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Save Our Sharks: Using International Fisheries Law within Regional Fisheries Management Organizations to Improve Shark Conservation

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STUDENT NOTE

SAVE OUR SHARKS: USING INTERNATIONAL FISHERIES LAW WITHIN REGIONAL FISHERIES MANAGEMENT ORGANIZATIONS TO IMPROVE SHARK CONSERVATION

*Stijn van Osch**

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INTRODUCTION

Like many fish, sharks are facing unprecedented overfishing. They have been targeted both directly for their fins and caught accidentally (bycaught) in, for instance, tuna fisheries. This has led to collapsing stocks around the world.¹ Overfishing has led to what has been termed a mass extinction among ocean species,² and sharks are no exception—they are in fact especially vulnerable. As a result, many species of sharks are now listed on the Red List of the International Union for Conservation of Nature (IUCN).³

This problem can only be tackled through coordinated, cooperative action by all states. This Note explores one avenue through which states can cooperate: Regional Fisheries Management Organizations, or RFMOs. Although RFMOs have many members, this Note will focus on the United States and the European Union. Both are major powers and participants in many of the world's RFMOs,⁴ and both have the potential to strongly impact shark conservation. The United States is particularly relevant as it has jurisdiction over a larger area of the world's oceans than any other nation, and thus can more effectively implement and complement the RFMOs' ocean

1. See, e.g., Nicholas K. Dulvy et al., *You Can Swim but You Can't Hide: The Global Status and Conservation of Oceanic Pelagic Sharks and Rays*, 18 AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 459, 471 (2008) (finding sixteen out of twenty-one elasmobranchs surveyed, including several sharks, to be endangered); see also Mark D. Evans, Comment, *Shark Conservation: The Need for Increased Efforts to Protect Shark Populations in the Twenty-First Century*, 10 PENN ST. ENVTL. L. REV. 13, 14 (2001) (noting that “many shark species have been and are being depleted at alarming rates”).

2. John C. Kunich, *Losing Nemo: The Mass Extinction Now Threatening the World's Ocean Hotspots*, 30 COLUM. J. ENVTL. L. 1, 4 (2005) (“Mass extinction has left emptiness in the once crowded waters.”). For more recent literature, see, for example, SHARKS OF THE OPEN OCEAN: BIOLOGY, FISHERIES AND CONSERVATION, at xxxii–xxxiii (Merry D. Camhi et al. eds., 2008).

3. *The IUCN Red List of Threatened Species*, INT'L UNION FOR CONSERVATION OF NATURE [IUCN], <http://www.iucnredlist.org> (last visited Jan. 25, 2012). The list, updated several times a year, lists all known species and whether their population status is of concern. A search for the keyword *shark* shows that many are vulnerable or near threatened, with a decreasing population trend.

4. They are both members of the four RFMOs surveyed here, *infra* Part III.B, and of the Antarctic RFMO. Additionally, the European Union is a member of almost every major RFMO.

conservation efforts through domestic legislation.⁵ Because many sharks are highly migratory species and travel readily between national waters and the high seas,⁶ unilateral policy making can only be of limited effect; the United States, the European Union (E.U.), and every other nation must cooperate within RFMOs and other relevant international organizations to protect these species.

International law is an important tool in fostering international cooperation, especially when states must share living resources such as migratory species.⁷ Sharks fall under several international regimes,⁸ including the international fisheries regime. The most important development in the international fisheries regime has been the establishment of the regional fisheries organizations that feature prominently in this Note.⁹ This Note thus focuses on several Atlantic and Pacific Ocean regional organizations and their institutional frameworks, particularly those covering the U.S. exclusive economic zone (EEZ).¹⁰ While these organizations have the potential to have a significant positive impact on shark conservation, improvement of the institutions themselves—and of the fisheries regime at large—are necessary to realize such an impact.

Part I discusses some important background issues, including the reasons why sharks should be protected, the particular problems facing sharks, and unilateral steps the United States has already taken to protect them. Part II reviews how international law is relevant to shark conservation, and which regimes provide options to promote conservation. Part III analyzes the fisheries regime more specifically, examining the role RFMOs play and the interactions between international and domestic fisheries laws. This analysis shows that while fisheries organizations have taken some steps towards

5. See Mary Turnipseed et al., *The Silver Anniversary of the United States' Exclusive Economic Zone: Twenty-Five Years of Ocean Use and Abuse, and the Possibility of a Blue Water Public Trust Doctrine*, 36 *ECOLOGICAL L.Q.* 1, 3, 34 (2009).

6. See ANA BARREIRA, *THE PROTECTION OF SHARKS: A LEGAL AND POLICY ANALYSIS* 11–12 (2007), available at <http://www.iidma.org/privado/Archivos/ReportSharksApril2007.pdf>.

7. States have recognized this. For instance, it has been noted in the preamble of an important migratory species conservation treaty that “conservation and effective management of migratory species of wild animals require the concerted action of all [range states].” Convention on the Conservation of Migratory Species of Wild Animals pmbl., June 23, 1979, 1651 U.N.T.S. 356 [hereinafter CMS].

8. International environmental regime theory, as explained by PATRICIA BIRNIE ET AL., *INTERNATIONAL LAW AND THE ENVIRONMENT* 84–98 (3d ed. 2009), provides some background to the realities of international regimes such as the fisheries regime. Important regimes for sharks include the wildlife conservation regime and, since shark fins are traded worldwide, the world trade regime. See *infra* Part II.B.

9. See BIRNIE ET AL., *supra* note 8, at 711–14. Highly migratory species, including sharks, were considered to be an important category of species requiring management. See *id.* at 722 (noting that several shark species are included on Annex I of the U.N. Convention on the Law of the Sea).

10. The EEZ is the part of the ocean extending up to 200 nautical miles off a state's coast, over which a state has exclusive jurisdiction in respect to natural resources, including fish. See *infra* note 150 and accompanying text.

improved shark management, much more work is needed. This Note concludes that RFMOs have the potential to impact shark conservation positively if states push for increased shark management within these organizations. Additionally, major nations can back up the international regimes with strong domestic conservation measures to ensure that sharks are conserved for future generations.

