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Notes and Comments

Why Sharks May Have Nothing to Fear More Than Fear Itself: An Analysis of the Effect of Human Attitudes on the Conservation of the Great White Shark

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I. INTRODUCTION

A series of shark attacks in the southeastern United States induced news magazines to label the summer of 2001 “The Summer of the Shark.” Theories regarding the high number of shark attacks surfaced from a variety of sources in academia and the media, blaming everything from the profusion of scuba tours offering dives with sharks to the increased number of people at the beach.¹ One of the more strident voices was that of Sean Paige, a fellow at the Competitive Enterprise Institute. Paige claimed that the fledgling shark conservation programs of Florida and the federal government, the first extensive shark protection efforts in U.S. history, have driven shark populations to dangerously high numbers in “reckless disregard for the public safety implications.”²

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1. Sean Paige, Editorial, PITTSBURGH POST-GAZETTE, Sept. 9, 2001, 2001 WL 22225169; Bob Marshall, *More Humans Means Larger Shark Problem*, 16 TIMES-PICAYUNE, Sept. 9, 2001, at 16, 2001 WL 26201405.

2. Paige, *supra* note 1.

Most scientists, however, believe global shark populations are in decline. Several populations of large coastal sharks in the Atlantic plummeted by seventy to ninety percent from the 1970s until 1993, and these populations "have yet to show signs of rebuilding."³ Worldwide, scientists believe that some shark populations have been reduced by ninety percent.⁴ One of the species scientists are particularly concerned about is the Great White Shark, which has great economic value, particularly to shark-fanners and trophy collectors.⁵ Protection of Great Whites requires international efforts, because it is a highly migratory species, and individual Great Whites spend at least some of their lives in international waters.⁶ The Great White also poses an occasional, but notorious, threat to humans.⁷ This paper examines the effect of human fear on efforts to protect the Great White.

Debates about implementing Great White and other shark protection efforts do not, for the most part, revolve around the fact that sharks sometimes attack humans. The major factor is economic. However, the public's perception of Great Whites as man-eaters, largely popularized in the United States by the movie *Jaws*,⁸ but present around the world due to the media's sensational treatment of shark attacks, is ever-present. To examine the effect of this perception on the conservation of Great Whites, this note will begin by examining the biology of the Great White, including its international incidence and predatory characteristics. Part III examines the growing threats facing the Great White. Part IV describes currently-existing protections for the Great White and identifies their shortcomings. It also describes the recent unsuccessful attempt to list the Great White under the Convention on the International Trade of Endangered Species of Flora and Fauna. Part V reviews several instances of infamous Great White attacks, and the resulting actions taken by governments and private entities. Part VI examines the disparity between national and international protections of marine mammals, such as dolphins, whales, and sharks. Because marine mammals often fulfill

3. Center for Marine Conservation, *Shark Fact Sheet*, at http://www.cmc-ocean.org/2_bp/sharkfact.php3 [hereinafter CMC].

4. Maryann Bird, *Man Bites Shark*, TIME EUR., Feb. 15, 2002, available at <http://www.time.com/time/europe/eu/daily/0%2C9868%2C100660%2C00.html>.

5. Press Release, International Fund for Animal Welfare, Environmentalists Campaign at CITES to Protect the World's Great Sharks (Apr. 17, 2000), at http://www.ifaw.org/print_page.asp?id+343 [hereinafter IFAW].

6. *Id.*

7. George H. Burgess & Matthew Callahan, *Worldwide Patterns of White Shark Attacks on Humans*, in GREAT WHITE SHARKS: THE BIOLOGY OF *CARCHARODON CARCHARIAS* 457 (A. Peter Klimley & David G. Ainley eds., 1996).

8. *JAWS* (Universal Studios 1975).

many of the same ecological roles as some shark species, the greater protections marine mammals enjoy suggests fear of sharks, or at least their less-favorable public perception, may be hampering shark protection efforts. Part VII reaches the conclusion that, because the most vocal opponents to Great White protection are those benefiting from the economic value of the fish, human fear of Great Whites is not the greatest obstacle to protecting it—its economic value is. However, to enact protections in the face of opposition by those who wish to continue to harvest the Great White, advocates of protection must have public support. The public's primary perception of the Great White as dangerous, instead of endangered, beautiful, and unique, hampers the creation of this support.

II. BIOLOGY OF THE GREAT WHITE SHARK (*CARCHARODON CARCHARIAS*)

Humans probably fear sharks more than any other animal, with the Great White being the most feared shark of all. Its nicknames include “white death”⁹ and “maneater.”¹⁰ This fear is not without basis; the Great White is the largest animal in the ocean that attacks humans with some regularity. It is also one of the least understood animals in the ocean.¹¹ Scientists do know that it is at the apex of its food chain, that it appears throughout the oceans of the world, and that its reproductive cycles make it particularly susceptible to depletion, all of which have conservation implications.¹²

A. *The Great White as Predator*

The Great White is the largest apex predator among sharks.¹³ Although two sharks are larger, the Basking Shark and the Whale Shark, they both feed on krill and other miniscule aquatic animals.¹⁴ Scientists

9. MARY BATTEN, SHARK ATTACK ALMANAC 40 (1997).

10. William J. Broad, *Uncovering the True Nature of a Great White Hunter*, NAT'L WILDLIFE, Dec.–Jan. 1999, at 48, 51.

11. Peter Benchley, *Great White, Deep Trouble*, NAT'L GEOGRAPHIC, Apr. 2000, at 2, 11.

12. Leonard J.V. Compagno et al., *Threatened Fishes of the World: Carcharodon carcharias (Linnaeus, 1758)(Lamnidae)*, 50 ENVTL. BIOLOGY FISHES 61, 61–62 (1997).

13. New South Wales Environmental Protection Authority, *Case Study: Great White Shark*, at <http://www.epa.nsw.gov.au/soe/97/ch4/6.htm> and http://www.epa.nsw.gov.au/soe/97/ch4/6_1.htm (last visited Mar. 29, 2002) [hereinafter NSW EPA].

14. *Id.*

do not know how large the Great White can grow; fisherman have claimed seeing sharks as large as thirty-six feet, but the largest actually measured was 19.5 feet.¹⁵

The Great White is an "apical 'superpredator' with a broad prey spectrum."¹⁶ Larger individuals tend to target larger prey, including marine mammals and large fishes, while smaller individuals target smaller prey.¹⁷ However, the Great White is a "highly opportunistic predator."¹⁸ Scientists have observed Great Whites feeding on everything from dead whale carcasses,¹⁹ to marine birds and reptiles, to other sharks and dolphins.²⁰ The Shark Attack File at the University of Florida attributes the majority of shark attacks, and shark attack fatalities, to the Great White.²¹ Its size and strength alone make it more dangerous than other sharks. Some scientists believe that attacks on humans by Great Whites occur as a matter of misjudgment by the shark. One study noted humans "present an image similar enough" to certain marine mammals Great Whites regularly target, which triggers predatory behavior.²² Peter Klimley, a noted shark scientist, believes Great Whites are able to judge the energy value of prey immediately when they attack; prey such as humans, which lack sufficient fat content, are often rejected after the initial attack.²³ Unfortunately for many victims of these attacks, the first bite from a Great White can create a wound severe enough to cause death.²⁴

As an apical predator, the Great White's role in the ecosystem is especially important. As Richard Murphy put it, the reasons to protect Great Whites are "the same as those applied to the protection of . . . terrestrial top carnivores. In addition to being increasingly rare, they are majestic preeminent participants in a complicated food web which we, as

15. Benchley, *supra* note 11, at 24.

16. Compagno, *supra* note 12, at 61.

17. *Id.*

18. Douglas J. Long & Robert E. Jones, White Shark Predation and Scavenging on Cetaceans in the Eastern North Pacific Ocean, in GREAT WHITE SHARKS, *supra* note 7, at 293, 296.

