* at 259.

60. SOUTHEAST FISHERIES CENTER, *supra* note 29.

61. GREENPEACE INTERNATIONAL, *supra* note 7, at 3.

62. *Id.*

63. *Id.*

64. *Id.*

65. SOUTHEAST FISHERIES CENTER, *supra* note 29.

66. *Id.*

67. ERNST AND BARBOUR, *supra* note 26, at 125.

beaches of North Carolina. Another nesting area for loggerheads is in Oman.⁶⁸

The loggerhead sometimes wanders far out to open sea, but also enters bays, lagoons, salt marshes, creeks and the mouths of large rivers.⁶⁹ It is frequently observed around old shipwrecks, underwater structures, coral reefs, sponges, and rocky places where it looks for food.⁷⁰ The loggerhead is omnivorous, eating jellyfish, mussels, squid, shrimp, tunicates, sponges, conch, seaweed, turtle grass,⁷¹ and sargassum.⁷² The loggerhead has a reddish-brown, heart-shaped shell that is an average of thirty-six inches in length.⁷³ It weighs between 150 and 400 pounds.⁷⁴

The Endangered Species Act (ESA)

Sea turtles face many human-induced threats: the international trade in tortoise shell,⁷⁵ beachfront development, exploratory oil and gas drilling, ocean dumping (including plastics), dredge and fill operations, power boats, commercial fishing, ghost nets,⁷⁶ pollution, and the

68. GREENPEACE INTERNATIONAL, *supra* note 7.

69. ERNST AND BARBOUR, *supra* note 26, at 125.

70. SOUTHEAST FISHERIES CENTER, *supra* note 29.

71. ERNST AND BARBOUR, *supra* note 26, at 125.

72. The harvesting of sargassum, a type of seaweed that grows in floating mats, is another potential threat to sea turtles. Scientists believe that sea turtles spend their early life drifting in sargassum which contains small crabs, fish, insects, and plants that nurture the juvenile turtles until they become larger and stronger.

Selina Heppell, a biologist at the North Carolina State University, claims that commercial harvesting of these mats for pharmaceutical use or as livestock feed could destroy an important habitat for "small juvenile" sea turtles. According to a computer model she developed, the "small juvenile" age group of juvenile loggerheads is the second most important for the recovery of the loggerhead population. If the mortality rate of small juvenile loggerheads is increased because of sargassum harvesting, it could take as long as 140 years to see a ten-fold increase in the loggerhead population, according to Heppell's computer model projections. See Carol Ez-zell, *Turtle Recovery Could Take Many Decades*, SCI. NEWS, Aug. 22, 1992.

73. SOUTHEAST FISHERIES CENTER, *supra* note 29.

74. *Id.*

75. Until December 1992, the Japanese imported sea turtle shells and skin. According to Greenpeace International statistics, from 1970-1988, Japan imported shell from more than 650,000 adult hawksbills. Other major importers of hawksbill shell are Singapore, Hong Kong, China, and Taiwan. Exporters include Indonesia, the Maldives, Fiji, the Solomon Islands, Cuba, Haiti, and Jamaica. GREENPEACE INTERNATIONAL, *supra* note 7, at 5.

76. Ghost nets are lost driftnets. Driftnets, used in pelagic or open-ocean commercial fishing operations, are about forty miles long and a mile deep. They are not biodegradable, are acoustically and visually "invisible" to fish and other marine animals, and are nearly unbreakable. Sea turtles reportedly mistake the nets for floating masses of sea grass which many species use for shelter and food. The turtles then become entangled in the nets. See Robert Eisenbud, *Problems and Prospects for the Pelagic Driftnet*, 12 ENVTL. AFFAIRS 473, 474 (1985).

According to Connie Murtagh, a Greenpeace researcher, the Asian fleets (from Japan, Taiwan, and South Korea) spread an estimated 40,000 miles of driftnet each night, 500 to 600 miles of which are lost at sea each year. The ghost nets float freely through the ocean, killing wildlife for years. If fleets continue fishing at current rates, by the year 2000 there will be enough ghost nets to stretch one-third the way around the world, according to Murtagh. See Lisa Couturier,

appetite the people of some nations have for sea turtle eggs.⁷⁷ As a result, their numbers have declined. Some federal legislation, such as the Endangered Species Act (ESA),⁷⁸ has attempted to help preserve sea turtles and other species facing extinction.

The federal government, however, was not always involved in wildlife law. In the United States wildlife law has generally been determined by the states; it was not until the 1900s, after the disappearance of the great auk and the quick decline of the passenger pigeon, buffalo, and eastern panther did the federal government become involved.⁷⁹ Initial federal wildlife laws were designed to preserve and manage species that regularly migrated across state lines, rendering state regulations ineffective. But there was also national concern about the number of species being driven to extinction.⁸⁰

In enacting the ESA in 1973, Congress substantially strengthened prior legislation. Congress had found that "various species . . . have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation."⁸¹ Also, Congress stated its realization that threatened and endangered species "are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."⁸²

Our Friends in Danger, NEW WOMAN, June 1990, at 74-75. For a more detailed analysis of this issue see Leslie A. Davis, *North Pacific Pelagic Driftnetting: Untangling the High Seas Controversy*, 64 S. CAL. L. REV. 1057 (1991). See also Eric J. Fjelstad, *THE GHOSTS OF FISHING NETS PAST: A PROPOSAL FOR REGULATING DERELICT SYNTHETIC FISHING NETS*, 63 WASH. L. REV. 677 (1988).

77. For example, in the Malaysian state of Tenggau, extensive collection of sea turtle eggs, believed by some people to be an aphrodisiac, has decimated one of the world's largest nesting beaches of the leatherback. In 1987, only 100 females nested there, compared to more than 1700 females during the 1950s. Indonesians also avidly collect sea turtle eggs. See GREENPEACE INTERNATIONAL, *supra* note 7, at 5.

According to the Sea Turtle Rescue Fund, although sea turtles lay thousand of eggs each year, only about one in 10,000 eggs will become an adult sea turtle. See Clary, *supra* note 1.

78. 16 U.S.C. § 1531-1544 (1988).

79. Frederico Cheever, *An Introduction to the Prohibition Against Takings in Section 9 of the Endangered Species Act of 1973: Learning to Live with a Powerful Species Preservation Law*, 62 U. COLO. L. REV. 109, 122 (1991). See also ROGER L. DISILVESTRO, *THE ENDANGERED KINGDOM: THE STRUGGLE TO SAVE AMERICA'S WILDLIFE* 10-15 (1989).

80. Cheever, *supra* note 79. In 1966 Congress passed the first law designed specifically to protect endangered species. The Endangered Species Protection Act of 1966 expressed a growing concern about the "extermination of some native species of fish and wildlife," but it did not provide any programs or penalties to change the situation. Pub. L. No. 89-669, 80 Stat. 926 (1966) (repealed 1973). It did, however, recognize the role of habitat destruction, providing that: "A species of native fish and wildlife shall be regarded as threatened with extinction whenever the Secretary of the Interior finds, after consultation with the affected States, that its existence is endangered because its habitat is threatened with destruction, drastic modification or severe curtailment. . . ." *Id.* The 1966 legislation included a prohibition against taking certain wildlife, but it applied only on National Wildlife Refuge land. *Id.*

81. 16 U.S.C. § 1531(a)(1) (1988).

82. *Id.* § 1531(a)(3).

The purpose of the ESA became the direct protection of threatened and endangered species through conservation of the ecosystem upon which they depend for survival.⁸³ To meet these objectives, Congress instituted a system for identifying a threatened or endangered species and its critical habitat; preventing its move toward extinction; and eventually aiding its recovery to viable population levels.⁸⁴

Generally, the ESA imposes strict requirements on federal agencies by outlawing actions that might harm listed species and by directing agencies to use their authority to implement programs for the conservation of listed species.⁸⁵ The three major provisions of the ESA are section 4, the listing process; section 7 which imposes duties and restrictions on federal agencies; and section 9 which prohibits the taking of listed species.⁸⁶

Section 4⁸⁷ of the ESA provides for the listing of species as threatened or endangered by the Secretary of the Interior or the Secretary of Commerce. The United States Fish and Wildlife Service (FWS) and the Secretary of the Interior are primarily responsible for land animals. The Secretary of Commerce and the National Marine Fisheries Service (NMFS) have responsibility for marine life,⁸⁸ which includes sea turtles (at least when they are in the water). The FWS and NMFS promulgate regulations to implement the provisions of the ESA.

Determinations of endangered or threatened status are to be made according to specific criteria:

- (A) the present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) over utilization for commercial, recreational, scientific, or education purposes;
- (C) disease or predation;
- (D) the inadequacy of existing regulatory mechanisms; or

83. Irvin, *supra* note 23, at 343.

84. 16 U.S.C. § 1531(b). The leatherback, hawksbill, and Kemp's ridley sea turtles were listed as endangered in 1973 when the ESA was passed. In 1978 the loggerhead, green, and olive ridley were listed as threatened. Currently Mexican Pacific Coast breeding populations of olive ridley sea turtles and green sea turtles and the Florida breeding population of green turtles are listed as endangered. See Epperly, *supra* note 16.

85. James C. Kilbourne, *The Endangered Species Act Under the Microscope: A Close-up Look From a Litigator's Perspective*, 21 ENVTL. L. 499, 501 (1991). The ESA also prohibits acts by anyone that might result in the taking either directly or indirectly of listed species. *Id.* "Taking" is a traditional vocabulary term in wildlife law with its antecedents in early English Common law. See T. LUND, AMERICAN WILDLIFE LAW 14-15 (1980).

86. Kilbourne, *supra* note 85.

87. 16 U.S.C. § 1533.

88. A list of endangered species over which the Secretary of Commerce has authority is found at 50 C.F.R. § 222.23(a) (1993). A list of threatened species under his control is found at 50 C.F.R. § 227.4 (1990). The Department of Commerce and the Department of the Interior actually share jurisdiction over sea turtles. See 50 C.F.R. § 227.4 (1993).

(E) other natural or manmade factors affecting its continued existence.⁸⁹

A species may be listed based upon any one or more of the above factors.⁹⁰ Also, the determination is to be made "solely on the basis of the best scientific and commercial data available."⁹¹ According to the National Wildlife Federation (NWF), as of October 1993, there were more than 1,100 species worldwide listed as threatened or endangered. This includes more than 600 species in the United States.⁹² Another 3,500 species were candidates for listing by the FWS.⁹³

To meet the ESA's objective of protecting ecosystems, section 4 provides that the critical habitat (areas essential to the survival and recovery of a species) be designated at the same time that the species is listed as threatened or endangered.⁹⁴ However, ESA amendments made in 1978 provide that areas may be excluded from critical habitat if the economic costs exceed the benefits.⁹⁵ Although under the ESA the Secretary of the Interior and the Secretary of Commerce have authority to list both native and non-native species, the listing regulations expressly prohibit them from designating critical habitat "within foreign countries or in other areas outside of United States jurisdiction."⁹⁶

This part of the ESA⁹⁷ further requires that recovery plans (strategies for bringing a species back to viable population levels) be devel-

89. 16 U.S.C. § 1533(a)(1).

90. The Endangered Species Act (ESA) and its corresponding regulations indicate that only one of the listed factors must be present in order for a species to be listed. The statute refers to "any" of the factors. 16 U.S.C. § 1533(a)(1). The regulation states that "any one or a combination" of the factors is enough to list a species. 50 C.F.R. § 424.11(c) (1993).

91. 16 U.S.C. § 1533(b)(1)(A). In its amendments to the ESA made in 1982 Congress added the word "solely" to indicate its intent that listing determinations were to be based only upon an analysis of the biological risks a species faces and not upon other non-biological factors. Kilbourne, *supra* note 85, at 505.