I. BACKGROUND

A. *Reasons to Protect Sharks*¹¹

There are many reasons to protect sharks, but they can be divided into roughly four categories: present practical value, potential future value, intangible value, and moral duty.¹²

Sharks are resources of high value to any country. They are sought after in international trade as food¹³ and are used in medical and other research.¹⁴ Valuable shark tourism, including viewing and recreationally fishing for sharks, is increasing.¹⁵ Discovery Channel's *Shark Week* is watched by mil-

11. The analysis in this Section is based on John Charles Kunich, *The Fallacy of Deathbed Conservation Under the Endangered Species Act*, 24 ENVTL. L. 501, 522-28 (1994).

12. *Id.* While most authors do not use such a formal framework to analyze conservation problems, it is a useful way to categorize the various reasons for shark conservation, and it may be a useful tool for policy making. See Gregory N. Mandel, *Toward a Better Decisionmaking Process: Finding the Truth in Policy and Removing False Science*, 15 TEMP. ENVTL. L. & TECH. J. 65, 73-74 (1996) (arguing that good policy making should include consideration of all four of the values that Kunich mentions, since they reflect a variety of important values beyond science and economics).

13. Shark flesh and especially shark fins, for the well-known shark fin soup, have become more valuable as other fisheries have declined in yield. Merry D. Camhi et al., *A Global Overview of Commercial Fisheries for Open Ocean Sharks*, in SHARKS OF THE OPEN OCEAN: BIOLOGY, FISHERIES AND CONSERVATION, *supra* note 2, at 166, 167. While the United States is by no means the biggest shark trading country in the world, trade in sharks and shark parts is worth several millions of U.S. dollars each year. See NAT'L MARINE FISHERIES SERV. [NMFS], FINAL AMENDMENT 3 TO THE CONSOLIDATED ATLANTIC HIGHLY MIGRATORY SPECIES FISHERY MANAGEMENT PLAN 3-94 to -95 (2010) [hereinafter AMENDMENT 3], available at http://www.nmfs.noaa.gov/sfa/hms/FMP/AM3_FEIS/Total_A3_FEIS.pdf.

14. Fifteen years ago, scientists had just started to discover that a shark "has an arsenal of molecules (and functions) in its immune system." Martin F. Flajnik, *The Immune System of Ectothermic Vertebrates*, 54 VETERINARY IMMUNOLOGY & IMMUNOPATHOLOGY 145, 147 (1996). Researchers are now finding ways to use shark immunology to fight disease, and use unique shark proteins for a wide variety of applications, including biowarfare agents or pollution detectors. *Sharks Could Save Lives*, ECOS MAG., Nov.-Dec. 2004, at 35, available at http://www.ecosmagazine.com.au/?act=view_file&file_id=EC122p35.pdf.

15. Rick Gaffney, *Tourism and Jaws*, Pac. Fisheries Coal. Shark Conference 2000, Honolulu, Haw., Feb. 21-24, 2000 (Online Documents), <http://www.pacfish.org/sharkcon/documents/gaffneyr.html> (listing several popular places for shark game fishing and watching in the United States). In 2010, the Maldives and Palau closed their shark fisheries entirely as sharks were worth more for tourists than when caught. Matthew O. Berger, *U.S. Finning Ban*

lions of people every year.¹⁶ A study in Palau recently found that a live shark's value as a tourist attraction can be nearly \$2 million.¹⁷ Severe depletion or extinction would shut the door on these varied uses of sharks and prevent discovery of any other uses sharks might have.¹⁸ Furthermore, sharks as apex predators play an important role in preserving marine ecosystem balance.¹⁹ This gives them present practical value, and, for instance, as medical research continues, we discover that sharks hold much potential future value as well.

Unsustainable fisheries have cost the world about \$2.2 trillion over three decades—about \$50 billion in 2004 alone.²⁰ Individual nations may be particularly affected if their waters contain many sharks. For instance, since the United States has the largest EEZ in the world,²¹ it stands to lose much if unsustainable fishing of valuable resources such as sharks continues, both in its own waters and in adjacent international waters.²²

Beyond these economic reasons to preserve sharks, a sense of religious or moral duty to preserve sharks—often called stewardship—could play a role for some people in deciding conservation is important.²³ The destruction of “our fellow passengers on this planet” is something that many people oppose on ethical grounds, even though it might make short-term economic sense to hunt a species to extinction.²⁴ Similarly, the intangible aesthetic

Caps Busy Year for Shark Conservation, IPS NEWS, Dec. 22, 2010, available at <http://www.ipsnews.net/news.asp?idnews=53936>.

16. James Hibbard, *Discovery's Shark Week Gets Strong Start*, REUTERS, Aug. 4, 2010, available at <http://www.reuters.com/article/idUSTRE6740CE20100805>.

17. David Jolly, *Priced Off the Menu? Palau's Sharks Are Worth \$1.9 Million Each, a Study Says*, N.Y. TIMES, May 2, 2011, http://www.nytimes.com/2011/05/02/science/earth/02shark.html?_r=1.

18. See Kunich, *supra* note 11, at 527 (“Extinction shuts doors and deprives us forever of the option to discover value in that which we previously found valueless.”).

19. RACHEL CUNNINGHAM-DAY, SHARKS IN DANGER: GLOBAL SHARK CONSERVATION STATUS WITH REFERENCE TO MANAGEMENT PLANS AND LEGISLATION 15 (2001); see also Patrick Goddard, *Sharks: The Ocean's Oldest Predators*, ENVTL. GRAFFITI, <http://www.environmentalgraffiti.com/news-sharks-are-some-most-important-predators-our-planet> (last visited Jan. 25, 2012) (explaining how sharks, by preying on plankton feeders, ensure phytoplankton remains abundant, in turn affecting the world's oxygen supply).