19. *Id.*

20. Compagno, *supra* note 12, at 61.

21. ISAF Statistics on Attacking Species of Shark, *Ichthyology at the Florida Museum of Natural History University of Florida*, at <http://www.flmnh.ufl.edu/fish/sharks/statistics/species2.htm> (last visited Apr. 12, 2002).

22. Burgess & Callahan, *supra* note 7, at 466.

23. Benchley, *supra* note 11, at 25.

24. Marie Levine, *Unprovoked Attacks by White Sharks off the South African Coast*, in GREAT WHITE SHARKS, *supra* note 7, at 435, 442 (documenting three fatalities resulting from single bites).

yet, only partially understand.”²⁵ Additionally, as a top predator, the Great White reflects the general health of the marine ecosystem.²⁶

B. Distribution and Reproduction of the Great White

The Great White’s distribution is wide-ranging; it is found in almost every ocean of the world.²⁷ It is most frequently observed in inshore temperate continental waters of the Western North Atlantic, Mediterranean Sea, southern Africa, southern Australia, New Zealand, and the Eastern North Pacific.²⁸ However, people have observed Great Whites almost everywhere, including “off Hawaii, in the Coral Sea, the Caribbean, and the Atlantic.”²⁹ Because Great Whites are a highly migratory species, any successful conservation efforts will necessarily involve a strong international component.³⁰ In a recent study, scientists found that this is particularly true of males; females, by contrast, may return to their birth waters to reproduce.³¹ This behavior has conservation implications because it indicates that “[m]anagement practices need to take into account the importance of breeding grounds and the connections of widely separated populations.”³² Thus, a “globally integrated management plan of regional management” would be the best way to ensure the sustainability of global Great White populations.³³ In other words, because of the vast inter-relatedness of the population as a whole, national efforts to protect the shark may be ineffective if not accompanied by international programs and efforts.

Data on the global population of the Great White is limited. Traditionally, fish species population numbers come from the commercial fishing industry, and because the Great White is not targeted specifically by large commercial fishing fleets, information on the take is meager.³⁴

25. Richard C. Murphy, *A Plea for White Shark Conservation*, in GREAT WHITE SHARKS, *supra* note 7, at 5.

26. NSW EPA, *supra* note 13.

27. Compagno, *supra* note 12, at 61.

28. *Id.*

29. Benchley, *supra* note 11, at 15.

30. IFAW, *supra* note 5.

31. *Great White Shark Study Has Conservation Implications*, AP, July 11, 2001, WL 7/11/01 APWIRE 14:12:00 [hereinafter AP].

32. *Id.*

33. *Id.*

34. Commonwealth of Australia, Proposal to Include *Carcharodon carcharias* (Great White Shark) on Appendix I of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1999, at 5 [hereinafter Australia Proposal].

Noting there are no authoritative estimates of the Great White Shark's global population, Australia's proposal to list the Great White for protection under the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) relied upon "trend analyses, local population estimates, and anecdotal information."³⁵ This included information from sport fisherman such as the change in the relative ratio of their catch of Great Whites to other species of fish, data relating the number of Great Whites caught by the protective nets of the Natal Shark Board in South Africa, and anecdotal information from game fishermen and divers.³⁶ In America, scientists have noted that Great White catches by commercial fisherman in California declined from 60,000 pounds in 1984 to less than 1,200 pounds in 1991.³⁷

There is a growing consensus among scientists that, regardless the global population numbers for Great Whites, the population trend is on a downswing and the current reproduction rate will not sustain a sufficient population.³⁸ Historically, shark fisheries have been characterized as boom and bust. According to the Center for Marine Conservation, "most large-scale shark fisheries this century have ended in collapse of the population and the associated industry."³⁹

Part of the reason sharks, and Great Whites in particular, are susceptible to population crashes of this magnitude is the nature of their reproductive cycle.⁴⁰ Great Whites are scarce by nature; the ocean can only support so many of an apex predator of such size and appetite, and thus their reproductive cycles are "designed" to keep the population to sustainable levels.⁴¹ However, when thrown off-balance by excessive human-imposed mortality, these cycles create the potential for rapid and unrecoverable depopulation of the species.⁴² For instance, Great Whites are especially vulnerable to over-fishing because they give birth to live young, and thus produce small broods unlike most bony fish, like cod, which produce a substantial number of offspring in each litter.⁴³ Addi-

35. *Id.*

36. *Id.* at 5-6.

37. AP, *supra* note 31.

38. Benchley, *supra* note 11, at 12.

39. CMC, *supra* note 3.

40. Pelagic Shark Research Foundation, *Conservation*, at <http://www.pelagic.org/conservation> (last visited Sept. 23, 2001).

41. See A. Peter Klimley, *Sharks Beware*, 87 AM. SCI. 488, 490 (1999).

42. Wild Aid, *Threats to Sharks*, at <http://www.wildaid.org/Sharks/index.html> (last visited Feb. 16, 2002).

43. Stacy L. Fowler, *Shark Populations Threatened Worldwide*, at <http://enn.com/extras/printer-friendly.asp?storyid=44816> (Sept. 4, 2001).

tionally, Great Whites take a long time to mature. Females do not mature until they reach ten to twelve years of age, and males do not mature until they reach the age of nine or ten.⁴⁴ Any shark killed before maturity is a significant loss to the reproductive capacity of the global Great White population. Thus, the characteristics of the Great White's reproductive cycle make recovery of depleted populations a difficult prospect.⁴⁵ This fact is of great concern given the array of threats the species now faces.

III. THREATS FACING THE GREAT WHITE

The major threats facing Great White populations are from human activity, especially fishing.⁴⁶ Though fishermen rarely target Great Whites specifically, when caught, the sharks have great economic value to commercial fishermen. Great White body parts, especially their jaws, are highly sought as trophies. Commercial fisheries targeting other species add to Great White mortality through bycatch. Finally, netting designed to protect bathers from sharks is a source of Great White mortality.

A. Commercial Fishery

Great White populations are naturally scarce; thus, there has never been a fishery devoted exclusively or even especially to harvesting Great Whites. Traditionally, commercial fisheries for sharks have been "small and restricted to small areas."⁴⁷ However, Great Whites have great commercial value in the global economy. Absent regulations mandating release, there is great incentive to harvest them once they are caught.⁴⁸ Sharks are used for their "meat, skins, organs, and tissues for human consumption, liver oil extracted for vitamins, carcass used for fishmeal and fertiliser, skin for leather, cartilage for medicines, fins for shark-fin soup."⁴⁹

The astronomical growth in the last thirty years of the demand for shark fins for shark fin soup has greatly increased the value of sharks to

44. Compagno, *supra* note 13, at 61.

45. CMC, *supra* note 3.

46. Australia Proposal, *supra* note 34, at 7.

47. Klimley, *supra* note 41, at 489.

48. See Australia Proposal, *supra* note 34, at 8, 9.

49. *Id.* at 8.

commercial fishermen.⁵⁰ Shark finning has become one of the leading causes of shark mortality.⁵¹ Once a traditional Asian dish “only enjoyed by the very privileged, the soup is now mass-produced.”⁵² This result of “Asian culinary tradition meet[ing] Western-style consumerism” has had negative impacts on global shark populations.⁵³