92. NATIONAL WILDLIFE FEDERATION, *THE ENDANGERED SPECIES ACT: BULWARK AGAINST THE TIDE OF EXTINCTION* (1993).

93. *Id.*

94. 16 U.S.C. § 1533(a)(3). The ESA defines "critical habitat" as "the geographical area occupied by the species, at the time it is listed . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection." 16 U.S.C. § 1532(5)(A)(i). According to the Joint Endangered Species Regulations for listing and critical habitat found at 50 C.F.R. § 424.12 (1993), examples of physical and biological features that may be considered essential to the conservation of a species include: areas important for population growth, food and water resources, shelter, breeding and rearing sites, and habitats that are representative of the historic distribution of the species. Kilbourne, *supra* note 85, at 507-508. Critical habitat also includes geographical areas where the species was not located at the time of listing but which "are essential for the conservation of the species." 16 U.S.C. § 1532(5)(A)(ii).

95. 16 U.S.C. § 1533(b)(2).

96. 50 C.F.R. § 424.12(h) (1993).

97. 16 U.S.C. § 1533(f).

oped and implemented.⁹⁸ However, only a little more than half the threatened and endangered species in the United States have recovery plans.⁹⁹

After a species is listed and its critical habitat designated, the protection of other ESA sections goes into effect. Section 7(a)(1)¹⁰⁰ imposes on federal agencies a duty to conserve threatened and endangered species. Section 7(a)(2)¹⁰¹ provides that federal agencies consult with the Secretary to "insure that any action authorized, funded, or carried out by such agency¹⁰² . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of (critical) habitat of such species."¹⁰³

Additional protection for listed species is found in the ESA's section 9¹⁰⁴ which prohibits, with only limited exceptions, the "taking of endangered species."¹⁰⁵ Prior to 1982, the taking prohibition was unconditional. However, in 1982, during the Endangered Species Act amendment and reauthorization process, Congress created two exceptions to the ESA's taking prohibition. First, sections 7(b)(4) and 7(o)(2)¹⁰⁶ authorize FWS and NMFS "to include 'incidental take statements' as part of biological opinions rendered for federal agencies through the section 7 consultation process."¹⁰⁷ This exception allows a federal agency or other applicant:

[p]lanning to engage in an action that is not likely to jeopardize the continued existence of a species, to take members of endan-

98. *Id.*

99. NATIONAL WILDLIFE FEDERATION, *supra* note 92.

100. 16 U.S.C. § 1536(a)(1).

101. 16 U.S.C. § 1536(a)(2).

102. *Id.*

103. *Id.* To help federal agencies meet this obligation, the FWS and NMFS consult with agency officials to review the effects of agency activities on listed species. If FWS or NMFS conclude that an activity is apt to jeopardize a threatened or endangered species, the Service will recommend to the agency alternatives that will allow the activity to proceed without jeopardizing the species at risk. See NATIONAL WILDLIFE FEDERATION, *supra* note 92. According to National Wildlife Federation (NWF) statistics, of more than 120,000 consultations conducted between 1979 and 1991, more than 99 percent resulted in a finding of no jeopardy. Approximately thirty-four projects were cancelled between 1979 and 1991 because of conflict with the ESA. Also, a federal agency can request an exemption from a seven-member cabinet-level Endangered species Committee (nicknamed the "God Committee"). This group has convened three times since its creation in 1978. *Id.*

104. 16 U.S.C. § 1536(a)(4).

105. *Id.* The ESA defines "taking" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19). Congress apparently wanted to define "take" broadly so as to include almost every possible way a person could take or try to take fish or wildlife. See S. REP. NO. 307, 93d Cong., 1st Sess. 1 (1973).

106. 16 U.S.C. § 1536(b)(4), (o)(1).

107. Cheever, *supra* note 79, at 163.

gered species if the taking is not the purpose of the action and is, therefore, 'incidental' to that action. Second, section 10(a) [of the ESA] allows FWS or NMFS to issue 'incidental take permits' for non-federal actions that might otherwise violate the section 9 taking prohibition, if the incidental taking 'will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.'¹⁰⁸

One commentator has suggested that these two exceptions to the section 9 taking prohibition demonstrate that the section's purpose is to protect entire species from extinction. "Protecting individual animals and their habitat is a means to that end. Under the exceptions, the taking of individuals may be authorized, but jeopardizing the species or reducing its prospects for survival remain strictly prohibited."¹⁰⁹

Primary responsibility for enforcing the ESA rests with the federal government. Section 11(a)¹¹⁰ authorizes the Secretary of the Interior to levy civil penalties of varying magnitude for ESA violations. Other parts of the subsection provide for fines, imprisonment, loss of federal licenses and permits, and confiscation of gear for ESA violations. These penalties are imposed through criminal prosecution by the United States Justice Department in federal district court.¹¹¹

The statute also allows citizens to file suit to enforce the ESA in two situations. First, section 11(g)(1)(a)¹¹² permits citizen plaintiffs to seek an injunction in federal district court against anyone violating the ESA or its corresponding regulations. Second, section 11(g)(1)(c)¹¹³ allows citizen suits against the Secretary "where there is alleged a failure of the Secretary to perform any act or duty [under the ESA] . . . which is not discretionary with the Secretary."¹¹⁴ Examples of non-discretionary duties of the Secretary are listing determinations and critical habitat designations.¹¹⁵

Sea Turtles and the Shrimp Industry Threat

Studies conducted between 1973 and 1984 by scientists in the National Oceanic and Atmospheric Administration's (NOAA) NMFS showed that about 48,000 sea turtles were caught in shrimp trawls in the offshore waters of the United States South Atlantic and the Gulf

108. *Id.*

109. *Id.* at 176.

110. 16 U.S.C. § 1540(a)(1).

111. Irvin, *supra* note 23, at 352.

112. 16 U.S.C. § 1540(g)(1)(A).

113. 16 U.S.C. § 1540(g)(1)(c).

114. *Id.*

115. Irvin, *supra* note 23, at 352.

of Mexico each year.¹¹⁶ NMFS estimated that over 11,000 of these turtles died because the fishermen used no devices to protect the turtles.¹¹⁷ These figures indicated that although shrimp trawling, whereby fishermen drag nets up to fifty-five-feet-wide along the ocean floor,¹¹⁸ is not the only cause of sea turtle mortality, it is the biggest known source caused by man in United States waters.¹¹⁹

The NMFS estimates were derived from four sources. First, data was gathered during more than 27,000 hours of observation aboard commercial shrimp trawlers.¹²⁰ Also, beginning in 1980, a volunteer Sea Turtle Stranding and Salvage Network has patrolled beaches and reported sea turtle strandings to NMFS. From January 1980 through December 1986 the group reported more than 8,300 strandings in coastal areas from North Carolina to Texas in several geographical areas.¹²¹ A relationship was noted between peak periods of sea turtle strandings and seasonal peaks in the shrimp trawling effort.¹²² Third, information obtained from sea turtle tagging studies showed that many sea turtles were caught in shrimp nets.¹²³ And, finally, interviews with shrimp fishermen supported other data regarding the incidental catch rate of sea turtles.¹²⁴ The NMFS further estimated that each shrimper in the offshore waters of the Gulf of Mexico on average catches two or three turtles per year.¹²⁵

In 1978 the NMFS started a research program to develop gear or other techniques to reduce the mortality of sea turtles in shrimp trawls.¹²⁶ Then, in 1981, NMFS scientists and engineers modified a device used by shrimpers to exclude large cannonball jellyfish from

116. *Sea Turtle Conservation and the Shrimp Industry: Hearings Before the Subcomm. on Fisheries and Wildlife Conservation and the Environment of the House Comm. on Merchant Marine and Fisheries*, 101st Cong., 2d Sess. 182 (1990) [hereinafter *Hearings*] (statement of William Fox, Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration).

117. *Id.*

118. Peter Pritchard, *The Great Turtle Escape*, TIME, Sept. 18, 1989, at 39.

119. *Hearings*, *supra* note 116. There are more than 5,000 offshore Gulf shrimp vessels. Atlantic offshore shrimpers catch about twenty to thirty turtles per year. There are about 1,500 offshore Atlantic vessels. These numbers demonstrate that although individual shrimpers do not catch many turtles, especially in the Gulf, the cumulative effect of the incidental capture and mortality of sea turtles by a southeastern United States shrimp fleet that had not used excluder devices has had a significant negative impact on these species. *Id.*

120. 52 Fed. Reg. 24244.01 (1987) (codified at 50 C.F.R. Parts 217, 222, and 227) (proposed June 29, 1987).

121. *Id.*

122. *Id.*

123. *Id.*

124. *Id.*

125. *Hearings*, *supra* note 116, at 184.

126. 52 Fed. Reg. 24244 (1987) (codified at 50 C.F.R. Parts 217, 222, and 227) (proposed June 29, 1987).

their nets.¹²⁷ By 1982, tests demonstrated that the turtle excluder device (TED), known as the NMFS TED, excluded 97 percent of the sea turtles encountered by shrimp trawls.¹²⁸

Besides preventing the incidental capture and drowning of sea turtles, TEDs decrease the amount of finfish caught in shrimp nets. This finfish catch, known as bycatch, often results in a serious waste of fishery resources because shrimpers usually dump the bycatch overboard, retaining only the shrimp.¹²⁹ Figures indicate that shrimpers kill and waste 2.5 billion pounds of fish a year, 70 percent of which would have been commercially valuable if allowed to mature.¹³⁰

The NMFS had expected that shrimp fishermen would voluntarily adopt the TEDs because these devices reduced bycatch and eliminated waste from the ocean bottom. However, extensive technology transfer efforts by NMFS and Sea Grant, including workshops, demonstrations, and even free TEDs, resulted in only about 2 to 3 percent of the offshore fleet using the devices.¹³¹

By 1986, it was apparent that shrimpers would not voluntarily use TEDs. Therefore, the NOAA attempted a mediated rule-making. The NOAA assembled and presented information on turtle-shrimp trawler interactions, turtle strandings, and basic sea turtle biology and ecology to a group consisting of shrimp industry and environmental community representatives. This team negotiated and agreed to many of the restrictions that would later become law. Only one member refused to endorse the final agreement.¹³²

127. *Hearings, supra* note 116, at 184.

128. *Id.* TEDs are panels of large, mesh webbing or metal grids inserted into the funnel-shaped shrimp nets. When the nets are pulled through the water, shrimp and other small animals pass through the TED and into the cod end of the net, the narrow bag at the end of the funnel where the catch is collected. Sea turtles, too large to get through the panel, are deflected out an escape hatch. See Rudloe and Rudloe, *supra* note 12.

129. Irvin, *supra* note 23, at 344 n.8. Estimates of the pounds of bycatch wasted for every pound of shrimp caught range from a low of three pounds for every one pound to as high as thirty pounds to one pound.

130. Ted Williams, *The Exclusion of Sea Turtles*, AUDUBON, Jan. 1990, at 26. Another benefit of reduction of bycatch is that it decreases the amount of time shrimpers must spend in the time-consuming process of separating out by hand the shrimp from the other fish that have been caught. *Id.* at 28.

Scientists have also pointed out that there is probably another connection between bycatch and the incidental catch of sea turtles. The dead fish that shrimpers throw overboard probably attract loggerheads to shrimping areas. And although ridley turtles do not often eat fish, they like to feed on crabs which have been known to flock to discarded bycatch. *Id.* A more detailed discussion of the bycatch problem is contained in the Analysis section of this article.

131. *Hearings, supra* note 116, at 184.