20. WORLD BANK, *THE SUNKEN BILLIONS: THE ECONOMIC JUSTIFICATION FOR FISHERIES REFORM 41* (2009), available at <http://siteresources.worldbank.org/EXTARD/Resources/336681-1224775570533/SunkenBillionsFinal.pdf>.

21. Turnipseed et al., *supra* note 5, at 3.

22. The U.S. EEZ contains many different kinds of sharks; seventy-three species are known to inhabit the Atlantic coastal waters alone. AMENDMENT 3, *supra* note 13, at 3-16. As recently as 2006, a new species of shark was discovered off the coast of South Carolina, underscoring the fact that we cannot even fully comprehend how much we stand to lose if overfishing continues unchecked. *New Shark Discovered in US Waters*, BBC NEWS (June 10, 2006, 12:28 PM), <http://news.bbc.co.uk/2/hi/5065510.stm>.

23. See Jacques A.A. Swart et al., *Valuation of Nature in Conservation and Restoration*, 9 RESTORATION ECOLOGY 230, 232 (2001).

24. Mandel, *supra* note 12, at 74.

value of sharks could be a good reason for others to promote conservation.²⁵ The beauty of nature, including creatures such as sharks, is not easily quantified, but for many people preserving such beauty is worth the conservation effort.²⁶

B. Shark Characteristics and Conservation Problems

The unique characteristics of sharks make them extremely vulnerable to the most widespread problems in fisheries. Threats to sharks and other fish worldwide include climate change—leading to ocean acidification and sea level changes, invasive alien species, and ozone depletion.²⁷ Although impacting all fish generally, sharks are also particularly vulnerable to overfishing and habitat destruction,²⁸ which has resulted in a sharp decline in shark populations worldwide, many of which are not showing signs of recovery.²⁹ Sharks also have to deal with a unique problem: finning. Because conservation law is aimed at preventing the sharp population declines that ultimately lead to extinction, and fisheries law is aimed at sustainable use rather than population destruction, it is useful to understand the underlying causes of population decline in sharks.

1. Overfishing and Bycatch

Overfishing is a widespread problem in fisheries management; many fish stocks are suffering from collapsing populations because of high fishing pressure.³⁰ Some sharks, such as porbeagle and spiny dogfish, are or have been targeted stocks.³¹ Fish stocks that are not targeted, however, still suffer from bycatch mortality. Bycatch occurs when vessels fishing for other fish accidentally catch nontarget species, often leading to the death of the non-

25. Swart et al., *supra* note 23, at 232–33. Aesthetic values are partly economized when people pay for viewing sharks, as in shark tourism or documentaries like Discovery Channel's *Shark Week*.

26. See Mandel, *supra* note 12, at 74.

27. See Ashley L. Erickson, *Out of Stock: Strengthening Fisheries Regulations to Achieve a Healthier Ocean*, 34 N.C. J. INT'L L. & COM. REG. 281, 285–86 (2008).

28. See, e.g., Dulvy et al., *supra* note 1, at 471–72 (identifying overfishing and finning as the main threats).

29. Merry D. Camhi et al., *Domestic and International Management for Pelagic Sharks*, in SHARKS OF THE OPEN OCEAN: BIOLOGY, FISHERIES AND CONSERVATION, *supra* note 2, at 418, 419.

30. See CHARLES CLOVER, *THE END OF THE LINE: HOW OVERFISHING IS CHANGING THE WORLD AND WHAT WE EAT* 3 (2006).

31. Sarah Fowler et al., Bundesamt für Naturschutz [BfN] [Fed. Agency for Nature Conservation] (Ger.), *Trade in and Conservation of Two Shark Species, Porbeagle (Lamna nasus) and Spiny Dogfish (Squalus acanthias)* 12, 19, CITES CoP13 Inf. 16 (2004), available at <http://www.cites.org/eng/cop/13/inf/index.shtml> (prepared for the Thirteenth Conference of the Parties, Convention on International Trade in Endangered Species of Wild Fauna and Flora, Bangkok, Thai., Oct. 2–14, 2004).

target animal.³² Many oceanic shark species are bycatch in other fisheries, such as tuna fisheries.³³

Generally, sharks have the same characteristics as other apex predators: they produce few offspring and grow slowly.³⁴ Their overall population numbers, lifespan, and natural survival rate are also characteristics that contribute to their unique vulnerability. Sharks' low fecundity means that they are extremely vulnerable to overexploitation and, in fact, many populations have seen rapid population declines because of unmanaged overfishing.³⁵

The deeper causes of the overfishing problem are well known in general fisheries management: overcapacity; subsidies; and illegal, unreported, and unregulated (IUU) fishing.³⁶ These problems are all related. Because fisheries were highly profitable, more and bigger vessels started fishing, leading to overcapacity as fishermen wanted to increase their individual shares.³⁷ Under political pressure, governments have provided subsidies to fishermen to enable them to continue fishing.³⁸ Without subsidies, fishing is very unprofitable; it has been estimated that fishing efforts cost about one and one-half times more than the catch is actually worth.³⁹ Vessels that do not receive enough legal opportunities can often continue to fish illegally. Despite the high cost of fishing, some of it—including shark fishing—can remain profitable, especially when government subsidies end up in illegal

32. See, e.g., LEE A. KIMBALL, INTERNATIONAL OCEAN GOVERNANCE: USING INTERNATIONAL LAW AND ORGANIZATIONS TO MANAGE MARINE RESOURCES SUSTAINABLY 55 (2003) (noting that about one-third of global fish catch is bycatch). Bycatch also affects non-fish animals such as turtles and seabirds. *Id.*

33. BARREIRA, *supra* note 6, at 5.

34. *Id.* at 4; see also Michael J. Barker & Vera Schluessel, *Managing Global Shark Fisheries: Suggestions for Prioritizing Management Strategies*, 15 AQUATIC CONSERVATION: MARINE & FRESHWATER ECOSYSTEMS 325, 326, 335–36 (2005) (noting that these traits are common in “K-selected species” and comparing sharks to marine mammals).