From the fisherman’s perspective, shark finning is an economically efficient operation. A fisherman finning sharks removes the fins of the shark, and then throws it overboard to die, thereby using storage space only for the valuable fins.⁵⁴ Many countries, including the United States, have enacted regulations prohibiting the practice in their waters;⁵⁵ for instance, in 2000 the United States Congress amended the Magnuson Act by adding the Shark Finning Prohibition Act to prohibit shark finning in all United States waters.⁵⁶ Regulations proposed by the National Marine Fisheries Service (NMFS) require any foreign boat docking at a United States port with shark fins aboard to have also the carcasses of the sharks from which the fins were taken.⁵⁷ Most countries, however, have not enacted any such protections.⁵⁸

Producers of shark fin soup generally regard the fins of several other sharks as higher grade than those of Great Whites⁵⁹ (although in Hong Kong at least, fins from Great Whites are preferred over all other species).⁶⁰ Great White fins are especially valuable to shark finners for one reason: their great size. A very large shark fin can sell for as much as US\$10,000.⁶¹ The only sharks that have larger fins than Great Whites are Basking and Whale sharks. The fact that all three of these sharks were proposed for listing as protected species through CITES demon-

50. Jessica Spiegel, Note, *Even Jaws Deserves to Keep His Fins: Outlawing Shark Finning Throughout Global Waters*, 24 B. C. INT’L & COMP. L. REV. 409, 411 (2001).

51. *Id.* at 409–10.

52. Bird, *supra* note 4.

53. *Id.*

54. Spiegel, *supra* note 50, at 410; Wild Aid, *supra* note 40.

55. Spiegel, *supra* note 50, at 410.

56. *Id.* at 424.

57. Fisheries Off West Coast States and in the Western Pacific; Atlantic Highly Migratory Species; Fisheries of the Northeastern United States, 66 Fed. Reg. 34401 (proposed June 28, 2001) (to be codified at 50 C.F.R. pts. 600, 655, 648) [hereinafter NOAA Proposed Rule].

58. See Spiegel, *supra* note 50, at 427.

59. *Id.* at 413.

60. Australia Proposal, *supra* note 34, at 9. Since “Hong Kong is a major importer, exporter, re-exporter, and processor of shark fins, the way they grade Great White shark fins is significant.” *Id.*

61. Spiegel, *supra* note 50, at 414.

strates both the severe impact of the shark finning industry, and the great economic value of large fins.⁶²

Shark fins have “become one of the most expensive fish products in the world.”⁶³ A bowl of regular quality shark-fin soup can cost up to \$300, and a bowl of superior quality soup may cost \$720.⁶⁴ The value of shark fins will only increase as shark species become more scarce,⁶⁵ thus creating a vicious cycle whereby the more sharks killed, the more valuable remaining sharks become.

B. Trophy Value

Body parts from Great Whites also have great economic value as trophies. Although few fishermen specifically seek Great Whites to harvest, once caught, their value makes it unlikely that the fisherman will release them. International collectors have paid as much as US\$50,000 for the jaw of a Great White.⁶⁶ Small jaws may yield US\$15,000, and individual teeth US\$600.⁶⁷ A recreational fisherman will often choose not to release a Great White, if for nothing else, so he or she can have a picture taken with it once the boat returns to the dock. Unfortunately, as with fins, the value of trophies will only increase as Great Whites become more scarce.⁶⁸

Until recently, few recreational fishermen targeted sharks.⁶⁹ Fishermen were more likely to regard sharks as pests—sharks are notorious for attacking gamefish while on the line of a fisherman.⁷⁰ However, especially as some of the previously-targeted species have become scarce, “sharks have been promoted from underdog to game fish status.”⁷¹ Ad-

62. This would have made them the first commercially fished marine species under CITES. IFAW, *supra* note 5; Environmental News Network, *Controversy Stalks Endangered Species Convention*, at <http://www2.cnn.com/2000/NATURE/03/29/whaling.push.enn/index.html> (Mar. 29, 2000).

63. Spiegel, *supra* note 50, at 414.

64. *Id.*

65. IFAW, *supra* note 5.

66. Press Release, Humane Society of the United States, CITES Fails to Protect Sharks (Apr. 18, 2000), at <http://www.hsus.org/news/pr/041800e.html> [hereinafter HSUS].

67. Australia Proposal, *supra* note 34, at 7.

68. IFAW, *supra* note 5.

69. Carl Safina, *Recreational Fishing and Conservation*, 11 SHARK NEWS (IUCN Shark Specialist Group), July 1998, at <http://www.flmnh.ufl.edu/fish/Organizations/SSG/11Newsletter/shark11news3.htm>.

70. *Id.*

71. *Id.*

ditionally, the movie *Jaws*⁷² inspired an increase in recreational fishermen pursuing Great Whites, as the shark was "cast as the ultimate monster . . . quickly attract[ing] all manner of atavistic 'shark hunters' and entrepreneurs that were quick to exploit the animal."⁷³ Although many shark fishermen have taken to using catch-and-release methods, fishing techniques often result in the shark being "gut-hooked," resulting in high mortality rates for released sharks.⁷⁴ Likewise, releasing a Great White is problematic without special equipment under any circumstances.⁷⁵ Finally, in both the commercial and recreational context, the public's negative image of Great Whites "invites neglect and atavistic killing of these sharks, as well as disregard of protective measures."⁷⁶

C. Bycatch

Sharks are often caught incidentally as bycatch.⁷⁷ This occurs in a variety of fisheries, and the numbers of sharks taken this way equals or exceeds the amount of sharks taken intentionally.⁷⁸ Long-line fisheries aimed at tuna and swordfish, shrimp trawls, and gillnetting operations all contribute to shark mortality; for Great Whites, the effect is felt the most by juveniles.⁷⁹ The high mortality rate of juveniles is of particular concern given that Great Whites are naturally rare and have somewhat atypically long reproductive cycles.⁸⁰ As with recreational catches, the negative image that humans have of Great Whites probably contributes to the mortality rates when incidentally caught.⁸¹ Adding to the problem is the fact that Great Whites actively investigate human behavior, increasing the likelihood that they will be caught either incidentally or by design.⁸²

72. *JAWS*, *supra* note 8.

73. Compagno, *supra* note 12, at 62.

74. Safina, *supra* note 69.

75. *See id.*

76. Compagno, *supra* note 12, at 62.

77. CMC, *supra* note 3.

78. *Id.*

79. *Id.*

80. Compagno, *supra* note 12, at 62.

81. *Id.*

82. Australia Proposal, *supra* note 34, at 7.

D. Beach Meshing Operations

The use of nets to protect swimmers on beaches from shark attacks has become a significant cause of Great White mortality.⁸³ The Natal Shark Board, the South African government agency charged with protecting swimmers from shark attack, catches an average of 1,440 sharks annually in their protective netting.⁸⁴ Scientists have documented an eighty percent mortality rate for Great Whites caught in netting operations in Natal.⁸⁵ Because sharks lack the respiratory structure of other fish, which draw water past their gills, they must stay in constant motion in order to "breathe."⁸⁶ Thus, when sharks become ensnared in a net, if unable to extricate themselves within a short time, they suffocate. According to the Humane Society International, shark nets are not intended to merely prevent sharks from reaching public swim areas, but "to cull local shark populations."⁸⁷ Public outcry against shark nets has become an issue in the last ten years.⁸⁸ The public's concern is not primarily for the sharks that become trapped in the nets, but the many marine mammals, especially dolphins, which also become victims of the nets.⁸⁹ Thus, the Great White is threatened by a variety of human activity. Despite these threats, protections for the Great White remain limited.