132. *Id.* at 184-185. At that time TEDs were being considered almost exclusively for use by offshore trawlers. One reason why they were not considered for use by inshore shrimpers was a lack of data on catch or mortality rates of sea turtles by inshore shrimp trawlers. Also, the NMFS believed that inshore shrimp vessels did not generally tow for longer than ninety minutes, and that this allowed sea turtles captured in inshore trawls to survive. Also, in 1987, no TEDs

TED Regulations

Most shrimpers refused to use TEDs — which they nicknamed “trawler elimination devices.” Consequently, on June 29, 1987, the Secretary of Commerce, through NMFS, issued regulations requiring shrimp vessels twenty-five feet or longer operating in the Gulf of Mexico and the Atlantic Ocean off the southeastern United States to use TEDs in their nets in offshore waters at certain times of the year in order to reduce the incidental catch and mortality of endangered and threatened sea turtles in shrimp trawls.¹³³ These TED regulations also authorized the option of a ninety-minute tow-time restriction,¹³⁴ in lieu of the TED requirement, for all vessels operating in inshore waters, or vessels less than twenty-five feet in length operating in offshore waters.¹³⁵ To enforce the regulations, the NOAA cooperates with the Coast Guard and uses aerial surveillance, focusing on areas where compliance is poor. Criminal prosecutions are sought for those who knowingly and willfully refuse to comply with the regulations.¹³⁶

The TED regulations were not popular with shrimpers, particularly shrimpers from Texas and Louisiana, who trawled in the Gulf of Mexico. In October 1987, the State of Louisiana filed suit against the U.S. Secretary of Commerce to challenge the validity of the TED regulations. In *Louisiana ex rel. Guste v. Verity*,¹³⁷ the State claimed that the

had been tested specifically for use inshore. Only “hard TEDs,” considered by the fishermen on the inshore boats to be too large to handle, were available. *Id.*

133. 52 Fed. Reg. 24244 (1987) (codified at 50 C.F.R. Parts 217, 222, and 227) (proposed June 29, 1987).

134. At the same time that it conducted research into different gear that might reduce sea turtle mortality, the National Marine Fisheries Service (NMFS) also studied the relationship between sea turtle mortality and the amount of time a shrimp trawler tows. The study showed a correspondence between the percent mortality of sea turtles caught in shrimp trawls and the time towed. Mortality was observed to be negligible at tow-times up to about seventy-five minutes. 52 Fed. Reg. 24244 (1987) (codified at 50 C.F.R. Parts 217, 222, and 227) (proposed June 29, 1987). Between seventy-five and ninety minutes, the percent mortality increased to about 15 percent. *Id.* Over ninety minutes, researchers noted a linear relationship between mortality and tow-time with mortality increasing to about 53 percent at 330 minutes. *Id.* This study was believed to show that “reduced tow-times will result in fewer deaths of sea turtles in shrimp trawls.” *Id.* However, NOAA researchers later learned that ninety-minute tow-times are not as effective as TEDs in protecting sea turtles. According to the NOAA, many inshore trawlers tow for longer than ninety minutes. Also, ninety-minute tow-times do not provide an economically sound method of offshore fishing since the vessels lose 20 to 30 percent of their fishing time during a twenty-four-hour period. See *Hearings*, *supra* note 116, at 186.

135. 52 Fed. Reg. 24244 (1987) (codified at 50 C.F.R. Parts 217, 222, and 227) (proposed June 29, 1987).

136. The first major decision regarding enforcement of the TED regulations came in late June 1990. Seventeen shrimp fishermen were ordered by Hugh J. Dolan, an administrative law judge in the Department of Commerce, to pay fines for failing to equip their nets with TEDs, despite the shrimpers's protests that purchasing the devices would ruin them financially. The fines ranged from \$500 to \$12,000. See *Seventeen Shrimpers Draw Fines; Nets Danger to Sea Turtles*, ORLANDO SENTINEL TRIBUNE, June 23, 1990, at A14.

137. 681 F. Supp. 1178 (E.D. La. 1988).

Secretary of Commerce's regulations were arbitrary and capricious; constituted an abuse of discretion; and violated the shrimpers' equal protection and due process rights.¹³⁸ Each side moved for summary judgment. The trial court, finding that the regulations were valid, granted the defendant's motion and dismissed the suit with prejudice.¹³⁹ On appeal, the Fifth Circuit affirmed and held that the regulations were valid because they were neither arbitrary nor capricious, and because they did not violate the shrimpers' equal protection rights.¹⁴⁰ The *Verity* case is interesting because the Fifth Circuit, in its opinion, addressed some of the most common arguments that shrimpers use to oppose TEDs: economic loss, selective enforcement, and extrapolation of figures.

Economic loss

The most common argument that shrimpers use against TEDs is that the devices have a negative economic impact on the industry. They argue that the cost of TEDs, between \$50 and \$600 each, cuts into slim profits. Some industry groups, such as the Concerned Shrimpers of America (CSA), have claimed that the TEDs cause them to lose between 30 and 50 percent of their shrimp catch. Marvin Hickman, then-president of the CSA, testified at a hearing before the Subcommittee on Fisheries and Wildlife Conservation and the Environment: "Our experiences show that the device failed to work during the majority of operations and is adversely affecting our harvest. Shrimpers are losing their businesses that they have worked all their lives to own. . . . The shrimp industry is in an extreme[ly] negative financial position at this time. . . . Our income has been reduced by . . . loss of production by TEDs."¹⁴¹

Indicative of the general sentiment shrimpers felt toward TEDs was what another fisherman told a writer for *Smithsonian* magazine: "A TED ain't nothing but a big hole in the net, and I'll be damned if I'm gonna pull them."¹⁴²

Environmentalists denied the accuracy of the shrimpers' loss estimates. For example, at the same hearing at which Hickman testified, Claudine Schneider, a United States Representative from Rhode Island, pointed out that, "in various studies that have been conducted by the shrimp fishermen themselves in conjunction with the NMFS, the loss rate of shrimp range from 5 to 8 percent in the Gulf of Mexico

138. *Id.* at 1181.

139. *Id.* at 1185.

140. *Louisiana ex rel. Guste v. Verity*, 853 F.2d 322 (5th Cir. 1988).

141. *Hearings*, *supra* note 116, at 8-9 (testimony of Marvin Hickman, President of the Concerned Shrimpers of America).

142. Rudloe and Rudloe, *supra* note 12, at 50.

and approximately 13 percent in the Atlantic.”¹⁴³ Furthermore, a NOAA study of different types of TEDs has shown that with use of such devices there is an average shrimp loss of about 10 percent and an average reduction in bycatch of about 13 percent.¹⁴⁴

The *Verity* case addressed this issue of the economic impact of the TED regulations on shrimpers. The court determined that “[s]hrimpers will purchase and install certified TEDs at an expected cost of \$200 to \$400 per TED. The average annual cost to the entire industry was estimated at \$5.9 million, which included the cost of expected shrimp loss during the start-up period, before gear adjustments and changes in trawling techniques overcome any initial inefficiencies. There is substantial evidence in the administrative record indicating that anticipated catch loss resulting from use of the TEDs will amount to no more than 5 percent.”¹⁴⁵

The court stated that although it understood the shrimpers’ concerns about the expense and inconvenience the regulations caused the Louisiana shrimp industry, the court was compelled to follow Congress’s mandate that such losses “cannot compare to the ‘incalculable’ value of genetic heritage embodied in any protected living species.”¹⁴⁶ Because the protection of sea turtles had not been shown to be achievable through less costly means, “the costs shouldered by the [shrimping] industry are not arbitrary, but reasonably related to Congress’s purpose.”¹⁴⁷

Selective enforcement

A second argument that shrimpers often make is that TED regulations amount to “selective enforcement.” At the subcommittee meetings the CSA’s Hickman testified: “We view the TED regulations as selective enforcement while the major factors of sea turtle mortalities are being ignored.”¹⁴⁸ He alleged that “it has become apparent that the shrimping industry has been taken advantage of through the filing of . . . tons of paperwork. . . [t]hat created the impression that there was tremendous documented proof that shrimpers are the major contributing factor to the decline of the sea turtle population.”¹⁴⁹

Environmentalists maintain, however, that shrimpers are largely to blame for the sea turtle’s decline. Charles Oravetz, chief of protected

143. *Hearings*, *supra* note 116, at 4 (testimony of U.S. Representative Claudine Schneider).

144. *Hearings*, *supra* note 116, at 191.

145. *Louisiana ex rel. Guste v. Verity*, 853 F.2d 322, 331 (5th Cir. 1988).

146. *Id.*

147. *Id.*

148. *Hearings*, *supra* note 116, at 8 (testimony of Marvin Hickman, President of the Concerned Shrimpers of America).

149. *Id.*

species at the NMFS's Florida branch, has said, "Shrimping is the single most detrimental commercial activity to turtles in U.S. waters. "There are other causes to turtle mortality, but not nearly the same level."¹⁵⁰

Representative Schneider, in her testimony before the Subcommittee on Fisheries and Wildlife Conservation and the Environment, said; "The shrimpers are by no means the only threat to the survival of the sea turtles, but it is a threat that can be significantly reduced in an inexpensive and effective manner without the loss of these turtles."¹⁵¹

The *Verity* court found that the regulations' failure to address other serious causes of sea turtle mortality did not make them arbitrary and capricious. Based upon "the well-established rule that the regulations need not remedy all evils, or none,"¹⁵² the court reasoned that "the agency's decision to attack one of the major causes of sea turtle mortality through regulation is entirely within its discretion."¹⁵³ The court concluded that "the record need only show that such regulations do in fact prevent prohibited takings of prohibited species,"¹⁵⁴ and that the record in this case showed that this burden had been satisfied.

Extrapolation of figures

Shrimpers have also complained that figures regarding sea turtle mortality used by the NMFS are inaccurate because they have been extrapolated. W.J. "Billy" Tauzin, United States Representative from Louisiana, at the hearing before the Subcommittee on Fisheries and Wildlife Conservation and the Environment stated, "The numbers cited for sea turtle mortalities in shrimp nets are interesting . . . because they are not numbers derived from actual counts of turtles caught and killed in nets . . . [T]hey are derived from a system called extrapolation . . . It's a system by which you take a set of statistics in a limited area and you broaden them out to apply to a broader area."¹⁵⁵

However, the capture and mortality rate statistics for sea turtles were derived primarily from the Henwood-Stuntz study which based its extrapolations on 16,785 hours of observer effort in the Gulf of

150. Laurie M. Grossman, *Shrimpers Tangle with Rules on an Endangered Species*, WASH. POST, July 4, 1988, at A19.

151. *Hearings, supra* note 116, at 4 (testimony of U.S. Representative Claudine Schneider).

152. *Louisiana ex rel. Guste v. Verity*, 853 F.2d 322, 332 (5th Cir. 1988).

153. *Id.*

154. *Id.* at 333

155. *Hearings, supra* note 116, at 4 (testimony of U.S. Representative W.J. "Billy" Tauzin of Louisiana).

Mexico.¹⁵⁶ In *Verity*, the appellants argued that the Secretary of Commerce, by relying on these statistics from the Henwood-Stuntz study, had "failed to consider the best scientific data available before issuing the regulations."¹⁵⁷ They claimed the Henwood-Stuntz study was flawed because the field sample upon which the statistics were based was too small.¹⁵⁸

Environmentalists won, however, when the *Verity* court held that even though the statistics on sea turtle mortality used by the NMFS were based upon extrapolation from observation,¹⁵⁹ this means of determining the extent of turtle takings did "not necessarily appear unreasonable."¹⁶⁰ The court pointed out that under the arbitrary and capricious standard, it was to give deference to the agency's decision when reviewing a technical matter within that agency's area of expertise, especially when science or statistics are in question.¹⁶¹ "We must look at the decision not as the chemist, biologist or statistician that we are qualified neither by training nor experience to be, but as a reviewing court exercising our narrowly defined duty of holding agencies to certain minimal standards of rationality."¹⁶²

The court concluded that in this case the agency had presented "scientifically respectable conclusions" that could withstand the appellants' contradictory evidence.¹⁶³

The court also considered the regulations regarding tow-time restrictions in Louisiana's inshore waters. Although studies indicated that sea turtles were more frequently caught by shrimpers in the inshore waters, experiments with TEDs to determine their effectiveness had been conducted primarily in offshore waters.¹⁶⁴ In addition, some experts had speculated that TEDs would be ineffective or unnecessary in inshore waters because the devices would get clogged with debris which would consequently cut down on trawling time.¹⁶⁵ Therefore,

156. 853 F.2d at 328. Of these 16,785 hours, "4,333 were spent on shrimp boats off the Louisiana shore. During the Louisiana observation period, twelve sea turtles were taken, five of which had died by the time the trawl was retrieved. This mortality rate of 42 percent is among the highest of any state, the Gulf-wide rate being 29 percent. More than one third of the turtles that were observed to have died in Gulf Shrimp trawls, died off Louisiana." *Id.* The Henwood-Stuntz study concluded that "6,396 sea turtles would be caught off Louisiana and that 1,407 of these would be drowned." *Id.* at 328 n.11.