35. See Elizabeth Griffin, Oceana Inc., *Position Paper on Sea Turtle and Shark Bycatch in Tuna RFMOs 2* (June 2010), available at <http://www.tuna-org.org/Documents/Aus/ngo/Oceana%20Views%20Paper-ENG.pdf> (prepared for the Kobe II Bycatch Workshop, Brisbane, Austl., June 23–24, 2010).

36. See Bertrand Le Gallic & Anthony Cox, *An Economic Analysis of Illegal, Unreported and Unregulated (IUU) Fishing: Key Drivers and Possible Solutions*, 30 MARINE POL'Y 689, 690 (2006) (“Overcapacity, ineffective management and subsidies are identified as three of the major economic causes of IUU fishing.”); see also Olav S. Stokke & Davor Vidas, *Regulating Fishing or Combating IUU Operations?*, in FISH PIRACY: COMBATING ILLEGAL, UNREPORTED AND UNREGULATED FISHING 19, 31 (OECD ed., 2004).

37. This is a typical example of what economic theory calls the tragedy of the commons, and fisheries management has unfortunately had little success in halting this development. See Eric A. Bilsky, *Conserving Marine Wildlife Through World Trade Law*, 30 MICH. J. INT'L L. 599, 609–10 (2009). The original author who coined the term “tragedy of the commons” in the 1960s, Garrett Hardin, already predicted that open-access ocean fishing would lead to extinction. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1245 (1968).

38. Bilsky, *supra* note 37, at 618–19.

39. KIMBALL, *supra* note 32, at 54.

fishermen's hands.⁴⁰ In countries where enforcement is weak, IUU fishing is easy, less costly, and more profitable.⁴¹

Fish around the world suffer from overfishing because of weak enforcement and perverse incentives⁴² and sharks are no exception. However, because of their unique characteristics, sharks are exceptionally vulnerable and should be a priority when solving these larger fisheries problems.⁴³

2. Finning

Bycatch by itself does not have to be deadly; in fact, the survival rate for many sharks is relatively high if they are released unharmed.⁴⁴ However, fishermen who accidentally catch sharks often cut off the shark's fins and discard the carcass, as fins have the highest economic value and take up much less storage space.⁴⁵ Shark fins are popular in Asia, especially China,⁴⁶ as an ingredient in shark fin soup. As a result, the shark fin trade has become a billion-dollar industry.⁴⁷

40. See Le Gallic & Cox, *supra* note 36, at 690–91.

41. See *id.*

42. See Bilsky, *supra* note 37, at 610.

43. See MERRY D. CAMHI ET AL., THE CONSERVATION STATUS OF PELAGIC SHARKS AND RAYS: REPORT OF THE IUCN SHARK SPECIALIST GROUP PELAGIC SHARK RED LIST WORKSHOP 38 (2009) (“Because fishing pressure on many already depleted shark species will likely continue to grow, it is critical that conservation efforts are accelerated.”). This Note is too short to offer solutions to the world's fishery problems, and will focus instead on the more immediate protection sharks need and how it can be achieved. In the long term, overcapacity and IUU fishing need to be addressed if shark population recovery is to be sustainable. See *id.* at 39. The international community is slowly working on addressing these issues; for instance, the U.N. Food and Agriculture Organization (FAO) has two voluntary plans of action to address both problems. See FAO, INTERNATIONAL PLAN OF ACTION FOR THE MANAGEMENT OF FISHING CAPACITY (1999); FAO, INTERNATIONAL PLAN OF ACTION TO PREVENT, DETER AND ELIMINATE ILLEGAL, UNREPORTED AND UNREGULATED FISHING (2001) [hereinafter IPOA-IUU], available at <http://www.fao.org/docrep/003/y1224e/y1224e00.htm>.

44. See Fowler et al., *supra* note 31, at 26 (noting the spiny dogfish bycatch survival rate can be good). Observer data from one fishery shows that the rate of sharks caught alive, which can then presumably be released alive, can be over ninety percent for certain species. MARY LACK & GLENN SANT, TRAFFIC, TRENDS IN GLOBAL SHARK CATCH AND RECENT DEVELOPMENTS IN MANAGEMENT 18 (2009).

45. BARREIRA, *supra* note 6, at 5. Fins can sell for more than \$700 per kilogram; a basking shark fin can sell for up to \$10,000. SONJA V. FORDHAM, SHARK ALLIANCE, SHARK ALERT: REVEALING EUROPE'S IMPACT ON SHARK POPULATIONS 4 (2006). Even if the shark is still alive when it is thrown back after the finning, it cannot survive without its fins, as it needs to stay in motion to breathe. Jessica Spiegel, *Even Jaws Deserves to Keep His Fins: Outlawing Shark Finning Throughout Global Waters*, 24 B.C. INT'L & COMP. L. REV. 409, 410 (2001).

46. *Scientists Trace Shark Fin Trade*, NTDTV.COM (Dec. 2, 2009), http://english.ntdtv.com/ntdtv_en/ns_china/2009-12-02/716100898068.html.

47. *Id.*; see also Camhi et al., *supra* note 13, at 67 (“[I]ncreasing demand and prices paid for fins . . . may help explain stable or ongoing growth in global shark catches despite local population depletions.”).

Because bycaught sharks are often finned, at least in waters where a finning ban is not in place,⁴⁸ the line between targeted fisheries and bycatch is blurred. In some fisheries more sharks than the species ostensibly targeted are caught.⁴⁹ The practice of finning accidentally caught sharks has been particularly destructive and has received much attention in academic literature, in politics, and from environmental nongovernmental organizations.⁵⁰

3. Habitat Destruction

Shark habitats, which include pupping and juvenile grounds, are easily disturbed by the various types of fishing gear that many vessels use.⁵¹ Heavy bottom trawls are particularly harmful: they are essentially large nets dragged along the ocean floor that disturb everything in their paths, including fragile ecosystems.⁵² Terrestrial development, including coastal construction and tourism, also affects shark habitat.⁵³ Such habitat destruction only exacerbates the pernicious effects of overfishing and is a separate problem that needs addressing.