IV. EXISTING PROTECTIONS FOR THE GREAT WHITE SHARK

That governments protect Great Whites at all would amaze those living when Peter Benchley wrote *Jaws*. Regardless, five nations now prohibit the harvesting or taking of Great Whites: South Africa, Australia, the United States, the Maldives, and Namibia.⁹⁰ South Africa was the first nation to protect Great Whites; in 1991 it outlawed the intentional killing or sale of Great Whites.⁹¹ Australia acted in 1997, by list-

83. *Id.*

84. Arnd Petry, *Shark Nets Protect Bathers in South Africa*, DEUTSCHE PRESSE-AGENTUR, Feb. 17, 2001, available at WL 02/17/01 DCHPA 19:07:00 (or AFRNEWS).

85. *Id.*

86. Petry, *supra* note 84.

87. Humane Society International, Australian Office, *Shark Conservation*, at <http://www.his.org.au/sharkfct.html> (last visited Nov. 15, 2001).

88. Tom Nevin, *Of Sharks and Whales*, AFRICAN BUS., Apr. 1, 2001, 2001 WL 11994354.

89. *Id.*

90. Benchley, *supra* note 11, at 12.

91. Australia Proposal, *supra* note 34, at 10.

ing Great Whites as vulnerable under Australia's Endangered Species Protection Act, noting that "[c]lose to 500 Great Whites die in our oceans each year as a result of human activity, particularly commercial fishing."⁹² In 1993, the NMFS promulgated rules limiting the take of sharks on the entire East Coast shark fishery, resulting in a 1999 take that was half of what it had been in 1989.⁹³ In 2000, the NMFS placed nineteen species off limits completely, including the Great White.⁹⁴ Both California and Florida had already prohibited taking Great Whites in the waters of their jurisdiction.⁹⁵

However, any successful effort to protect Great Whites will necessarily require international efforts.⁹⁶ According to Peter Peuschel of Greenpeace, "[w]hile national protection is a first step . . . the sharks' highly migratory nature and global demand of their parts requires cooperative protection and monitoring at an international level to ensure their survival."⁹⁷ This section analyzes existing international protection mechanisms and identifies their shortcomings.

A. IUCN Red List

The Great White was added to the International Union for the Conservation of Nature and Natural Resources' (IUCN) Red List of Threatened Species in 1996.⁹⁸ The IUCN's Red List is the foremost international list of threatened species. According to the IUCN, their Red List is "widely recognized as the most comprehensive, apolitical global approach for evaluating the conservation status of plant and animal species."⁹⁹ The Red List, however, is not a treaty or regulatory document, and serves only to provide information for governments considering species for protection.¹⁰⁰ The Great White is listed on the Red List as Vul-

92. Press Release, Senator the Hon. Robert Hill, Minister for the Environment, Australia Sounds Shark Alert (Dec. 17, 1997), available at <http://www.ca.gov.au/minister/env/97/mr17dec97.html>.

93. William J. Broad, *Protect Sharks? Recent Attacks Fuel Old Argument*, N.Y. TIMES, Sep. 11, 2001, at F1.

94. *Id.*

95. Australia Proposal, *supra* note 34, at 10.

96. IFAW, *supra* note 5.

97. *Id.*

98. Australia Proposal, *supra* note 34, at 10.

99. IUCN, *The SSC Red List Programme*, at <http://www.redlist.org/info/programme.html> (last visited Apr. 5, 2002).

100. *Id.*

nerable, or more precisely, "VU A 1cd+2cd."¹⁰¹ This designation means the listing was based upon "an observed, estimated, inferred, or suspected reduction of at least 20% over the last 10 years or three generations . . . based on . . . a decline in area of occupancy, extent of occurrence and/or quality of habitat . . . [and] actual or potential levels of exploitation," and a similarly projected reduction for the future.¹⁰² Although a listing as such on the Red List has no enforceable value, the Red List receives significant respect from governments and nonprofit organizations.¹⁰³

B. FAO International Plan of Action for the Conservation and Management of Sharks

In October 1998, member countries of the United Nations' Food and Agriculture Organization met in Rome and agreed upon an International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks).¹⁰⁴ The objective of the plan is to "ensure the conservation and management of sharks and their long-term sustainable use."¹⁰⁵ IPOA-Sharks suggests that states should adopt a National Plan of Action (NPOA) if their vessels actively pursue sharks or regularly catch sharks, even if they do not target them.¹⁰⁶ An individual country's shark plan should attempt to ensure that shark catches are sustainable, assess and implement responses to threats to shark populations, identify particularly vulnerable species within that country's waters, ensure efficient use of sharks, and improve knowledge about shark populations and harvest.¹⁰⁷ Each country is entirely responsible for the development, implementation, and monitoring of its plan, and should attempt to have such a plan by 2001.¹⁰⁸

101. IUCN, *The 2000 IUCN Red List of Threatened Species—Carcharodon carcharias*, available at <http://www.redlist.org/search/details.php?species=3855>, (last visited Nov. 15, 2001).

102. IUCN, *1994 Categories & Criteria*, available at http://www.redlist.org/info/categories_criteria.html (last visited Nov. 15, 2001).

103. IUCN, *supra* note 101.

104. Natal Sharks Board, *Natal Sharks Board Update—June 1999*, at <http://www.shark.co.za/news.news.htm> (last visited Oct. 13, 2001).

105. Food and Agriculture Organization, *The International Plan of Action for the Conservation and Management of Sharks*, para. 16, at <http://www.fao.org/fi/ipa/manage.asp> (last visited Nov. 15, 2001).

106. *Id.* para. 18.

107. *Id.* para. 22.

108. *Id.* paras. 19–20.

Critics of IPOA-Sharks are quick to point out its biggest shortfall—it is completely voluntary.¹⁰⁹ When a country chooses to take IPOA-Sharks seriously, as the United States appears to have done, it has the potential to implement meaningful steps in the protection of sharks.¹¹⁰ Unfortunately, as of July 2001, the United States was the only nation to complete an NPOA.¹¹¹ At the Committee on Fisheries (COFI) 2001,¹¹² only seventeen nations reported that they were preparing NPOAs.¹¹³

Further, even if the plan receives more widespread implementation, many environmentalists believe IPOA-Sharks will have little overall effect. First, according to some critics, its chief focus is that of information gathering—a necessary tool in conservation of sharks to be sure—but more is needed in the immediate future.¹¹⁴ More importantly, as Nicola Beynon of the Humane Society International stated, “[w]ithout regulation, the FAO will remain a toothless tiger.”¹¹⁵ IPOA-Sharks lack of enforceable provisions probably is not a result of the negative perception of sharks; it is more likely that the political influence of the fishing industry and an overall hesitance by countries to bind themselves to an international agreement of significant potential lead the drafters to create IPOA-Sharks as primarily a guidance document. Thus, although IPOA-Sharks is a step in the right direction, shark advocates need an enforceable international agreement for the protection of sharks, which is exactly what they hoped for, and did not receive, at the Eleventh Meeting of the parties to Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in April of 2000.¹¹⁶

109. See Spiegel, *supra* note 50, at 430.

110. See NOAA Proposed Rule, *supra* note 57. For instance, in implementing IPOA-Sharks, the NMFS has proposed rules prohibiting any person under US jurisdiction from engaging in shark finning seaward of the inner boundary of the US exclusive economic zone (EEZ), possessing shark fins without corresponding carcasses harvested in waters seaward of the inner boundary of the EEZ, or landing shark fins without corresponding carcasses harvested in waters seaward of the inner boundary of the EEZ. *Id.*

111. Mike Pawson, *International Shark Conservation and Management Initiatives*, 13 SHARK NEWS (IUCN Shark Specialist Group), July 2001, at <http://www.flmnh.ufl.edu/fish/Organizations/SSG/13Newsletter/shark13news20.htm.html>.