157. *Louisiana ex rel. Guste v. Verity*, 853 F.2d 322, 328 (5th Cir. 1988).

158. *Id.*

159. C.M. Baltz, Note, *Louisiana ex rel. Guste v. Verity: Judicial Deference to Endangered Species Protection in the Fifth Circuit*, 4 TUL. L. REV. 1202, 1206 (1989).

160. 853 F.2d at 329.

161. *Id.*

162. *Id.*

163. *Id.*

164. Baltz, *supra* note 159.

165. *Id.*

the court concluded, the agency had reasonably determined that a ninety-minute time limit on trawling was a satisfactory alternative.¹⁶⁶

Verity is significant for its strong policy message: endangered species will be protected despite economic consequences to an important industry.¹⁶⁷ Despite the result of this case, however, shrimpers, especially those in the Gulf of Mexico, fought against the implementation of the TED regulations.

Besides those arguments put forth by shrimpers and addressed by the court in *Verity*, Gulf shrimpers also argue that TEDs attract sharks, drastically reducing the shrimp catch. The shrimpers also claim that the devices clog easily with debris from the ocean floor. Finally, many shrimpers considered the initial TEDs to be dangerous because the first TEDs were heavy, metal devices that swung violently overhead when the nets came up from the sea.

Reworking the Regulations

Armed with these arguments, shrimpers turned to Congress for relief from the TED regulations.

The ESA, first passed in 1973, expired in 1985. At first it seemed reauthorization would come easily; the House initially reauthorized it by a voice vote.¹⁶⁸ But Senator Howell T. Heflin (D-Ala.) was able to place a hold on reauthorization even after other obstacles to the ESA were eliminated in April 1988.¹⁶⁹ Heflin and Senator George J. Mitchell (D-Maine), chairman of the Environment and Public Works Environmental Protection subcommittee and the measure's chief Sen-

166. *Id.* Later studies would indicate, however, that tow-time restrictions were ineffective for a variety of reasons, including enforcement. In addition, the Kemp's ridley sea turtle (the most critically endangered) can remain safely beneath the surface for only about fifty minutes.

167. This policy was echoed in testimony before the House Subcommittee on Fisheries and Wildlife Conservation and the Environment by William Fox, assistant administrator for NOAA Fisheries: "[S]hrimp loss is not a consideration for certification [of the TEDs] due mainly to the Supreme Court decision in the Tellico Dam case that economics not be a factor to be considered when protecting endangered species." See *Hearings, supra* note 116, at 189.

Fox was referring to *Tennessee Valley Authority v. Hill*, 437 U.S. 153 (1978). In that case the Court authorized an injunction against the completion of a multi-million dollar dam on the Tennessee-Tombigbee River because the dam would threaten an endangered species of fish known as the snail darter and violate the ESA. A great deal of money (about \$50 million) had already been spent on the dam which had been under construction for eight years, but the Court held that was irrelevant. According to the Court, in passing the ESA, Congress had weighed the importance of saving an endangered species against other government interests and the policy of saving an endangered species had prevailed. ROGER W. FINDLEY AND DANIEL A. FARBER, *ENVIRONMENTAL LAW IN A NUTSHELL* 19-20 (1992). One negative consequence of this case is that opponents cite it as an example of the ESA's impracticality.

For another discussion of *Louisiana ex rel. Guste v. Verity*, see Scott D. Deatherage, *Environmental Law*, 21 TEX. TECH L. REV. 261, 294 (1990).

168. GREENPEACE INTERNATIONAL, *supra* note 7.

169. *Id.*

ate sponsor, sought to block ESA reauthorization unless TED regulations were suspended until further studies were undertaken to gather more data on the number of sea turtles caught in shrimp nets and the effectiveness of TEDs.¹⁷⁰

On July 25, 1988 the Senate voted to delay imposition of the TED regulations, removing one of the last obstacles to the extension of the ESA.¹⁷¹ This led to the passage of the ESA Amendments in September 1988. As part of the legislation, Congress postponed the effective dates of the TED regulations until May 1, 1989 in offshore areas and until May 1, 1990 in inshore areas, with the exception of the Canaveral area of Florida, where the regulations were allowed to remain in effect.¹⁷² The legislation also mandated the Secretary of Commerce to obtain an independent review by the National Academy of Sciences (NAS) of the problem of sea turtle conservation.¹⁷³ The NAS was specifically requested to determine if more or less stringent measures were necessary to reduce sea turtle mortality in shrimp nets.¹⁷⁴

In the meantime, members of Congress from Louisiana had persuaded Secretary of Commerce Robert Mosbacher to delay further. He announced that because shrimpers needed more time to buy and install TEDs, only written warnings would be issued for violations of the TED regulations during the first sixty days.¹⁷⁵ Shrimpers installed the TEDs as the July 1 deadline drew near, but then there was an unusual overgrowth of sargassum weed.¹⁷⁶ The seaweed washed up on the beaches from Florida to Texas, allegedly clogging the excluder panels and making trawling difficult and inefficient.¹⁷⁷ Shrimpers grew angrier as they lifted their nets to find them full of sea grass and without shrimp.¹⁷⁸

On July 10, 1989, the U.S. Coast Guard announced it was suspending enforcement of the TED regulations at the request of Con-

170. *Id.*

171. Helen Dewar, *Species Act Gets Senate Boost; Sea Turtle Safeguards Are Delayed to Aid Passage*, WASH. POST, July 26, 1988, at A7.

172. *In re Nguyen*, 6 O.R.W. 79, 82 (NOAA 1990).

173. *Louisiana ex rel. Guste v. Mosbacher*, No. CIV.A.89-1899, 1989 WL 87616, at *2 (E.D. La. Aug. 1, 1989).

174. *Id.* On April 28, 1989, the same day the Secretary of Commerce announced that the TED regulations would be enforced in offshore waters beginning May 1, 1989, the state of Louisiana filed a motion for a temporary restraining order (TRO) and preliminary injunction, seeking the court to enjoin or restrain the Secretary from implementing and enforcing the TED regulations with respect to offshore shrimping in the Gulf of Mexico until the NAS study was completed. The court denied the TRO and the preliminary injunction, holding that the Secretary "need not — indeed, cannot, absent new information relevant to the conservation of turtles — await the completion of the study before implementing the regulations." *Id.* at *4.

175. Rudloe and Rudloe, *supra* note 12, at 53.

176. *Id.* at 54.

177. *Id.*

178. *Id.*

gressman W.J. "Billy" Tauzin of Louisiana, due to claims of the high concentrations of sargassum.¹⁷⁹ The shrimpers happily removed the TEDs from their nets. The National Wildlife Federation (NWF) quickly contacted Mosbacher and informed him that the suspension of the TED regulations was illegal and that the organization would file suit unless enforcement resumed.¹⁸⁰ Commerce Department attorneys and scientists advised Mosbacher that he could not legally refuse to enforce the law and he reversed himself.¹⁸¹

On Friday, July 21, 1989, after NOAA tests concluded that reports of clogging problems were exaggerated, it was broadcast on the Coast Guard's "Notice to Mariners" that the TED regulations would be enforced.¹⁸² Then angry shrimpers from along the Texas and Louisiana coasts united to form an armada of shrimp trawlers. They blockaded the heavily travelled Houston Ship Channel, threatened Bolivar passenger ferry in Galveston Bay, and attempted to ram Coast Guard vessels which were trying to restore order.¹⁸³

The following Monday, July 24, 1989, Secretary Mosbacher met again with those in Congress who opposed TEDs.¹⁸⁴ After the meeting, he suspended the TED regulations for another forty-five days.¹⁸⁵ The NWF filed an action the following evening against the Secretary in the U.S. District Court for the District of Columbia, seeking declaratory and injunctive relief.¹⁸⁶

The NWF alleged that, Mosbacher had violated several provisions of the ESA: section 7(a)(1) which requires the Secretary of Commerce to conserve threatened and endangered species; and section 7(a)(2) which mandates that he conduct a biological consultation to examine whether suspension of the TED regulations jeopardized the continued

179. *In re Nguyen*, 6 O.R.W. 79, 81 (NOAA 1990).

180. Irvin, *supra* note 23, at 345 n.9. The National Wildlife Federation (NWF) is one of the United States' largest conservation-education organizations, with more than 5.6 million members and supporters, and affiliated organizations in fifty-two states and territories. *Id.* at 345 n.10.

181. Rudloe and Rudloe, *supra* note 12, at 54.

182. *Id.*

183. Irvin, *supra* note 23, at 345 n.9.

184. *Id.*

185. *In re Nguyen*, 6 O.R.W. 79, 82 (NOAA 1990).

186. *Id.* The South Carolina Wildlife Federation and the Florida Wildlife Federation also joined NWF in the suit. Later, the Environmental Defense Fund, National Audubon Society, Center for Marine Conservation, Greenpeace-USA, and Defenders of Wildlife filed a companion case, *Environmental Defense Fund v. Mosbacher*, No. 89-2337 (TFH) (D.D.C. filed Aug. 21, 1989). See Irvin, *supra* note 23, at 345 n.10.

Other efforts included the National Audubon Society's call in July 1989 for a nationwide boycott of shrimp. Similarly, the Houston [Texas] Animal Rights Team and the Fund for Animals urged Americans to stop purchasing shrimp. See *Shrimp Boycott More Likely to Hurt Importers Than Shrimpers*, UPI, Aug. 8, 1989, available in LEXIS, Nexis Library, UPI File.

existence of threatened and endangered sea turtles.¹⁸⁷ The NWF also charged that Mosbacher had violated section 9(a)(1)(G) of the ESA which prohibits illegal takings of threatened and endangered species.¹⁸⁸ The suit also alleged violations of the notice and comment rulemaking requirements of the Administrative Procedure Act, and the environmental impact assessment requirements of the National Environmental Policy Act.¹⁸⁹

Consequently, on August 3, 1989, Judge Thomas Hogan ruled that Mosbacher's suspension of the regulations violated the ESA. He ordered the Secretary to enforce some turtle protection either by reinstating the regulations or issuing some interim rules.¹⁹⁰ Mosbacher responded by requiring shrimpers to either limit their tows to 105-minute time periods or use TEDs.¹⁹¹ These interim regulations were to expire September 8, 1989 when a final rule would be issued by the Commerce Department.

Since Judge Hogan failed to enjoin Mosbacher's suspension of the TED regulations, the NWF appealed and sought another injunction pending that appeal.¹⁹² In a mere one-sentence ruling given on August 22, 1989, U.S. District Court Judge Stanley Harris denied the NWF's motion for an injunction.¹⁹³ The NWF acted quickly to appeal the decision to the U.S. Court of Appeals for the District of Columbia.¹⁹⁴

Jay D. Hair, then-president of the NWF, wrote in a guest column in *USA Today* on August 23, 1989:

This is a sham. Even Commerce Department scientists say this [105-minute tow-time restrictions] could only marginally reduce deaths. Without TEDs, about 25 percent of turtles die. With 105-minute trawls, 18 percent to 24 percent can die. TEDs are 97 percent effective in preventing turtle capture. Moreover, shrimpers are likely to ignore the regulations; 44 of 45 vessels checked in the Gulf to date were not following the tow-time rule.¹⁹⁵

Such criticism of Mosbacher's actions came not just from conservation groups. *Review Comments* by the Interior Department's Fish and

187. Irvin, *supra* note 23, at 345 n.11.

188. *Id.* at 346 n.11.

189. *Id.*

190. Karen Timmons, *Conservationists Appeal Turtle Case*, UPI, Aug. 17, 1989, available in LEXIS, Nexis Library, UPI File.

191. *In re Nguyen*, 6 O.R.W. 79, 83 (NOAA 1990).

192. Dianne Dumanoski, *Advocates for Sea Turtle to Appeal Latest Setback*, B. GLOBE, Aug. 18, 1989, at 3.

193. Karen Timmons, *Judge Denies TEDs Appeal*, UPI, Aug. 22, 1989, available in LEXIS, Nexis Library, UPI File.

194. *The Nation*, Los Angeles Times, Aug. 23, 1989, at 2.