C. Current Domestic Policies

Several countries already have domestic shark conservation measures in place, though not all of them are equally effective. The following brief, non-exhaustive overview focuses on several domestic fishing initiatives. These measures illustrate the breadth of approaches countries have taken in trying to protect sharks—though it should not be forgotten that many countries still lack any protective measures.⁵⁴

1. The United States

The United States is a major shark-fishing nation, and its main use of sharks is the consumption of mostly bycaught shark meat domestically.⁵⁵ Though the U.S. commercial market for sharks is relatively small, it is still a multimillion dollar industry that has seen a decline in recent years because

48. See *infra* Part I.C for a discussion on the U.S. shark finning ban.

49. *Shark Bycatch*, OCEANA, <http://na.oceana.org/en/our-work/protect-marine-wildlife/sharks/learn-act/shark-bycatch> (last visited Oct. 27, 2011).

50. See, e.g., Spiegel, *supra* note 45, at 432–35; see also AMENDMENT 3, *supra* note 13, at 3–8 to –12 (showing that several states have banned finning).

51. CAMHI ET AL., *supra* note 43, at 8.

52. Kunich, *supra* note 2, at 26. Bottom trawls are increasingly being banned because of this impact. See MARINE CONSERVATION BIOLOGY INST., WHAT IS A BOTTOM TRAWL? (2005), available at http://www.mcibi.org/what/what_pdfs/What_%20is_a_Bottom_Trawl.pdf.

53. Barker & Schluessel, *supra* note 34, at 336.

54. See, e.g., Camhi et al., *supra* note 29, at 421–22 (listing all the nations with shark finning regulations, amounting to only twenty-one countries plus the European Union).

55. Camhi et al., *supra* note 13, at 177–78. There is some targeted shark fishing, but most sharks in U.S. waters are caught as bycatch. *Id.* at 182.

of overfishing.⁵⁶ The recreational fishing industry is a *multibillion* dollar industry, and many saltwater fishermen target sharks.⁵⁷ Estimates used by the National Marine Fisheries Service (NMFS) show the recreational catch to be in the hundreds of thousands of sharks, though most of them are coastal sharks generally in less danger from international overfishing.⁵⁸ The United States therefore has an interest in preserving shark resources—both coastal and migratory—to ensure continued economic return.

Sharks are a fisheries resource, and thus fall under the purview of the Magnuson-Stevens Act, the main U.S. fisheries law.⁵⁹ The federal government has jurisdiction over highly migratory species in the Atlantic and may devise fisheries management plans for those species.⁶⁰ Since “oceanic sharks” are considered highly migratory species,⁶¹ the federal government has devised shark management plans through the NMFS.⁶² Management of Pacific sharks has been left to the states acting within regional fisheries councils. One example is the Pacific Fishery Management Council, which manages many fish species in West Coast waters, including sharks.⁶³

56. AMENDMENT 3, *supra* note 13, at 3-80 to -84.

57. *See id.* at 3-57, 3-85 to -88.

58. *Id.* at 3-59. Recreational fishing represented almost thirty-six percent of small coastal shark catches in 2008. *Id.* at 3-66.

59. Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1801–1884 (2011). Section 1801(a)(1) makes clear that Congress considers all fish, both those off the coast and highly migratory species, to be valuable resources. *See id.* § 1801(a)(1).

60. *See id.* §§ 1852(a)(3), 1854(g) (noting that the Secretary of Commerce shall manage highly migratory Atlantic stocks).

61. Under § 1802(21), highly migratory stocks are defined to include oceanic sharks. *Id.* § 1802(21). The term “oceanic sharks” often refers to only open ocean, or pelagic sharks. *See Camhi et al., supra* note 29, at 418, 419. However, the federal Consolidated Atlantic Highly Migratory Species Fishery Management Plan (FMP) includes management of coastal sharks as well. AMENDMENT 3, *supra* note 13, at v; *see also id.* at D-40 (discussing whether smooth dogfish are “oceanic shark[s]”).

62. The latest revision of the federal FMP was promulgated in March 2010. *See* AMENDMENT 3, *supra* note 13, at 1-1.

63. The Pacific Fishery Management Council manages sharks in a specific Highly Migratory Species FMP. *See* PAC. FISHERY MGMT. COUNCIL, FISHERY MANAGEMENT PLAN FOR U.S. WEST COAST FISHERIES FOR HIGHLY MIGRATORY SPECIES: AS AMENDED BY AMENDMENT 1, at 27–30 (2007) [hereinafter PACIFIC FMP], available at http://www.pcouncil.org/wp-content/uploads/HMS_FMP_Aug09.pdf.

Western Pacific shark fisheries (around Hawaii, Guam, and American Samoa) are managed in a Pelagic FMP, most recently amended in March 2009. *See* W. PAC. REG'L FISHERY MGMT. COUNCIL, AMENDMENT 18 TO THE FISHERY MANAGEMENT PLAN FOR PELAGIC FISHERIES OF THE WESTERN PACIFIC REGION 4–10 (2009), available at <http://www.wpcouncil.org/pelagic/Documents/FMP/Amd%2018.pdf>.

Northern Pacific sharks are principally managed as bycatch under the Groundfish FMPs, although this may change in the near future. *See* N. PAC. FISHERY MGMT. COUNCIL, DRAFT ACTION PLAN TO REVISE MANAGEMENT OF SHARKS AND SCULPINS IN THE GROUND FISH FMPs FOR THE BERING SEA/ALEUTIAN ISLANDS AND GULF OF ALASKA (2009), available at http://www.fakr.noaa.gov/npfmc/PDFdocuments/conservation_issues/Non%20Target/SharksSculpinsActionPlan_Jun09.pdf.