112. COFI is “an inter-governmental forum examining major international fisheries and aquaculture problems and issues.” *Id.*

113. *Id.*

114. Australia Proposal, *supra* note 34, at 12.

115. HSUS, *supra* note 66.

116. *Id.*

*C. Convention on International Trade of Endangered Species of
Flora & Fauna (CITES)*

CITES, a treaty regulating trade of endangered species, was initially proposed at the 1963 General Assembly of the International Union for the Conservation of Nature (IUCN).¹¹⁷ Signed in 1973 by twenty-one nations, CITES currently has over 145 signatory nations, and is regarded by many as the most successful international treaty for conserving wild-life.¹¹⁸

1. The Treaty

CITES, like the United States' Endangered Species Act, operates by classifying threatened species.¹¹⁹ Species are listed under three separate categories under CITES.¹²⁰ Appendix I species are "threatened with extinction," and are those species the parties have determined are most at risk.¹²¹ Appendix II species are not yet threatened with extinction, but may soon become so unless trade is strictly regulated.¹²² Appendix III species are unilaterally listed by a country, thus notifying other parties that the species is protected under its jurisdiction, and that the cooperation of the other parties is needed.¹²³

Once the parties list a species in one of the appendices, trade between or by member parties may only occur with required permits or certificates of exemption.¹²⁴ Countries may grant permits only if trade will not be detrimental to the survival of the species.¹²⁵ Certificates of Exemption are granted in limited circumstances.¹²⁶ Trade in Appendix I

117. M. Lynne Corn, *The Convention on International Trade in Endangered Species: Its Past and Present*, CRS REPORT FOR CONGRESS, Aug. 24, 1994, available at <http://cnie.org/NLE/CRSreports/Biodiversity/biodv-7.cfm>.

118. HSUS, *supra* note 66.

119. Corn, *supra* note 117.

120. Convention on the International Trade of Endangered Species of Flora and Fauna, Mar. 3, 1973, in force 1 July 1975, 27 U.S.T. 1087, 993 U.N.T.S. 243 [hereinafter CITES].

121. *Id.*

122. *Id.*

123. *On the Convention on International Trade in Endangered Species (CITES): Hearing Before the House Comm. on Resources*, 106th Cong. (1999) (statement of Penelope Dalton, Assistant Administrator For Fisheries, U.S. Dept. of Commerce), available at <http://www.legislative.noaa.gov/citestst0713.htm>.

124. Corn, *supra* note 117.

125. *Id.*

126. *Id.* Some exemptions include specimens that were acquired before the treaty applied to such specimens, specimens that are personal or household effects and are not

species is extremely limited; both an Import and an Export Permit are required to allow an individual of the species or a product containing body parts of the species to enter or leave a party nation.¹²⁷ Trade of an Appendix II species requires an Export Permit, and trade in an Appendix III species requires an Export Permit, a Re-export Certificate, or a Certificate of Origin.¹²⁸

2. Criticisms of CITES

A number of commentators have criticized the efficacy of CITES. One of the most criticized aspect is allowing parties to take a reservation at the time a species is listed.¹²⁹ This provision allows countries who object to the listing of a particular species to "reserve the right not to extend protection" to that species.¹³⁰ A country taking a reservation may continue to trade the species with countries who also took a reservation, or who are not parties to CITES.¹³¹ It is estimated that thirty percent of trade in endangered species worldwide occurs between parties who took a reservation and nonparties.¹³²

Another criticism is that CITES relies entirely upon each individual state for enforcement. This aspect can be a problem as developing countries may not have the resources to enforce CITES protections.¹³³ Similarly, party countries facing economic problems who have populations of a listed species are likely to ignore CITES.¹³⁴ This causes particular concern because the majority of species listed in CITES inhabit developing countries.¹³⁵

Additionally, although CITES provides that countries should assess penalties against individuals who violate the provisions of CITES, it

acquired outside the owners state of usual residence, and specimens that are not being imported (for Appendix I species). *Id.*

127. *Id.*

128. *Id.*

129. Shennie Patel, Comment, *The Convention on International Trade in Endangered Species: Enforcement and the Last Unicorn*, 18 HOUS. J. OF INT'L L. 157, 189 (1995).

130. *Id.*

131. *Id.* at 190.

132. *Id.* at 189.

133. *Id.*

134. Randi E. Alarcon, *The Convention on International Trade in Endangered Species: The Difficulty in Enforcing CITES and the United States Solution to Illegal Trade of Endangered Species*, 14 N.Y. INT'L L. REV. 105, 117 (2001).

135. *Id.*

gives no guidelines for setting the penalties.¹³⁶ Thus, penalties in different countries for the same violation may be vastly dissimilar.¹³⁷ CITES also lacks any provisions imposing sanctions on member countries that fail to comply with the treaty.¹³⁸ Other critics believe that listing endangered species is counterproductive. Listing advertises the scarcity of the species, thus boosting the market value for that species.¹³⁹ Finally, difficulties in identifying products containing parts of listed animals can make enforcement of CITES problematic.¹⁴⁰ This issue would be of particular significance for Great Whites, as it is difficult for nonexperts to determine the species of a shark merely from its fin, and juvenile jaws might be easily confused with the jaws of other coastal sharks.¹⁴¹

Some shark experts question whether CITES would effectively protect Great Whites on other grounds as well. Shark scientist Leonard J.V. Compagno notes that even if the parties decide to list the Great White, "there are a number of nations that have participated in illegal trade in terrestrial species protected by CITES that can be expected to serve as trading-posts in the sale of white shark body-parts."¹⁴² Overall, however, most critiques of CITES are guardedly optimistic and see CITES as the best tool available for providing global protection of commercially valuable species.¹⁴³

3. *The Need for Listing and COP11*

Because of the substantial commercial value of Great Whites, a listing under CITES is necessary for their protection. As mentioned above, buyers have paid as much as US\$50,000 for the jaw of a Great White,¹⁴⁴ and US\$10,000 for a large fin.¹⁴⁵ Listing the Great White under CITES would discourage targeting of Great Whites and likely limit incidental takings as well.¹⁴⁶ Although several countries now protect the Great White within their waters, the Great White is widely distributed and displays at least "some degree of transoceanic movement."¹⁴⁷ Additionally,

136. *Id.* at 114.

137. *Id.*

138. Corn, *supra* note 117.

139. *Id.*

140. *Id.*

141. Australia Proposal, *supra* note 34, at 32.

142. Compagno, *supra* note 12, at 62.

143. *See* Patel, *supra* note 129, at 212; Alarcon, *supra* note 134, at 118.

144. HSUS, *supra* note 66.

145. Spiegel, *supra* note 50.

146. Compagno, *supra* note 12.

147. Australia Proposal, *supra* note 34, at 12.

unregulated international trade restricts the efficacy of protections by individual nations, especially given this substantial commercial value of Great Whites.¹⁴⁸

At the Eleventh Conference of the Parties to CITES (COP11), the Great White was among three sharks proposed for listing. Australia and the United States jointly proposed the Great White for listing under Appendix I, the United Kingdom proposed the Basking Shark for listing under Appendix II, and the United States proposed the Whale Shark for listing under Appendix II.¹⁴⁹ Although receiving a majority of the votes, all three proposals failed to pass by the required two-thirds majority.¹⁵⁰ Environmentalists blamed fishing industry influence in Asia, Scandinavia, and Latin America for the failure of the proposals to pass.¹⁵¹ Opponents of the listing relied on a variety of arguments. Japan's delegation argued that the population data was "fatally flawed," and that concerned countries should locally control threats to the Great White instead of asking CITES to do the job for them.¹⁵² Singapore's delegation argued that protecting the Great White under CITES would divert resources from the protection of species such as tigers and elephants.¹⁵³ Other opponents argued it would be "difficult for fishermen to avoid catching specific species of sharks and that none of the three was in danger of extinction."¹⁵⁴ As mentioned, the vote to list the Great White received a majority of the votes, but not the required two-thirds.¹⁵⁵ Since the proposal missed passage by a relatively slim margin, the question arises, if people had a more favorable perception of Great Whites, might the proposal have passed?