195. Jay D. Hair, *Shrimpers vs. Turtles; Curb the Shrimpers to Save the Turtles*, USA TODAY, Aug. 22, 1989, at 10A.

Wildlife Service (FWS) charged that Mosbacher had "no authority" to modify the TED regulations and called the interim tow-time rules "unenforceable" and "inadequate."¹⁹⁶ The comments, signed by FWS Acting Deputy Director Richard Smith and addressed to the NOAA's assistant administrator of fisheries, further stated that under the 1988 ESA Amendments, "No authorization was given to the Department of Commerce to modify these regulations in a way that would not advance the conservation of sea turtles."¹⁹⁷ Nonetheless, the interim regulations allowing 105-minute tow times in lieu of TEDs remained in effect from August 8, 1989 until September 8, 1989. On the latter date, Mosbacher reinstated the original TED regulations.¹⁹⁸ Subsequently, the TED law suits were dismissed as moot.¹⁹⁹

In May 1990 the NAS released its Congressionally-mandated study of sea turtles and TEDs. The study found that shrimp trawls are the leading cause of sea turtle deaths at human hands, blaming them for at least 11,000 sea turtle deaths each year.²⁰⁰ That number could be three to four times higher, however, because that figure includes only ocean deaths, not those in bays, estuaries, and harbors, and it assumes all turtles caught and thrown back survive.²⁰¹ The report strongly endorsed the use of TEDs in all shrimping vessels in most places and at most times of the year from Cape Hatteras, North Carolina to the border between Texas and Mexico in order to reduce the incidental catch and mortality of sea turtles in shrimp nets.²⁰² Also, the NAS report concluded that ninety-minute tow-time restrictions do not provide sea turtle protection comparable to that provided by TED use.²⁰³ The study recommended forty-minute tows for warm-water months and sixty-minute tows for cold-water months.²⁰⁴

In 1991, after reviewing the NAS study and gaining experience with TED use and enforcement, the NMFS recommended that TEDs be required throughout the year in both inshore and offshore waters in the Gulf of Mexico and the Atlantic Ocean off the southeastern

196. Karen Timmons, *Interior Knocks Commerce Shrimping Rule*, UPI, Aug. 29, 1989, available in LEXIS, Nexis Library, UPI File.

197. *Id.* During a public comment period federal agencies sometimes submit opinions regarding regulations promulgated by other agencies.

198. *In re* Nguyen, 6 O.R.W. 79, 83 (NOAA 1990).

199. Irvin, *supra* note 23, at 347 n.16.

200. John Lancaster, *Study Blames Shrimpers for Sea Turtle Deaths; Requirement for Special Nets Endorsed*, WASH. POST, May 20, 1990, at A10.

201. Michael Blumfield, *National Research Council Backs Rules to Protect Sea Turtles*, ORLANDO SENTINEL TRIBUNE, May 20, 1990, at B1.

202. Alison Rieser, *A Review of Developments in U.S. Ocean and Coastal Law 1990-1991* (Marine Law Institute), 1 TERR. SEA J. 291, 301 (1991).

203. 57 Fed. Reg. 57350 (1992) (codified at 50 C.F.R. Parts 217 and 227) (proposed Dec. 4, 1992).

204. *Id.*

United States.²⁰⁵ The Service also suggested stricter enforcement measures that would allow the federal government to seize shrimp caught in nets not equipped with TEDs.²⁰⁶ These recommendations were supported the following year by the release of a study sponsored by three environmental organizations, including the NWF. The study indicated that sea turtle deaths had decreased by about 97 percent since the TED regulations went into effect.²⁰⁷ Furthermore, shrimp catches in the Gulf of Mexico actually increased during that two-year period.²⁰⁸

In September 1992, NMFS issued an "interim final rule" that extended TED requirements in the Atlantic area to year-round rather than from May 1 through August 31.²⁰⁹ The interim rules still permitted the use of limited tow-times as an alternative to TED use, but had further restricted tows from ninety minutes to seventy-five minutes.²¹⁰

Finally, in late November 1992, the NMFS issued new regulations that became effective on December 1, 1992.²¹¹ These "final rules"²¹² require that shrimp trawlers use TEDs in both inshore and offshore waters all year round. Shrimp trawlers over twenty-five feet long operating in offshore waters were required to use TEDs immediately without the alternative use of limited tow-times.²¹³ Shrimpers with boats under twenty-five feet were allowed to continue to use limited tow-times as an alternative conservation method.²¹⁴ However, limited tow-times could be used only until January 1, 1993; after that time these smaller boats operating in offshore waters also had to use TEDs.²¹⁵

Shrimpers operating in inshore waters were also required to abide by the new TED regulations immediately, except those carrying a single net with a headrope²¹⁶ length of less than twenty-five feet and

205. CROUSE ET AL., *supra* note 3, at 4.

206. *Stricter Rules Urged to Save Sea Turtles*, WASH. POST, Apr. 22, 1992, at A16.

207. *Shrimping and Saving Turtles*, ST. PETERSBURG TIMES, May 4, 1992, at 10A.

208. *Id.*

209. 57 Fed. Reg. 57349 (1992) (codified at 50 C.F.R. Parts 217 and 227) (proposed Dec. 4, 1992).

210. *Id.*

211. 57 Fed. Reg. 57348 (1992) (codified at 50 C.F.R. Parts 217 and 227) (proposed Dec. 4, 1992).

212. *Id.*

213. *Id.*

214. *Id.* Tows were to be limited to fifty-five minutes or less from April 1 through October 31; at other times of the year tows were to be limited to no more than seventy-five minutes.

215. *Id.*

216. A headrope is a "rope that is attached to the upper lip (top edge) of the mouth of a trawl net along the forward most webbing. 50 C.F.R. § 217.12 (1993). Headrope length means "the distance between the points at which the ends of the headrope are attached to the trawl net, measured along the forwardmost webbing." *Id.*

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footrope length of less than forty-four feet.²¹⁷ Such shrimpers were allowed to use the tow-times alternative until December 1, 1994,²¹⁸ when the NMFS expected full implementation of these sea turtle conservation methods.²¹⁹

The Service did, however, provide for several exemptions from TED use. Of these exceptions, listed at 50 C.F.R. section 227.72(B)(2)(ii), the most significant is that the TED requirement does not apply to any vessel that retrieves its shrimp nets solely by manual rather than mechanical means.²²⁰

International Efforts

In November 1989, Congress added a provision to the ESA known as PL-101-162. In Section 609²²¹ of PL-101-162 the Secretary of State was required to negotiate with foreign countries engaged in fishing operations in order to try to reach agreements regarding conservation of the five species of sea turtles that are the focus of United States domestic conservation efforts.²²² The intent of the law was to en-

217. 57 Fed. Reg. 57348 (1992) (codified at 50 C.F.R. Parts 217 and 227) (proposed Dec. 4, 1992).

218. *Id.*

219. Nonetheless, shrimpers continue to fight the TED regulations. On August 13, 1993, the Texas Seafood Producers Association filed a complaint in the U.S. District Court for the Southern District of Texas, Houston Division, against Secretary of Commerce Ronald Brown. The complaint seeks a temporary injunction, and, eventually, a permanent injunction against the TED regulations requiring use of the devices in boats less than twenty-five feet long in inshore waters. Correspondence with Charles A. Oravetz, Chief, Protected Species Program, NMFS Southeast Regional Office.

220. Public Notice, 58 Fed. Reg. 9015, 9016 (1993).

221. 16 U.S.C. § 1537(a),(b) (1988 & Supp. 1990). Section 609 reads in part "(a) The Secretary of State, in consultation with the Secretary of Commerce, shall, with respect to those species of sea turtles the conservation of which is the subject of regulations promulgated by the Secretary of Commerce on June 29, 1987 — (1) initiate negotiations as soon as possible for the development of bilateral or multilateral agreements with other nations for the protection and conservation of such species of sea turtles; (2) initiate negotiations as soon as possible with all foreign governments which are engaged in, commercial fishing operations which, as determined by the Secretary of Commerce, may affect adversely such species of sea turtles, for the purpose of entering into bilateral and multilateral treaties with such countries to protect such species of sea turtles." Conservation of Sea Turtles; Importation of Shrimp, Pub. L. No. 101-162, § 609(a)(1)(2), 103 Stat. 1037 (1989) (to be codified at 16 U.S.C. § 1537).

222. Ted L. McDorman, *The GATT Consistency of U.S. Fish Import Embargoes to Stop Driftnet Fishing and Save Whales, Dolphins, and Turtles*, 24 GEO. WASH. J. INT'L L. & ECON. 477, 495 (1991). Following the example of the Marine Mammal Protection Act (MMPA), which bans "the importation of commercial fish or products from fish which have been caught with commercial fishing technology which results in the incidental kill or incidental serious injury of ocean mammals in excess of United States standards," Section 609 prohibits the importation of shrimp or shrimp products from foreign nations whose fishing practices adversely affect sea turtles. The embargo was to take effect May 1, 1991, eighteen months from time of passage, in order to allow shrimping nations time to comply.

The Marine Mammal Protection Act, 16 U.S.C. § 1371(a)(2) (1988 & Supp. 1990) uses licensing requirements to limit the number of dolphins American fishermen can "incidentally take" in any year. The MMPA also requires that foreign countries wishing to export their tuna products

courage "all foreign governments which are engaged in . . . commercial fishing operations"²²³ to implement regulations requiring TEDs on all shrimp trawlers fishing in waters where sea turtles occur.²²⁴ Environmentalists had estimated that more than 150,000 sea turtles were being killed in the nets of dozens of other countries.²²⁵ However, on January 10, 1991, the State Department issued regulations in connection with section 609 that applied to only fourteen countries. The Department's division for Oceans and Fisheries had identified these countries in the wider Caribbean region whose shrimp exports to the United States could be subject to an embargo under the trade provisions of the law.²²⁶

The fourteen countries identified by the State Department as subject to the embargo are now participating in United States-funded TED training programs.²²⁷ All but one, French Guiana, agreed to use TEDs on all boats by May 1994,²²⁸ which was the new deadline for complete implementation of TEDs by the identified countries.

Earth Island Institute, a San Francisco-based conservation organization, concluded that the regulations do not cover enough countries. Environmentalists at the Institute state that the fourteen nations targeted by the Department of State represent less than 17 percent of the eighty-five countries that import shrimp into the United States and represent only 9 percent of the 155 nations whose commercial fisheries may adversely affect endangered species of sea turtles.²²⁹

to the United States show that their incidental take of marine mammals as a result of tuna harvesting is comparable to that of the United States.

223. Conservation of Sea Turtles; Importation of Shrimp, Pub. L. No. 101-162, 609(a)(2), 103 Stat. 944 (1989) (to be codified at 16 U.S.C. § 1537).

224. TODD STEINER ET AL., *TURTLE EXCLUDER DEVICES (TEDs): INTERNATIONAL IMPLEMENTATION?* 2 (1992).

225. *U.S. Orders Turtle-Saving Devices*, REUTER NEWSWIRE, Apr. 29, 1992, available in DIALOG.

226. *Hearings*, *supra* note 116, at 35-35. These countries included Belize, Brazil, Colombia, Costa Rica, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Surinam, Trinidad and Tobago, and Venezuela. See former State Department Spokesperson Margaret Tutwiler, Statement on Sea Turtle Conservation in Commercial Fisheries May 6, 1991).

In accord with section 609 and its guidelines, those among these countries that wished to continue exporting shrimp to the United States beyond May 1, 1991, had to receive a certification that it had met specific conservation requirements. A country had to prove "evidence of the adoption of a regulatory program comparable to the United States program or provide evidence that the fishing environment in its waters does not pose a threat to sea turtles." *Id.* Thirteen of the countries listed above received certification from the State Department as of May 1991. The certification by the Department was valid for one year. *Id.* Surinam's shrimp imports were banned, but the restrictions were lifted as of Oct. 1, 1991. See Alan L. Button, *Prerequisite to Peace: An International Environmental Ethos*, 59 TENN. L. REV. 681, 697 n.110 (1992).