All of the relevant plans contain various shark conservation measures.⁶⁴ Although they are not perfect (for example, the final measures in the most recent federal plan are much weaker than the originally proposed measures),⁶⁵ these plans do show that the United States takes shark management seriously. At the end of 2010, Congress showed that shark conservation is still on the agenda when it passed a bill to close a loophole that existed in the law banning shark finning.⁶⁶ Individual states also have a variety of shark protection laws in place, mainly applicable to coastal shark fisheries within state waters.⁶⁷

2. The European Union

The E.U. member states' combined fishing fleets have a significant impact on Atlantic fish stocks.⁶⁸ In fact, because European vessels operate everywhere, "the EU is possibly the world's largest shark fishing entity."⁶⁹ All fisheries, including sharks, fall under the Common Fisheries Policy

64. See, e.g., AMENDMENT 3, *supra* note 13, at v (establishing a quota for several Atlantic sharks); PACIFIC FMP, *supra* note 63, at 97–98 (describing measures aimed at protecting essential fish habitat, including shark habitat).

65. As with many regulations, the agencies responsible receive many comments from organizations that believe the rules should be stricter or less strict. See, e.g., AMENDMENT 3, *supra* note 13, at D-20. The federal FMP became notably less strict between the proposed and final measures, not implementing some proposed stricter quotas and gear restrictions. *Id.* at v.

66. The original shark finning ban was contained in the Shark Finning Prohibition Act, Pub. L. No. 106-557, sec. 3, § 307(1), 114 Stat. 2772, 2772 (2000) (amending the Magnuson-Stevens Fishery Conservation and Management Act) (codified at 16 U.S.C. § 1857(1)(P) (2000)). The new bill amended this section at the end of 2010. Shark Conservation Act of 2010, Pub. L. No. 111-348, sec. 103(a), § 307(1), 124 Stat. 3668, 3670 (2010) (amending the Magnuson-Stevens Fishery Conservation and Management Act) (codified at 16 U.S.C. § 1857(1)(P) (2011)).

67. See AMENDMENT 3, *supra* note 13, at 3-8 to -12 (listing various state measures). One of the most recent measures is the State of Washington's banning of the shark fin trade. Emily Fisher, *Victory for Sharks in Washington State*, OCEANA (May 13, 2011), http://na.oceana.org/en/blog/2011/05/victory-for-sharks-in-washington-state?utm_source=facebook&utm_medium=social&utm_campaign=sharks. California's legislature also passed a ban prohibiting the possession or sale of shark fins, making it the largest economy in the world to fully ban finning. Bettina Wassener, *Shark-Fin Vote Adds Pressure on Hong Kong*, N.Y. TIMES GREEN BLOG (Sept. 12, 2011, 12:48 PM), <http://green.blogs.nytimes.com/2011/09/12/shark-fin-vote-adds-to-pressure-on-hong-kong/>. With the bill now signed into law, most of the Pacific states and Guam have finning bans in place. *California: Governor Signs Ban on Shark Fins*, N.Y. TIMES, Oct. 8, 2011, <http://www.nytimes.com/2011/10/08/us/california-governor-signs-ban-on-shark-fins.html>.

68. See *Commission Green Paper on Reform of the Common Fisheries Policy*, at 5–6, COM (2009) 163 final (Apr. 22, 2009) [hereinafter *Commission Green Paper*] (showing that the impact of decades of overfishing in Europe has been huge, and that many fish stocks in European waters are overfished).

69. *Commission Public Consultation on the Amendment of Council Regulation (EC) 1185/2003 on the Removal of Fins of Sharks on Board Vessels*, at 5 (Nov. 19, 2010) [hereinafter *Commission Public Consultation*], available at http://ec.europa.eu/fisheries/partners/consultations/shark_finning_ban/consultation_document_en.pdf.

(CFP).⁷⁰ Under the CFP, the European Council sets catch limits, commonly known as total allowable catches (TACs), for all regulated species.⁷¹ In more recent years, shark fishing has been increasingly restricted, and fishing for some shark species is banned entirely.⁷² These developments have been partly driven by the work of the RFMOs of which the European Union is a member.⁷³

Although the CFP has improved over the years, historically the CFP has not been well regarded by environmentalists or academics.⁷⁴ The main problem with the policy lies in its political infrastructure. Many European countries have large fleets, and all want to have a large share in the fisheries resources.⁷⁵ Because catch limits are set through political negotiations dominated by short-term interests, this has led to overfishing.⁷⁶ Sharks in European waters have also suffered both as targeted species and as by-catch.⁷⁷ As a result of continuing criticism and declining fish stocks, the European Union has started a reform process that resulted in a flurry of documents and debate in 2011.⁷⁸

The European Union's reputation has not fared much better in the specific field of shark conservation. One observer concluded only a few years ago, in somewhat of an understatement, that "the [European Community] has not developed a strong policy for the conservation and management of

70. Council Regulation 2371/2002, art. 1, 2002 O.J. (L 358) 59, 61 (EC).

71. *Id.* art. 20.

72. Council Regulation 57/2011, pmbl. ¶¶ (8), art. 19, 2011 O.J. (L 24) 1, 1 (EU). Annex I sets out the TACs for 2011.

73. *Id.* pmbl. ¶¶ (18)–(19).

74. See, e.g., Tim Daw & Tim Gray, *Fisheries Science and Sustainability in International Policy: A Study of Failure in the European Union's Common Fisheries Policy*, 29 MARINE POL'Y 189, 196 (2005) (noting that "the [Common Fisheries] [P]olicy is widely recognised as a failure").

75. See Press Release, Eur. Comm'n, A Fisheries Policy for the Future (July 13, 2011), <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/873&format=HTML&aged=0&language=EN&guiLanguage=en>.