148. *Id.*

149. IFAW, *supra* note 5.

150. HSUS, *supra* note 66.

151. Gary Strieker, *Earth Matters: Whales Win, Sharks Lose at Endangered Species Summit*, CNN.COM, Apr. 20, 2000, at <http://www2.cnn.com/2000/NATURE/04/28/earth.matters/>.

152. *Further Shark Controls Rejected*, BBC NEWS, Apr. 19, 2000, at http://news.bbc.co.uk/1/hi/english/sci/tech/newsid_719000/719310.stm.

153. Humane Society of the United States, *Sharks Sunk at Committee at CITES*, available at http://www.hsus.org/whatnew/cites2000_041800.html (Apr. 18, 2000).

154. *Further Shark Controls Rejected*, *supra* note 152.

155. See IFAW, *Making the Seas Safe for Sharks*, at http://www.ifaw.org/print_page.asp?id+446 (last visited Nov. 15, 2001).

V. ARE HUMAN FEARS HAMPERING CONSERVATION OF GREAT WHITE SHARKS?

Human attitudes towards the Great White are impacted greatly by the fact that sharks attack humans. In order to illustrate this, the following section examines highly publicized shark attacks and resulting the human reactions.

A. *Infamous Historical Shark Attacks and Their Aftermath*

A vase discovered in Ischia, Italy, circa 725 B.C., portrays a swimmer being attacked by a fish, presumably a shark.¹⁵⁶ However, shark attacks were not of particular public interest until the twentieth century.¹⁵⁷ In fact, in the early 1900s, many believed that shark attacks were a myth and there were few, if any, authoritatively accepted cases of shark attacks.¹⁵⁸ This attitude changed drastically in the summer of 1916, when a series of five shark attacks resulting in four fatalities occurred in New Jersey.¹⁵⁹ No one knows if the attacks were from one shark or several, and the species of the shark is also unknown. Many believe a single Great White was the culprit, although the fact that two of the attacks occurred in a tidal creek has lead some scientists to surmise at least two of those attacks were by a Bull Shark, because Bulls are more tolerant of fresh and brackish water.¹⁶⁰

The attacks corresponded with the evolution of the American media “from a parochial to a cosmopolitan news-gathering system . . . and a shift in journalistic values . . . which contributed to more active searches for ‘shock’ stories.”¹⁶¹ Newspaper headlines included “Whole of Jersey coast infested with man-eating monsters!,” and “Ten pounds of flesh ripped off by sea monster!”¹⁶² The furor incited a massive shark hunt. The issue of shark attacks made its way to Washington, D.C. where a

156. *A Detailed Look at Shark History, from Myth About the Great White Shark*, <http://www.sharkattacks.com/historical.htm> (last visited Oct. 1, 2001).

157. International Shark Attack File, Florida Museum of Natural History, *Shark Attacks in Perspective*, at <http://www.flmnh.ufl.edu/fish/Sharks/Attacks/perspect.htm> (last visited Oct. 12, 2001).

158. MICHAEL CAPUZZO, *CLOSE TO SHORE: A TRUE STORY OF TERROR IN AN AGE OF INNOCENCE* 26–27 (2001).

159. Batten, *supra* note 7, at 22–25; For a nonfictional account of the New Jersey attacks told in narrative fashion, see generally CAPUZZO, *supra* note 155.

160. *Id.*

161. International Shark Attack File, *supra* note 157.

162. CAPUZZO, *supra* note 158, at 270.

New Jersey Congressman introduced a bill to appropriate US\$5,000 for the extermination of sharks along the Atlantic seaboard, while President Wilson's cabinet came up with a plan to utilize the Coast Guard in a "war on sharks."¹⁶³ The plan was eventually abandoned as impracticable.¹⁶⁴

South Africa has faced a similar series of shark attacks creating a massive public furor. In the twenty-two day period between December 18, 1957, and January 9, 1958, sharks attacked five people at the resort town of Uvongo.¹⁶⁵ Again, a massive "war on sharks" was initiated, including the deployment of a South African Navy destroyer, from which depth charges and hand grenades were launched in an effort to scare off sharks.¹⁶⁶ Shark attacks were nothing new to the area; from 1945 to 1951, there had been twenty-one attacks near the city of Durban.¹⁶⁷ However, the attacks of "Black December," as December of 1957 is known, were instrumental in the creation of the Natal Sharks Board in 1964, a government organization given "the duty . . . of approving, controlling and initiating measures for safeguarding bathers against shark attacks."¹⁶⁸ It is now responsible for servicing all protective shark netting in South Africa.¹⁶⁹

B. Recent Shark Attacks and Their Aftermath

Backlashes of media frenzies and government reactions to shark attacks are not reserved to the past. In November 2000, a Great White killed a forty-nine year old man and severely wounded his friend at the Cottesloe beach near the city of Perth, in Western Australia.¹⁷⁰ Although Great Whites are listed as threatened under Australia's Endangered Species Protection Act,¹⁷¹ these attacks prompted the Western Australian state government to authorize fisheries officials to kill sharks longer than ten feet in order to protect swimmers.¹⁷² This remedy is only to be taken

163. *Id.* at 276.

164. *Id.* at 276-78.

165. BATTEN, *supra* note 9, at 28-29.

166. *Id.*

167. Natal Sharks Board, *History of Protection against Shark Attack*, at <http://shark.co.za/history.htm> (last visited Oct. 10, 2001).

168. *Id.*

169. *Id.*

170. *Sharks Threatening Swimmers in Australia to Be Shot Under New Government Plan*, AP, Oct. 3, 2001, available at WL 10/3/01 APWIRES 01:36:00.

171. See discussion *supra* Part IV.

172. *Id.*

as a last resort, according to a fisheries official, but allows immediate action by the officer on the scene.¹⁷³

Before the terrorist attacks of September 11th, the biggest news story in the United States in 2001 was the inordinate number of shark attacks in the eastern United States, which resulted in two fatalities.¹⁷⁴ Inevitably, a variety of theories surfaced to account for the number of shark attacks over the summer.¹⁷⁵ One theory in particular that caught the media's attention was that the protections of sharks implemented by federal and state governments had created a "sanctuary for sharks," allowing shark populations to grow immensely, thus causing an increase in shark attacks.¹⁷⁶ Sean Paige noted that the commercial shark take has been cut in half since the 1980s, and commensurately, shark attacks have risen.¹⁷⁷ Paige noted that since the implementation of the NMFS regulations, shark attacks have risen from an average of eleven annually to twenty five annually, culminating in a record thirty-four in 2000, and the near record pace of 2001.¹⁷⁸ In 2000, there were a total of seventy-nine confirmed unprovoked attacks worldwide, the largest number of attacks recorded since the International Shark Attack File began recording attacks.¹⁷⁹ The executive director of the Southeastern Fisheries Association agreed with Paige, commenting, "I've never been as frightened of going in the water as I am now."¹⁸⁰

Shark conservation groups counter that fishermen are using public fear to try to eliminate restrictions on their catch of sharks.¹⁸¹ Additionally, they argue the increase in attacks is due to the growth of the human population, especially considering a large percentage of population in-

173. *Id.*

174. See William J. Broad, *Protect Sharks? Recent Attacks Fuel Old Arguments*, N.Y. TIMES, Sept. 11, 2001, at A1; Bob Marshall, *More Humans Mean Larger Shark Problem*, TIMES-PICAYUNE, Sept. 9, 2001, 2001 WL 26201405; Jeffrey Gettleman, *The National Fishing Limit Cited in Shark Attacks Safety: The Threat is Greater Because of a 1993 Quota, A Critic Says*, L.A. TIMES, Sep. 5, 2001, 2001 WL 2515683; Seth Borenstein, *Shark Attacks Prompt Blame-Trading: Experts Calm After Fatal Shark Attacks*, AUGUSTA CHRON., Sept. 5, 2001, 2001 WL 26875700.