227. David Clark Scott, *Stung By U.S. Tuna Ban, Mexico Protects Turtles*, CHRISTIAN SCI. MONITOR, May 14, 1992, at 7.

228. *Id.*

229. STEINER ET AL., *supra* note 224.

Earth Island Institute's Sea Turtle Restoration Project filed suit against the Departments of State and Commerce on February 24, 1992 for their failure to enforce section 609.²³⁰ The lawsuit sought the use of TEDs on the shrimping vessels of more than eighty-five nations that export shrimp to the United States and trawl in waters shared with sea turtles.²³¹ However, the law suit was dismissed by Judge Vukasin because of his belief that it should be tried in the Court of International Trade in New York City.²³² Earth Island Institute has appealed.

In February 1993, the State Department revised the regulations issued January 10, 1991 to implement section 609. The new guidelines provided that during 1993 the fourteen identified countries must "at a minimum"²³³ require that TEDs "be installed and in use on a significant number of shrimp trawls by May 1, 1993."²³⁴ The countries must also "commit to requirements that TEDs be installed and in use on all commercial shrimp trawl vessels by May 1, 1994. For 1994 and subsequent years the affected nations must require that all commercial shrimp trawl vessels use TEDs at all times."²³⁵

Convention on International Trade in Endangered Species (CITES)

Currently, the chief international means for preserving turtles is the Convention on International Trade in Endangered Species (CITES).²³⁶ The purpose of this agreement, to which 118 countries are now parties,²³⁷ is to protect endangered and threatened species from over exploitation by international trade.²³⁸

230. Earth Island Institute v. Baker, No. C92-0832 JPU, 1992 WL 565222 (N.D. Cal. 1992).

231. Earth Island Institute v. Christopher, 6 F.3d 648 (9th Cir. 1993).

232. *Baker*, *supra* note 230.

233. Public Notice, 58 Fed. Reg. 9017 (1993).

234. *Id.*

235. *Id.* The exemptions that are permitted are virtually the same as those in the regulations governing U.S. shrimpers. The guidelines provide that the State Department assesses the regulatory program of each affected nation to compare it to the United States program. If the nation provides documentary evidence of the adoption of a program consistent with the guidelines, the Department will certify the nation as qualified to import shrimp into the United States. Furthermore, the State Department decided that the shrimp embargo mandated by section 609 would not apply to aquaculture shrimp because the harvesting of these pond-raised shrimp does not negatively affect sea turtles. The Department also stated that it had determined that the scope of section 609 extended to the wider Caribbean/western Atlantic region. In its view, section 609 pertains only to the conservation of sea turtles affected by U.S. domestic regulations, which would only include sea turtles in the waters of those regions. See Public Notice, 58 Fed. Reg. 9015 (1993).

236. International Trade in Endangered Species of Wild Fauna and Flowers, Sept. 13, 27 U.S.T. 1987 (1976). This is also known in other countries as the Washington Convention.

237. Carlo A. Balistrieri, *CITES: The ESA and International Trade*, NAT. RESOURCES & ENV'T, 33 (1993).

238. 27 U.S.T. at 1092.

CITES was enacted July 1, 1975, when ten nations ratified the convention.²³⁹ The treaty was the result of more than a decade of international discussion following a 1960 meeting of the International Union for Conservation of Nature and Natural Resources (IUCN) at which the nations present noted the high level of trade in wild animals, decreasing habitat, and increasing number of species facing extinction.²⁴⁰

The CITES treaty, consisting of twenty-five brief Articles, creates "a system of permits and certificates to restrict trade and allows it to be monitored by regulating authorities."²⁴¹

The methods used to list the species of plants and animals that will receive protection under CITES are explained in Article II.²⁴² Article II has three corresponding Appendixes with each Appendix dealing with a different method of listing a species. Appendix I includes "all species threatened with extinction which are or may be affected by trade."²⁴³ This first Appendix strictly forbids trade for "commercial purposes."²⁴⁴

Appendix II includes species that are not now threatened with extinction but may become so unless trade is subject to "strict regulation in order to avoid utilization incompatible with [a species'] survival"²⁴⁵ Also included are species that must be regulated because it is difficult to identify and differentiate them from those species that are endangered.²⁴⁶

Appendix III governs species that meet a two-part test: 1) a party to the treaty must identify the species as subject to regulation in its jurisdiction; and 2) the cooperation of other parties to the treaty is necessary in order to limit trade and exploitation.²⁴⁷ Nations that have signed CITES are not permitted to trade any species listed in the Appendixes, unless the treaty provisions allow for it.²⁴⁸

The provisions of Article VIII through Article X of the treaty enumerate the duties of those nations that are parties to the agreement.²⁴⁹ Each country must establish management and scientific authorities to

239. Balistrieri, *supra* note 237.

240. *Id.*

241. *Id.* at 34.

242. 27 U.S.T. 1092

243. *Id.*

244. *Id.* at 1092.

245. *Id.* at 1092.

246. *Id.*

247. *Id.*

248. *Id.*

249. *Id.* at 1101-1104.

fulfill the objectives of CITES.²⁵⁰ This requirement has resulted in each country having its own unique set of policies.

Within the last seven Articles of CITES (Articles XIX-XXV) are provisions that permit a party to the treaty to "enter a reservation"²⁵¹ to the listing of a species, allowing that nation to continue trading in that species with other countries that have taken a reservation in that same species.²⁵²

Participation in CITES is voluntary. The treaty has no effect on countries that do not sign it, and sanctions are only rarely imposed on parties to the agreement who violate it.²⁵³ Despite the problems with CITES, it is considered "the world's most widely accepted international treaty, and, arguably, the most successful of all international treaties concerned with the conservation of wildlife."²⁵⁴

The protection provided for sea turtles by CITES is limited. While CITES regulates trade in sea turtles and sea turtle products, it does not specifically address the incidental mortality sea turtles face in the nets of shrimp trawlers, the major cause of human-induced sea turtle death.

The Pelly Amendment

The existence of the CITES treaty allows for the use of other U.S. legislation as a means of protection for sea turtles. The 1971 Pelly Amendment to the Fisherman's Protective Act²⁵⁵ developed out of concern for the conservation of the Atlantic salmon,²⁵⁶ but today the legislation includes protection for all species of fish²⁵⁷ and endangered or threatened species "if an international conservation program [such as CITES] concerning such species exists."²⁵⁸ Under the Pelly Amendment, if the Secretary of Commerce certifies that a foreign country's fishing activities "diminishes the effectiveness"²⁵⁹ of international programs for the conservation of threatened or endangered species, then the President may direct the Secretary of the Treasury to ban fish and fish products imported from that country.²⁶⁰ Within sixty days after the President receives such a certification from the Secre-

250. *Id.* at 1103.

251. *Id.* at 1116.

252. Balistrieri, *supra* note 237, at 35.

253. *Id.* at 74.

254. *Id.* at 75.

255. 22 U.S.C. § 1978 (1994).

256. McDorman, *supra* note 222, at 482.

257. 22 U.S.C. § 1978(a)(1) (1994).

258. McDorman, *supra* note 222, at 483.

259. 22 U.S.C. § 1978(a)(1)-(2).

260. 22 U.S.C. § 1978(a)(4).

tary of Commerce he must report to the Congress what action, if any, he has taken or his reasons for not taking action.²⁶¹

If import sanctions are imposed on the offending nation, the President has discretion as to the duration and extent of the embargo.²⁶² The activities of the foreign nation are reviewed regularly by the Secretary of Commerce, and if the situation has been corrected, the United States must lift the sanctions.²⁶³ As of Spring 1991 there had been ten certifications under the Pelly Amendment: eight involving whaling and two involving fishing with driftnets.²⁶⁴ Sanctions were not imposed in any of those cases, however, because after certification the offending countries remedied the situation.²⁶⁵

In April 1990, four conservation groups used the Pelly Amendment in an effort to extend protection of sea turtles. The Center for Marine Conservation, the NWF, the National Audubon Society and the Environmental Defense Fund "petitioned the Departments of Commerce and Interior to certify Japan and Mexico"²⁶⁶ for impairing sea turtle conservation efforts and diminishing the effectiveness of CITES. Specifically, the petition cited Mexico's trade in the skins of olive ridley sea turtles for which the Mexican government allowed a yearly quota of 25,000 of the turtles to be killed.²⁶⁷ Shortly thereafter Mexico banned the trade; consequently, the Commerce and Interior Departments did not certify that country.²⁶⁸

With regard to Japan, the Pelly Amendment petition protested that nation's importation of hawksbill shell, largely from countries prohibited under CITES from exporting it.²⁶⁹ On March 20, 1991 the United States "formally censured Japan"²⁷⁰ for its hawksbill trade. In response to the threat of trade sanctions Japan offered to import five tons of hawksbill shell in 1992 (rather than its usual 20 tons) with imports decreasing to three tons in 1993, one ton in 1994 and then stopping altogether.²⁷¹

261. 22 U.S.C. § 1978(b).

262. McDorman, *supra* note 222, at 483. Such a ban on imports, however, must be consistent with the General Agreement on Tariffs and Trade (GATT).

263. McDorman, *supra* note 222, at 483-484.

264. Marydele Donnelly, *Petition May Curtail Sea Turtle Trade*, MARINE CONSERVATION NEWS, Spring 1991, at 7.

265. *Id.*

266. *Id.*

267. *Id.*

268. *Id.*

269. *Id.*

270. Marydele Donnelly, *U.S. Censures Japan for Hawksbill Trade: Sets Precedent in Wildlife Law*, MARINE CONSERVATION NEWS, Summer 1991, at 6.

271. Iain Guest, *United Nations: Britain Set to Oppose Moves to Protect Some Endangered Species*, GUARDIAN, June 7, 1991, at 32. Japan's proposal would have resulted in the slaughter of about 9,000 sea turtles over the three years. Interestingly, this ban came just before Japan hosted the meeting of the Convention on International Trade in Endangered Species (CITES) in

III. ANALYSIS

Domestic Regulations

The TED regulations have successfully helped to protect threatened and endangered sea turtles from the primary human-induced cause of their mortality: shrimping. TEDs have been estimated as being 97% effective in preventing turtle capture.²⁷² For example, in an NOAA study conducted off the coasts of Texas and Louisiana, forty sea turtles were caught, however, only one was caught in a TED-equipped net.²⁷³

Although it is too early to determine what effect the TED regulations will have on long-term sea turtle population trends, another indicator of the status of the sea turtle population is encouraging. The increase in sea turtles nesting on two important beaches is indicative of a decrease in sea turtle mortality. During 1990 and 1991, the number of sea turtle nests at both Rancho Nuevo, Mexico and Cumberland Island, Georgia was greater than at any other time in the past decade.²⁷⁴

The TED regulations are valuable, therefore, because they are effective. The devices nearly eliminate the incidental catch of sea turtles in shrimp nets, what the NAS has called the greatest human threat to these threatened and endangered species. Preventing the loss of sea turtles in this way is important because of the nature of the sea turtle's life cycle. "Sea turtles are very long-lived animals which probably do not reproduce until twenty to thirty years of age. Therefore their populations are vulnerable to losses . . . of [both] juveniles and adults."²⁷⁵ Similarly, sea turtles are slow to recover from such losses;²⁷⁶ that is why every turtle a TED saves is important.

The TED requirements issued in December 1992 are a great improvement over the original regulations which allowed use of limited tow-times as an alternative to TEDs. NOAA and NAS research has shown that ninety-minute tow-times are not as effective as TEDs in protecting sea turtles. NOAA has pointed out that "many inshore trawlers tow for longer than ninety minutes."²⁷⁷ Also, ninety minute tow-times do not provide an economically sound method of offshore shrimping because the vessels lose 20% to 30% of their fishing time during a twenty-four hour period.²⁷⁸

March 1992. Some environmentalists have charged that hawksbill shell is still being smuggled in Japan.

272. Hair, *supra* note 195.

273. *Hearings*, *supra* note 116, at 191.

274. CROUSE, *supra* note 3, at 14-15.

275. *Id.* at 13.

276. *Id.*

277. *Hearings*, *supra* note 116, at 186.