76. *Id.*

77. For instance, until the end of the 2009 fishing season, the European Union allowed fishing for porbeagle (*Lamna nasus*) and spiny dogfish (*Squalus acanthias*). Council Regulation 43/2009, Annex IA, 2009 O.J. (L 22) 1, 49, 92 (EC). However, both have been listed as critically endangered in the northeast Atlantic since 2006. See IUCN, *Lamna nasus (Northeast Atlantic Subpopulation)*, <http://www.iucnredlist.org/apps/redlist/details/39343/0> (last visited Jan. 25, 2012); IUCN, *Squalus acanthias (Northeast Atlantic Subpopulation)*, <http://www.iucnredlist.org/apps/redlist/details/44168/0> (last visited Jan 25, 2012). Despite this knowledge and a push ironically led by the European Union in 2007 to put porbeagle on a list of international trade-restricted species, see *infra* note 120, it was not until 2010 that fishing for these species was prohibited. Council Regulation 23/2010, art. 6, Annex IA, 2010 O.J. (L 21) 1, 7, 29, 59 (EC).

78. An overview of the reform process and links to all the relevant documents can be found in *Reform of the Common Fisheries Policy*, EUR. COMM'N FISHERIES, http://ec.europa.eu/fisheries/reform/index_en.htm (last updated Oct. 6, 2011).

sharks.”⁷⁹ The European Union does have a shark finning regulation in place as part of the CFP.⁸⁰ However, it is considered critically flawed because it uses a fin-to-carcass ratio instead of a categorical ban on finning, and for that reason it has been heavily criticized.⁸¹ After criticism within RFMOs, and NGO pressure leading up to a European Parliament resolution,⁸² the European Commission has started reviewing the finning measure.⁸³

3. Palau’s Shark Sanctuary

While it is impossible to discuss all domestic measures in this Note, one deserves a special mention: Palau’s Shark Sanctuary. The small island nation of Palau created a sanctuary in 2009 to prevent foreign vessels from fishing for or finning sharks within its EEZ.⁸⁴ Commercial shark fishing and finning are now prohibited in Palau’s waters, although enforcement by Palau itself is difficult given that Palau has only one patrol boat.⁸⁵ Nevertheless, the sanctuary has been a boon for Palau’s economy, has been commended by researchers and environmentalists, and has served as model for other nations’ own conservation efforts.⁸⁶

II. WHY INTERNATIONAL LAW IS NEEDED TO IMPROVE CONSERVATION

Because sharks tend to move between EEZs, and between EEZs and the high seas, unilateral management can only do so much.⁸⁷ International law

79. BARREIRA, *supra* note 6, at 30.

80. Council Regulation 1185/2003, *publ.* ¶¶ (1), (6), 2003 O.J. (L 167) 1, 1 (EC).

81. See, e.g., FORDHAM, *supra* note 45, at 14 (noting that “loopholes are rendering this critical regulation all but meaningless”). For an explanation and criticism of the fin-to-carcass ratio method, see *infra* notes 235–239 and accompanying text.

82. *European Parliament Supports Strengthening Shark Finning Ban*, WORLD FISHING & AQUACULTURE (Dec. 16, 2010), <http://www.worldfishing.net/news101/european-parliament-supports-strengthening-shark-finning-ban>.

83. See *Commission Public Consultation*, *supra* note 69, at 1. The Commission has invited all “interested parties” to submit their views on the measure. *Id.* at 10.

84. Richard Black, *Palau Pioneers ‘Shark Sanctuary’*, BBC NEWS (Sep. 25, 2009 01:03 AM), <http://news.bbc.co.uk/2/hi/8272508.stm>. This move was inspired by an NGO that has pushed for the measure since 2001. See *Welcome to Palau Shark Sanctuary*, PALAU SHARK SANCTUARY, <http://www.sharksanctuary.com/> (last visited Jan. 25, 2012).

85. Black, *supra* note 84. However, port states all over the world may take measures to prevent or punish landing of illegally caught Palau sharks. Other management and enforcement options in cooperation with Palau and the Western and Central Pacific Fisheries Commission, such as certifying all Palau catch or creating and sharing lists of vessels that are known to fish illegally in the area, may be available. See *infra* Parts III.B.3 and III.C.1–2.

86. See Jolly, *supra* note 17 (noting that the Maldives have declared a similar shark sanctuary, and that other popular diving destinations are considering shark protections as well).

87. This does not mean that domestic measures are irrelevant—they are, in fact, incredibly important both as a way of implementing international agreements and by providing

has tried to fill the gaps in domestic management measures for such highly migratory stocks, and as part of its gap-filling efforts has encouraged cooperation to conserve migratory animals.

A. Nature of Conservation Problems

Because of the mobile nature of sharks and other highly migratory species, international law is an important tool for coordinating management measures across states in which these fish stocks are found. For instance, the United States explicitly recognizes this in the Magnuson-Stevens Fishery Conservation and Management Act, which makes various references to international cooperation and RFMOs.⁸⁸ The management plans created pursuant to the Magnuson-Stevens Act also refer to international organizations and international measures in addition to domestic measures, especially where sharks are involved.⁸⁹ The NMFS, in the recent Amendment 3 to the Atlantic Fisheries Management Plan for Highly Migratory Species, even specifically refused to implement domestic measures for shortfin mako, stating that the United States had only a small impact on shortfin mako mortality; instead, it focused on international efforts to improve shortfin mako management.⁹⁰ Other states have recognized the need for cooperation as well. The European Union, in its European Plan of Action for Sharks, noted that international cooperation within RFMOs is a key component of shark protection.⁹¹ As a result, international law on fisheries and marine wildlife has developed cooperative mechanisms over the past decades in an attempt to solve the problems plaguing sharks.

Some commentators heavily criticize international law, including environmental law, for being ineffective at solving problems such as shark

impetus for improving international management. *See* Camhi et al., *supra* note 29, at 433. For the United States in particular, considering the sheer size of its EEZ, any domestic shark management measures will likely also have a relatively significant international impact simply by being in place. *Cf.* 16 U.S.C. § 1801(a)(4) (2011) (noting that “international fishery agreements have not been effective” and considering unilateral action necessary); *id.* § 1801(a)(6).