175. Borenstein, *supra* note 174, at A01.

176. Broad, *supra* note 174.

177. Paige, *supra* note 1.

178. *Id.*

179. International Shark Attack File, *ISAF 2000 Shark Attack Summary*, at <http://www.flmnh.ufl.edu/fish/Sharks/Statistics/2000attacksummarty.html> (last visited Oct. 12, 2001).

180. Broad, *supra* note 174.

181. *Id.*

crease occurs in coastal communities.¹⁸² Furthermore, the use of beaches and coastal areas for swimming and water-sports is increasing yearly.¹⁸³

Another theory arising from the Summer of 2001 is the increase in shark attacks is a result of flourishing "dive with the sharks" and "feed the shark" tours.¹⁸⁴ Even before the attacks of this summer, experts questioned the logic of these types of tours worldwide.¹⁸⁵ Operators of these tours lure in sharks using bloody fish or chum,¹⁸⁶ or even floating surfboards and children's toys.¹⁸⁷ The problem, according to shark expert George Burgess, is that these types of tours can alter natural shark behavior, making them associate food with human presence, thus increasing the incidence of shark attacks.¹⁸⁸ In September 2001, the Florida Fish and Wildlife Conservation Commission banned operators from using bloody bait to lure sharks close enough for their patrons to feed them. The South African government in 1998 imposed a temporary ban on shark cage tours to view Great Whites in the Dyer Island channel, because of similar concerns¹⁸⁹

Many shark conservationists strongly support limiting these types of operations. They share the concern that shark cage tours cause sharks to "lose their instinctive and natural cautiousness and fear around humans," increasing the likelihood of shark attacks.¹⁹⁰ Additionally, some view the operations as harassing the sharks; the actions of some unscrupulous operators have injured sharks.¹⁹¹ Finally, shark conservationists worry about the effect on conservation efforts should a tourist be attacked, a scenario many view as not unlikely given the operating practices of many of the dive operators.¹⁹²

182. Marshall, *supra* note 174.

183. Broad, *supra* note 174.

184. *Conservationists Fight to Corral 'Shark Rodeos'*, CNN.COM, at <http://www.cnn.com/2000/NATURE/09/06/shark.rodeo.enr/> (Sept. 6, 2000); Dana Canedy, *Florida Curbs the Operators of Popular Shark Excursions*, N.Y. TIMES, Sept. 7, 2001, at A17.

185. *Shark Tour Operators Endanger Surfers*, CNN.COM, at <http://www.cnn.com/TECH/science/9811/03.sharks.yoto/> (Nov. 3, 1998).

186. *Conservationists Fight to Corral 'Shark Rodeos'*, *supra* note 184.

187. *Shark Tour Operators Endanger Surfers*, *supra* note 185.

188. *Id.*

189. *Id.*

190. Ellen Bartlett, *A Craze for Shark-Cage Diving Has Its Dangers . . . For Sharks*, 11 SHARK NEWS (IUCN Shark Specialist Group), July 1999, at <http://www.flmnh.ufl.edu/fish/Organizations/SSG/11Newsletter/shark11news6.htm>.

191. Marcel Kroese, *Shark cage diving in South Africa—sustainable recreational utilisation?*, 11 SHARK NEWS (IUCN Shark Specialist Group), July 1998, at <http://www.flmnh.ufl.edu/fish/Organizations/SSG/11Newsletter/shark11news7.htm>.

192. Bartlett, *supra* note 190.

VI. COMPARISON WITH MARINE MAMMAL PROTECTION EFFORTS

As noted above, shark nets have created a public outcry, not because of their effect upon shark populations, but because of the many marine mammals they kill.¹⁹³ This highlights the discrepancy between efforts to protect sharks and those to protect marine mammals. Efforts to protect sharks are relatively new in the history of conservation biology. The first instance of any government protecting the Great White—one of the rarest species of shark—was April 1991.¹⁹⁴ National and international efforts to protect marine mammals, on the other hand, are more robust and have existed for decades. In 1972, the U.S. Congress passed the Marine Mammal Protection Act, which included a provision establishing a dolphin-kill standard under which *incidental* takings were to be reduced to near zero.¹⁹⁵ Internationally, the United Nations Environmental Programme (UNEP) initiated the development of a global plan of action for marine mammals in response to Governing Council decisions in 1976 and 1977.¹⁹⁶

Part of the reason for this discrepancy is simply that some mammal populations faced threats from humans earlier. Modern commercial whaling reached its peak in the 1930s,¹⁹⁷ whereas harvesting sharks, until the recent rise in demand for shark fins, has never been as systematic.¹⁹⁸ However, efforts to protect marine mammals have been partially driven by an affinity humans feel for marine mammals. For instance, UNEP noted that whales have acquired a symbolic value for people around the world.¹⁹⁹ Whales are perceived as “gentle, friendly, vulnerable yet intelligent creatures, deserving of special consideration by humans. This myth, even if much of its basis in scientifically established fact is still questionable, nevertheless supports strong political movements for the conservation of the entire group [of marine mammals].”²⁰⁰

193. Nevin, *supra* note 88.

194. Jeremy Cliff et al., *First Estimates of Mortality and Population Size of White Sharks on the South African Coast*, in GREAT WHITE SHARKS, *supra* note 7, at 393.

195. Humane Society of the United States, *Tuna-Dolphin Fact Sheet*, at http://www.hsus.org/wto/wto99_tuna.html (Nov. 1999).

196. *Marine Mammals: Draft Global Plan of Action and Financial Plan, Report of the Executive Director*, U.N. Env't Programme, UNEP/GC.12/15, available at 1984 WL 192943 [hereinafter UNEP].

197. *Id.* at 9.

198. See Klimley, *supra* note 41, at 489.

199. UNEP, *supra* note 196.

200. *Id.*

Sharks, on the other hand, have a vastly different public perception. "Sharks aren't cute, they don't nurse their young, they don't appear to 'talk' to one another, and consequently, they're hard to anthropomorphize."²⁰¹ Sharks are often characterized as "crude and mindlessly malevolent."²⁰² Fortunately, this perception appears to be changing somewhat, and sharks are becoming more valuable to humans in a non-consumptive sense. The burgeoning of shark cage tours, for all the controversy surrounding them, illustrates that people value the existence of Great Whites, just as whale-watching tours demonstrate the value of whales.²⁰³

There is no biological distinction justifying the differing conservation efforts; in fact, some of the reasons for protecting marine mammals apply to sharks, and Great Whites in particular. Great Whites, as keystone or apex predators, fill an important ecological niche (and in fact, occupy a higher trophic level than any marine mammal except Orcas).²⁰⁴ Similarly, like many marine mammals, Great Whites take many years to reach sexual maturity, and even then, produce few young.²⁰⁵ As a recent study found, Great White "population biology . . . may be more similar to that of marine mammals than to other fish."²⁰⁶

Thus, there is a significant discrepancy between efforts to protect marine mammals and sharks, including Great Whites. At least some of the discrepancy must be attributed to the differing perceptions of the two types of animals, and fear of sharks is a significant part of the differing perceptions.