278. *Id.*

Furthermore, tow-time restrictions do not reduce the stress and trauma turtles experience as a result of their capture and forced submergence. Physiologists have suggested that it could take a week or more for a turtle to recover completely from a capture.²⁷⁹ Multiple captures of the same turtle may cause its death, even if short tow-times are used.²⁸⁰ Additionally, enforcement of the tow-time restrictions has been problematic, and reports from observers indicate that compliance has been poor.²⁸¹

Another worthwhile aspect of the December 1992 TED regulations is that they mandate use of the devices throughout the year. Under the original regulations which required TED use only from May 1 through August 31, a turtle saved during that time period was just as vulnerable to shrimp nets after those dates. Conceivably the seasonal TED regulations were merely postponing the sea turtle's capture. Now sea turtles are protected year-round.

Furthermore, many of the allegations the shrimp industry made against TEDs have been proven incorrect. For instance, many shrimpers claimed that the devices would cause excessive shrimp catch losses of between 30% and 50%. However, in the Gulf of Mexico in 1990 and 1991, with TED regulations in force, more pounds of shrimp were caught per day fished than in any of the other three previous years.²⁸² And, in the Atlantic Ocean, off the South Carolina coast, the total shrimp catch for 1991, when federal TED regulations were in effect, was the largest in six years.²⁸³

Studies conducted by shrimp fishermen in conjunction with the NMFS have shown the loss rate of shrimp ranges from 5% to 8% in the Gulf of Mexico and approximately 13% in the Atlantic.²⁸⁴ Furthermore, a NOAA study that tested several types of TEDs has shown that there is an average shrimp loss of about 10%.²⁸⁵ Therefore, the amount of shrimp lost through TED use is negligible. This slight loss of shrimp is definitely a worthwhile sacrifice when saving threatened and endangered species.

Opponents to TEDs have also claimed that the devices will not work because they will become clogged with seaweed and debris from the ocean bottom. This has been a special concern of shrimpers in the

279. 57 Fed. Reg. 57,348, 57,350 (1992) (to be codified at 50 C.F.R. pts. 217 and 227) (proposed Dec. 4, 1992).

280. *Id.*

281. *Id.*

282. Michael Bean, *Who's Most Endangered? Today's Weed, Tomorrow's Cure?*, USA TODAY, Apr. 22, 1992, at 11A.

283. CROUSE, *supra* note 3, at 4.

284. *Hearings*, *supra* note 116, at 4.

285. *Id.* at 191.

Gulf of Mexico. However, a NOAA study has indicated that TED-equipped nets foul only about 4 percent more than nets without the devices.²⁸⁶ Also, there were only twenty claims involving damaged or lost TEDs submitted to the Fishermen's Contingency Fund (FCF)²⁸⁷ each year during 1990 and 1991²⁸⁸ Moreover, several TEDs, including the Anthony weedless TED, have been specifically designed to deal with sea grass and algae problems.²⁸⁹

Another argument against TEDs has been that they increase injuries to shrimpers. This argument arose largely because the first TEDs were heavy, metal devices that swung violently overhead when the shrimp nets came up from the sea. But of the more than 9000 Coast Guard accident reports²⁹⁰ of both vessel damage and personal injury on commercial vessels filed for 1990, none involved a TED.²⁹¹ Thirty-six serious injuries or deaths were reported aboard the southern Atlantic and Gulf fishing fleets in 1990 when TED regulations were in effect.²⁹² None of the reports of these incidents even mentioned TEDs.²⁹³ In 1991, at a point in time when 75 percent of the reports for the year had been filed, thirty-two casualties, none of them involving a TED, had been reported.²⁹⁴

Another benefit of TEDs is that they cut down on the amount of bycatch shrimp fishermen haul in. Bycatch is the incidental catch of non-target species and includes juvenile fish, sea turtles, marine mammals, sea birds, and small fish species. Bycatch has become an issue of great concern to those interested in the future of marine fisheries. The problem is global in scope — a harmful side effect of certain types of fishing that, like shrimping, employ non-selective nets. The worst types of gear in terms of bycatch are the ocean fly-net, long-haul

286. *Id.*

287. The federal Fishermen's Contingency Fund (FCF) compensates commercial fishermen for damage to or loss of their gear or vessels resulting from activities related to Outer Continental Shelf oil and gas exploration, development, or production. The fund pays amounts not covered by private insurance. 50 C.F.R. § 296.4(b) and § 296.4(e)(4) (1991). See CROUSE, *supra* note 3, at 6.

288. CROUSE, *supra* note 3, at 7.

289. 57 Fed. Reg. 57,349 (1992) (codified at 50 C.F.R. pts. 217 and 227) (proposed Dec. 4, 1992).

290. When a serious injury occurs aboard a commercial vessel, federal regulations require that it be reported to the local Coast Guard Safety Office. See 46 C.F.R. § 4.05-1 (1993). An official from the local Coast Guard station investigates and files an accident report that is later sent to Coast Guard headquarters in Washington, D.C. where such information is analyzed. See CROUSE, *supra* note 3, at 10.

291. Bean, *supra* note 282.

292. CROUSE, *supra* note 3, at 11.

293. *Id.*

294. *Id.*

seine, sciaenid pound net, and the shrimp trawl.²⁹⁵ Of these, the shrimp trawl is the most grievous offender.

Over 90% of what is caught in shrimp trawls is not shrimp.²⁹⁶ In the Gulf of Mexico, about ten pounds of fish are caught for every pound of shrimp,²⁹⁷ and in some areas that ratio is twenty-one pounds to one pound.²⁹⁸ It is estimated that Gulf shrimpers kill and waste about 2.5 billion pounds of fish (mostly juveniles) each year.²⁹⁹ Of that amount, "about 70 percent by weight would have been commercially valuable if permitted to mature."³⁰⁰

More than 100 species are commonly caught in shrimp trawls.³⁰¹ One of these, the red snapper, is severely depleted largely because of the excessive amount of juvenile fish caught as bycatch.³⁰² About 12 million small red snapper are discarded each year by Gulf shrimpers.³⁰³ Among the other types of fish that shrimp nets catch are king and Spanish mackerel, red drum, spotted sea trout, croaker,³⁰⁴ weakfish (gray trout), and menhaden.³⁰⁵

The bycatch problem extends beyond the Gulf of Mexico; it is a global problem. The International Game Fish Association has reported that the world's fishing industry keeps about 100 million tons of the marine life it harvests annually and discards about another 100 to 150 million tons of bycatch.³⁰⁶ Bycatch seriously affects the marine environment. Many of the fish incidentally taken are juveniles and are either dumped overboard dead or are sold for a few cents per pound for use as pet food or crab bait. This reduces the number of young fish in the area, resulting in fewer fish to reproduce later. Bycatch also threatens the food chain. As these juvenile fish are repeatedly removed from the environment, species that feed on them will be affected.

295. Joel Arrington, *Baby Fish Are Being Accidentally Killed*, RALEIGH NEWS AND OBSERVER, May 23, 1993, at 14B.

296. Sara Strong, *Battle to Save Sea Turtles Cooling*, CHRISTIAN SCI. MONITOR, Oct. 18, 1989, at 8.

297. One commentator has noted that this ratio is equivalent to about one dead fish for every two shrimp on a plate. See Arrington, *supra* note 295.

298. Williams, *supra* note 130.

299. *Id.*

300. *Id.* at 28.

301. WASTE AND BYCATCH, HEALTHY OCEANS FOR A HEALTHY PLANET (Greenpeace International, Washington, D.C.), 1993, at 2.

302. *Id.*

303. William Sisson, *Overkill Angers Conservationists; Shrimp Industry Exempt from Law Protecting Fish*, MIAMI HERALD, Jan. 6, 1991, at 12D.

304. *Id.*

305. Arrington, *supra* note 295.

306. *Id.*

An added benefit of TEDs is that they can reduce bycatch by as much as 50% to 60%.³⁰⁷ Reduced bycatch can also help shrimpers in other ways. For example, ordinarily shrimpers have to separate by hand the shrimp from the bycatch. A reduction in bycatch decreases the amount of time spent on that slow, costly process.³⁰⁸ Moreover, the decrease in bycatch can result in a reduction of drag and can thereby increase fuel efficiency.³⁰⁹ Although other measures, such as regulations mandating use of finfish excluder devices (FFEs) and larger net mesh size requirements, are definitely needed to address the alarming bycatch problem, TEDs are eliminating some incidental catch.

The TED regulations issued in accordance with the ESA have not, therefore, meant economic doom for the American shrimp industry. Rather, the regulations and the events surrounding them seem to represent the right balance between meeting conservation needs and recognizing economic demands.

Despite their undeniable success, however, TEDs are not without some problems. First, attention needs to be focused on the fact that TEDs are not as effective in saving smaller, younger turtles. According to researchers, these juvenile turtles occasionally get swept between the bars of the TEDs and become caught in the nets.³¹⁰ New TEDs that are less likely to trap juvenile sea turtles must be developed or the recovery of the sea turtle population could take longer than originally anticipated.³¹¹ Second, according to many environmentalists, programs for enforcement and surveillance of TED use are "chronically underfunded."³¹² Enforcement needs to be strict in order to ensure compliance with the regulations.

Another drawback to the TED regulations is that they draw attention away from other causes of sea turtle mortality. For example, the pharmaceutical industry's commercial harvesting of sargassum, a floating sea weed that provides an important habitat for juvenile sea turtles, has rarely been addressed.³¹³ Also, there are other fisheries that pose a threat to sea turtles. For instance, a seasonal flounder trawl fishery conducted off the coasts of southern Virginia and North

307. Center for Marine Conservation, *Sea Turtles, Trawlers, and TEDs: An ESA Success Story* (1993).

308. Williams, *supra* note 130, at 26.

309. Center for Marine Conservation, *supra* note 307.

310. Carol Ezzell, *Turtle Recovery Could Take Many Decades*, SCI. NEWS, Aug. 22, 1992.

311. *Id.*

312. *Defenders Call for More Funding for Driftnet Ban Enforcement*, U.S. NEWswire, Apr. 16, 1991, available in LEXIS, Nexis Library, U.S. NEWswire File.

313. Ezzell, *supra* note 310.

Carolina threatens sea turtles.³¹⁴ And yet another problem sea turtles face is the bright lights of beachfront development. It is estimated that thousands of turtle hatchlings, which focus on the ocean horizon as part of their method of finding their way to sea, end up dying each season because they head for the "false horizon" created by development.³¹⁵ Nonetheless, not every seaside municipality has or enforces a lighting ordinance. These are just some examples of other threats to the existence of sea turtles that have not been dealt with adequately.

TEDs are effective, inexpensive devices that help to preserve sea turtles for future generations. But the U.S. domestic regulations are, by their nature, limited in scope. Sea turtles exist not just in United States waters but in those of other countries as well. In fact, sea turtles often swim into the waters of different nations during their migrations. Therefore, it is not enough to protect sea turtles from shrimping only in United States waters. The animals must be afforded protection in the oceans of the world.

Section 609

Section 609 of the ESA, which requires that other shrimping nations keep sea turtle mortality rates at a rate comparable to the United States level or face an embargo of their shrimp and shrimp products into the United States, is an effective, though limited, attempt to protect sea turtles outside United States jurisdiction. Part of its value lies in the fact that the legislation shows the potential effect of such action by nations, such as the United States, that have an interest in environmental problems. This kind of law pressures foreign traders into conforming to higher environmental standards.³¹⁶ Another advantage of section 609 is that it protects the interests of the United States shrimp industry by ensuring that foreign shrimpers do not have a competitive advantage as a consequence of not having to use the TEDs that American shrimpers must.

However, section 609 does not extend protection to sea turtles as far as it could nor as far as it should. For example, the law orders the Secretary of State, in consultation with the Secretary of Commerce, "to initiate negotiations . . . with all foreign governments which are engaged in . . . commercial fishing operations which . . . may affect

314. Debby Crouse, *Shrimp Trawls Not the Only Culprit*, MARINE CONSERVATION NEWS, Spring 1993, at 4. According to the above-cited article, the Center for Marine Conservation has been trying to work in conjunction with the State of North Carolina and NMFS to require TEDs in the winter flounder trawl fishery. As of Spring 1993, the TEDs were required only on a temporary, emergency basis.

315. Clary, *supra* note 1.

316. Alan L. Button, *Prerequisite to Peace: An International Environmental Ethos*, 59 TENN. L. REV. 681, 697 n110 (1992).

adversely such species of sea turtles."³¹⁷ Despite this clear mandate to include all shrimping nations in such negotiations, the guidelines subsequently issued by the Department of State cover only fourteen nations in the wider Caribbean/western Atlantic region and only to that part of their shrimp fleet that operates in the Caribbean Sea and Atlantic Ocean.³¹⁸ The limited scope of section 609 is evidenced by the following statistics gathered by researchers at Earth Island Institute's Sea Turtle Restoration Project:

These 14 nations represent less than 17 percent of the 85 countries that import shrimp into the United States and represent only 9 percent of the 155 nations whose commercial fisheries may adversely affect endangered species of sea turtles. In 1987, these 14 nations represented 9.1 percent, by metric tons, of the world wild caught shrimp harvest.³¹⁹

Furthermore, of the top seven shrimp exporters to the United States — India, Indonesia, Thailand, Mexico, Malaysia, Korea, and Japan³²⁰ — only Mexico is listed among the fourteen countries identified by the Secretary of State.

Although section 609 set a deadline of May 1, 1991³²¹ for the fourteen countries to comply with the law, the State Department extended it by three years. This is a serious drawback to the issued guidelines because of the fragile, critical state of the sea turtle populations. Over those three years, thousands of threatened and endangered sea turtles drowned in shrimp nets. And when population levels reach the critically low levels that they have, each sea turtle is significant.

Yet another shortcoming of section 609 is that the State Department has determined that any embargo the law ever sanctions due to a country's noncompliance will not apply to aquaculture shrimp since the harvesting of such shrimp does not adversely affect sea turtles.³²² As a result, any embargo will probably have a limited effect because, according to the NMFS, about 50% of all imports, or \$850 million worth, are aquaculture shrimp.³²³

Implementation of section 609 might also be curtailed in light of recent decisions made under the provisions of the General Agreement on Trade and Tariffs (GATT). That issue will be discussed later in this article.

317. Conservation of Sea Turtles; Importation of Shrimp, Pub. L. No. 101-162, § 609(a)(2), 103 Stat. 1037 (1989) (to be codified at 16 U.S.C. § 1537).

318. STEINER, *supra* note 224.

319. *Id.*

320. Scott, *supra* note 227.

321. Conservation of Sea Turtles; Importation of Shrimp, Pub. L. No. 101-162, § 609(b)(2), 103 Stat. 1037 (1989) (to be codified at 16 U.S.C. § 1537).

322. Public Notice, 58 Fed. Reg. 9015 (1993).

323. *Hearings*, *supra* note 116, at 201.

CITES

The CITES (Convention International Trade in Endangered Species) treaty is a widely known international agreement that attempts to preserve threatened and endangered species by regulating international trade. It does not specifically sanction TED use nor does it specifically address the problem of incidental catch of sea turtles in shrimp nets. The treaty is important in that it represents the potential for effective, multilateral agreements on important environmental issues. However, it is not without its problems.

For instance, one negative consequence of CITES being an international agreement is that it does not "bind" other nations that do not sign it and, of course, participation is voluntary.³²⁴ In addition, the treaty only has a limited "binding effect" on nations that are parties to it. Each party decides how it will implement and enforce the treaty within its jurisdiction, therefore there is no uniform application of treaty provisions throughout the world. The country may even choose "to take a reservation" on any species listing, and thereby be free to trade in that species.³²⁵ Trade sanctions as provided for under CITES are rarely imposed and when they are it is for very serious violations.³²⁶

Compliance with the treaty is poor. TRAFFIC, a branch of the World Wildlife Fund that monitors trade in endangered species, has identified a number of major violators of the agreement's provisions regarding sea turtles.³²⁷ Indonesia, Hong Kong, Malaysia, Panama, Belize, Tanzania, and Kenya are participating in large-scale sea turtle trading, according to TRAFFIC.³²⁸ One reason for poor compliance could be that penalties for traders who violate the treaty are not costly enough to dissuade offenders from the illegal activity.³²⁹

Pelly Amendment

The Pelly Amendment to the Fisherman's Protective Act can be an effective tool for imposing United States conservation and environmental policies on other countries. A good example of how well it can work is the use of it by four conservation groups to urge the United States government to threaten Japan with trade sanctions unless that country banned imports of hawksbill turtle shell. Despite the law's

324. Balistrieri, *supra* note 237, at 74.

325. *Id.*

326. *Id.*

327. Leslie Burdick, *Sea Turtles Swim for Survival on the World's Beaches; the Giant Reptiles Return to Nest — But in Ever Smaller Numbers*, CHRISTIAN SCI. MONITOR, Aug. 29, 1989, at 12.

328. *Id.*

329. Balistrieri, *supra* note 237, at 75.

seeming effectiveness, however, it is rarely used.³³⁰ Efforts should be made to use this law more extensively when attempting to entice foreign nations into compliance with U.S. environmental objectives.

The Effect of GATT

Unilateral efforts by the United States to impose environmental objectives, such as that of protecting threatened and endangered sea turtles, on other countries by means of trade embargoes under section 609 or the Pelly Amendment may be hindered if found to be inconsistent with the General Agreement on Trade and Tariffs (GATT). This is especially true in light of the recent GATT panel Tuna/Dolphin decision. The GATT panel found that a U.S. ban of Mexican tuna products because of Mexican harvesting methods that resulted in incidental dolphin killed in violation of the Marine Mammal Protection Act (MMPA) was both an "extraterritorial application of United States law and an improper restriction on international trade cloaked as an environmental protection measure"³³¹ that violated GATT.³³² The decision has raised the question whether it would ever be possible, under current GATT provisions, for a country to extend environmental policies beyond its borders in a unilateral manner without violating GATT.

GATT Article XI(1) precludes United States import prohibitions on fish that are inconsistent with the agreement unless the prohibition fits one of three recognized exceptions.³³³ The three exceptions are: 1) Article XI(2)(c)(i) which allows import restrictions (as opposed to prohibitions) on fish and fish products if the measure is needed to enforce a domestic marketing control or supply arrangement; 2) Article XX(g) which allows import prohibitions designed to conserve an exhaustible natural resource; and 3) Article XX(b) which allows import prohibitions necessary to protect animal life.³³⁴

It is unlikely that an embargo sanctioned under the Pelly Amendment or section 609 would be able to fall under one of those excep-

330. Donnelly, *supra* note 270, at 7.

331. David J. Ross, *Making GATT Dolphin-Safe: Trade and the Environment*, 2 DUKE J. COMP. & INT'L L. 345 (1992).

332. *Id.* at 347. A full discussion of the GATT panel's decision is beyond the scope of this article. For more information, see Frederic L. Kirgis, Jr., *Environment and Trade Measures After the Tuna/Dolphin Decision*, 49 WASH. & LEE L. REV. 1221 (1992); Patti A. Goldman, *Resolving the Trade and Environment Debate: In Search of a Neutral Forum and Neutral Principle*, 49 WASH. & LEE L. REV. 1279 (1992); Michael Scott Feeley and Elizabeth Knier, *Environmental Considerations of the Emerging United States-Mexico Free Trade Agreement*, 2 DUKE J. COMP. & INT'L L. 259 (1992). See also Robert Housman and Durwood Zaelke, *The Collision of the Environment and Trade: The GATT Tuna/Dolphin Decision*, 22 ENVTL. L. REP. 10, 268, 273-74 (1992).

333. McDorman, *supra* note 222, at 523.

334. *Id.* at 523-524.

tions. First, such embargoes would fail under the Article XI(2)(c)(i) exception because it allows only restrictions, not total prohibitions, and the embargoes would not be "a necessary part of a U.S. marketing control arrangement."³³⁵ The import prohibitions would fail under Articles XX(g) and XX(b) as well because the embargoes would probably be found to constitute "unjustifiable discrimination based on objectionable characteristics of the foreign country rather than the specific goods being prohibited, and because the embargoes . . . [would not be] primarily aimed at the conservation of an exhaustible natural resource in the United States or at the protection of animal life in the United States."³³⁶ It does not appear, therefore, that measures such as the Pelly Amendment and section 609 can have their complete beneficial effect on international environmental policy goals unless GATT is changed or its application somehow avoided.

One possibility would be to develop a new, explicit international conservation/fisheries treaty that would take priority over GATT. It is generally accepted that "a recent treaty takes precedence over an older treaty where the same subject matter is involved,"³³⁷ and that "explicit wording and intent should govern a particular subject rather than general wording and intent."³³⁸ If such a new treaty were ratified, then environmental policy goals would no longer have to be subordinate to GATT. Similarly, or in conjunction with such a treaty, multilateral conservation regulations should be developed and enforced by some widely-accepted neutral entity. Another possibility would be to amend or modify GATT provisions, perhaps to include a "waiver" that would allow for at least some situations in which unilateral action could be taken for environmental protection purposes.

With regard to sea turtles and TED use in particular, the United States could impose a tax similar to one that has been proposed to aid in the protection of dolphins from purse-seine fishing operations.³³⁹ The tax could be assessed according to both whether the shrimpers used TEDs and the number of turtles caught by that nation's shrimp fleet. The purpose would be to give shrimpers an economic incentive to use TEDs. There might still be problems with compatibility with GATT, but the tax is an alternative to be explored.

Finally, TED use should be mandated universally through an international treaty. Earth Island Institute is currently preparing a United Nations draft resolution to bring TEDs into wider use. As Todd

335. *Id.* at 524.

336. *Id.*

337. *Id.* at 508 n.213.

338. *Id.*

339. Kirgis, *supra* note 332, at 1226.

Steiner of the Institute has said, "That way, it's not the United States telling other countries what to do. It's an international effort."³⁴⁰

IV. CONCLUSION

TEDs are an effective way of virtually eliminating the greatest human-induced cause of sea turtle mortality: shrimp trawling. Statistics show that the devices are 97 percent effective at preventing sea turtle capture and are far more efficient at reducing sea turtle mortality than are limited tow-times. Experience with TEDs since their implementation has shown that, despite shrimpers's claims to the contrary, the devices do not result in excessive shrimp catch losses, gear loss, or injury. Moreover, TEDs rarely clog and specific TEDs have been developed to even further decrease the chance of clogging. An added benefit of TEDs is that they reduce bycatch, a serious problem threatening the marine environment that is resulting in reduced fishery stocks throughout the world.

There are, however, problems with funding for enforcement of these regulations. Also, the TED regulations have drawn attention away from some other causes of sea turtle mortality, including beach-front development and lighting, sargassum harvesting, and the incidental catch of sea turtles in other fisheries such as the winter flounder trawl fishery.

The TED regulations, overall, are a significant step toward protecting sea turtles, but due to the migratory nature of these animals international measures are necessary. Section 609 of the ESA is a first step in the right direction for imposing sea turtle conservation requirements on other shrimping nations through the threat of an embargo, but only fourteen countries are involved and any envisioned embargo would not include aquaculture shrimp which compose about 50 percent of U.S. shrimp imports. Therefore, any embargo would be limited in effect. Furthermore, the deadline for compliance under the guidelines has been extended by three years which will result in the drowning of thousands of sea turtles.

CITES is valuable because it represents the potential for multilateral agreements pertaining to environmental issues. But the current treaty, though signed by more than 100 nations, is not binding on non-party nations. It is also limited in effect because even nations that are parties to it can "take a reservation" in a listed species and continue to trade in it.

The Pelly Amendment has proved an effective, though infrequently used method of using the threat of trade sanctions to coerce foreign

340. Scott, *supra* note 227.

nations to abide by U.S. environmental policies. However, both this legislation and section 609 are probably inconsistent with current GATT provisions which severely undermine their ultimate effectiveness.

A new international environmental treaty with corresponding conservation regulations should be created with enforcement responsibilities handled by a widely-accepted, neutral entity. Ultimately, TED use should be mandated universally as part of a multilateral treaty or through a United Nations resolution.