VII. POLICY SUGGESTIONS

The effort to protect Great Whites must address two points. First, protecting the Great White must include a strong international component to be successful. The most viable existing means for international protection of the Great White is CITES. Despite the many drawbacks of CITES, it remains the most effective international treaty providing global protection for endangered species. Thus, in order to ensure success in protecting the Great White, those who wish to protect the Great White must attain listing for the Great White under CITES, preferably as an

201. Benchley, *supra* note 11, at 15.

202. Broad, *supra* note 174, at 50.

203. UNEP, *supra* note 196.

204. BATTEN, *supra* note 9, at 5.

205. Compagno, *supra* note 12, at 61.

206. AP, *supra* note 31.

Appendix I Species. Secondly, it appears that human fears do indeed have an effect on efforts to protect the Great White. The question is, how do these fears of Great Whites effect attempts to list Great Whites under CITES.

A. Identifying the Obstacle

The arguments used by opponents of listing the Great White under CITES were generally economic and jurisdictional in nature.²⁰⁷ As environmental groups point out, members of the fishing industry have great economic incentives to keep trade of Great White parts as unregulated as possible, and this industry has considerable influence in many of the party countries that voted against listing the Great White.²⁰⁸ Thus, advocates of Great White protection must create substantial public momentum to overcome the economic interests that challenge efforts to protect the Great White.

It is evident, however, from the history of shark attacks and the reactions of the media and governmental bodies to these attacks, that fear of shark attacks plays a significant role in the public's perception of Great Whites. Those seeking to protect any animal whose harvest presents significant economic value face an uphill battle. When a species' characteristics do not inspire a popular concern for the species or, as in this case, actually hamper it, it is more difficult to create the necessary momentum to induce government action. The Great White is not cute, is hard to anthropomorphize, and is most widely known for its occasional attacks on human beings.

One might argue because the other two sharks, the Basking Shark and the Whale Shark, whose listings were rejected at COP11, do not attack humans, this fear factor played no role at CITES. However, my argument is not that governments and international bodies decide against protecting Great Whites because they sometimes kill people. As CITES shows, the major reasons cited are usually economic ones. Rather, my argument is that in order to defeat economic interests, there will need to be substantial public involvement and interest, and fear of sharks may prevent these from occurring. The fact that two harmless sharks were not protected in CITES does not necessarily mean that human fears played no role; economic interests may be strong enough to win regardless of the characteristics of the species at issue. Moreover, it is likely

207. See discussion *supra* Part IV.C.3.

208. See Kieran Murray, *Bad News for Sharks at CITES*, REUTERS, Apr. 18, 2000, available at <http://www.igc.apc.org/igc/en/hl/10004204076/hl3.html>.

that many people do not distinguish between different species of sharks. The Great White, of course, is infamous. Most people, however, probably know very little about the Basking Shark or the Whale Shark (although the latter may have more public awareness as it is the world's largest fish). Likewise, the negative association of the word "shark" likely attaches to even harmless species such as these. Finally, it should be noted that the Basking shark missed the required two-thirds majority vote by a very slim margin, smaller than that of the Great White.²⁰⁹

B. Overcoming the Obstacle

Despite the parties' decision to reject listing for the Great White, it is politically possible to protect the Great White, as several countries around the world have shown.²¹⁰ As a success story, an account of the enactment of California Assembly Bill (AB) 522, the first legislation aimed specifically at protecting Great Whites in the United States, is instructive. The bill's proponents realized from the beginning that a major concern was overcoming the fact they were attempting to protect "the supreme hunter-killer; . . . one of the few animals on Earth that we fear can—or worse, *will*—eat us."²¹¹ Initially, even the eventual sponsor of the bill, an avid sports diver, "needed some convincing to pass a bill to protect white sharks."²¹² The proponents believed that "passing a law to protect an animal best known in the public's mind for killing and eating people would require broad support and negligible opposition."²¹³ To accomplish this, the proponents relied on two prongs: (1) they marshaled a wide variety of arguments to appeal to different constituencies, and (2) they consulted everybody who would be effected by the legislation, both those who would be expected to support it and those who would be expected to oppose it.²¹⁴

An important component of the campaign to pass AB 522 was educating the public, or as a proponent phrased it, "get[ing] past the '*Jaws*' mentality."²¹⁵ The proponents attempted to overcome the public's dis-

209. Sarah Fowler & Rachel Cavanagh, *CITES Update*, 13 SHARK NEWS (IUCN Shark Specialist Group), July 2001, at <http://www.flmnh.ufl.edu/fish/Organizations/SSG/13Newsletter/shark13nes18.htm>.

210. Benchley, *supra* note 11, at 12.

211. Burr Heneman & Marci Glazer, *More Rare Than Dangerous: A Case Study of White Shark Conservation in California*, in GREAT WHITE SHARKS, *supra* note 7, at 481.

212. *Id.*

213. *Id.* at 482.

214. *Id.*

215. *Id.* at 487.

proportionate fear of Great Whites by pointing out that the annual number of attacks in California was low; people can reduce the chances of being attacked by acting sensibly and not putting themselves in situations where they are more likely to be attacked, and more people are killed by, among other things, lightning, bee stings, and pigs than Great Whites.²¹⁶ They were successful in their efforts. Two months before the bill passed, a Great White nonfatally attacked an abalone diver in the sponsor's district, but the sponsor never wavered and the bill passed.²¹⁷

An important factor behind the success of AB 522, however, is that the bill threatened no one's economic interest. First of all, California had no existing fishery that targeted Great Whites.²¹⁸ More importantly, fishermen in California were very concerned with burgeoning sea lion populations which competed with them for fish. Since Great Whites often prey on sea lions, the fishermen saw the Great White as an ally, and supported AB 522.²¹⁹ Thus, listing the Great White under CITES, where there are significant economic interests in opposition to the listing, will require more public support and activism than AB 522 did.

On an optimistic note, victims who survive an attack by Great Whites often become advocates for their preservation. The best example of this is Australian Rodney Fox. A Great White attacked Fox during a spearfishing tournament with such violence that Fox required 462 stitches.²²⁰ Since the attack, Fox has dedicated his life to studying and protecting the Great White, and is one of the pre-eminent voices in Great White conservation.²²¹ Likewise, the sponsor of AB 522 received a letter of support for the bill from a surfer who had been mauled by a Great White.²²² If people who have actually been attacked by Great Whites can overcome their fear and support conservation, surely the rest of us can.

VIII. CONCLUSION

In conclusion, human fear of the Great White likely plays a significant role, albeit indirectly, in hampering efforts to protect it. Those seeking to preserve the Great White, therefore, must work diligently to change public attitudes regarding the species. Only by changing the pub-

216. *Id.*

217. *Id.* at 490.

218. *Id.* at 489.

219. *Id.* at 486.

220. Benchley, *supra* note 11, at 12.

221. *Id.*

222. Heneman & Glazer, *supra* note 211, at 485.

lic's reaction to the Great White from fear and loathing to awe and respect, will the most feared predator in the ocean stand a chance.