88. *See, e.g.*, 16 U.S.C. § 1812(a)–(c) (noting that “[t]he United States shall cooperate directly or through appropriate international organizations” to ensure Highly Migratory Species (HMS) conservation); *id.* § 1822(e) (international fishery agreements for HMS); *id.* § 1854(g)(1)(F) (mandating the Secretary of Commerce to pursue “international fishery management measures” through international entities).

89. *See, e.g.*, PACIFIC FMP, *supra* note 63, at 21; *id.* at 23 (“For most management unit species in this FMP [including sharks], U.S. harvest by West Coast–based vessels represents only a fraction of total fishing mortality . . . and any unilateral action . . . would not likely have a significant biological effect on the stock.”); *see also id.* at 4 (“Conservation of HMS is contingent on effective international management institutions and measures.”).

90. AMENDMENT 3, *supra* note 13, at 4-34 to -35.

91. *Communication from the Commission to the European Parliament and Council on a European Community Action Plan for the Conservation and Management of Sharks*, at 7–8, COM (2009) 40 final (Feb. 5, 2009) [hereinafter *EPOA-Sharks*].

overfishing.⁹² The main critiques are that international law's implementation is marred by state self-interest, and that there is no international enforcement mechanism that can get states to comply.⁹³ These are criticisms heard often in the field of international law generally, but they are based on a view of law as force.⁹⁴ International law and institutions operate on other levels beyond enforcement (the use of force to obtain compliance). Compliance (the following of international norms) is of course necessary to effectively implement measures, but compliance can take place through objective information gathering, general assistance to nations, and norm setting and norm reinforcing.⁹⁵ The process of international norms development was famously theorized by Finnemore and Sikkink, who "argue that norms evolve in a patterned 'life cycle.'"⁹⁶ A norm emerges because norm entrepreneurs convince states to embrace a new norm, which then may "cascade" through the rest of the international community and ultimately be internalized and adhered to without much debate.⁹⁷

Once a norm emerges in international wildlife law, as set by international institutions, it can start "permeating national policy discourse, legal instruments and (slowly) judicial decision-making."⁹⁸ This process does not necessarily involve force-based compliance, but rather shows that the international norm can spread through domestic means. Conversely, national policy may influence and reinforce international norm setting, causing the norm to cascade. As a case in point, shark conservation has become a more prominent part of discussions at the RFMO level as more and more countries protect sharks domestically.⁹⁹ While it is hard to assess the effectiveness of international wildlife law generally,¹⁰⁰ even in the narrow field of shark conservation some other norm setting and reinforcement can

92. See Kunich, *supra* note 2, at 102–04 ("[I]nternational law has not and cannot provide the resolution to the mass extinction crisis in the world's oceans.").

93. *Id.*

94. *Id.* at 104 ("The truth is that within any sovereign nation, the rule of law is buttressed by the use of force."); see also Mark Toufayan, *Identity, Effectiveness, and Newness in Transjudicialism's Coming of Age*, 31 MICH. J. INT'L L. 307, 311–12 (2010) ("[M]any international lawyers still look to enforcement as the answer to perennial debates on the perceived 'ineffectiveness' of international law . . .").

95. Lee A. Kimball, *Whither International Institutional Arrangements to Support Ocean Law?*, 36 COLUM. J. TRANSNAT'L L. 307, 317–18 (1997). See also *infra* note 247 and accompanying text. This model of ensuring compliance, which relies less on coercion and force and more on management and cooperation, has been called the "managerial model." DANIEL BODANSKY, *THE ART AND CRAFT OF INTERNATIONAL ENVIRONMENTAL LAW* 236–37 (2010).

96. Martha Finnemore & Kathryn Sikkink, *International Norm Dynamics and Political Change*, 52 INT'L ORG. 887, 888 (1998).

97. *Id.* at 895.

98. MICHAEL BOWMAN ET AL., *LYSTER'S INTERNATIONAL WILDLIFE LAW* 116–17 (2d ed. 2010).

99. See *infra* Part III.C.

100. BOWMAN ET AL., *supra* note 98, at 117.

be found. In the European CFP, express reference is now made to shark protection and the measures RFMOs have taken.¹⁰¹ This indicates that the European Union is increasingly complying with an emerging international norm of shark conservation, despite not being in any way “forced” to do so.

The international institutional framework for wildlife and fisheries is generally accepted, and the major fishing nations operate within it. Instead of delegitimizing this framework by decrying it as ineffective, it would be much more constructive to improve it and ensure that emerging norms like shark conservation are supported and implemented domestically. The following Sections, while mindful of the limitations and shortcomings of international law, explain how the fisheries framework operates and could be improved.

B. *Relevant Frameworks of International Law— Nonfisheries Agreements*

Shark issues span multiple subareas of international environmental law. The international fisheries regime is the most important area, and it will be surveyed in greater depth in Part III below. However, fisheries treaties form only one part, albeit a crucial part, of a slowly emerging international shark management regime that spans multiple, traditionally separate areas.¹⁰² Thus, it is useful to highlight other regimes within the framework of international environmental law that have complemented international fisheries law in addressing shark conservation issues.¹⁰³ The Convention on Biological Diversity (CBD),¹⁰⁴ wildlife conservation treaties, and trade treaties complement the international fisheries regime in achieving the goals of shark management.¹⁰⁵

101. See Council Regulation 57/2011, *supra* note 72, pmb1. ¶¶ (18)–(19).

102. See BIRNIE ET AL., *supra* note 8, at 84–85. Shark issues continuously come up under various treaties, increasingly as separate topics of discussion, so there is a need for more coordination. Since early 2010, under the auspices of the CMS, a memorandum to address migratory shark issues has been created that provides for regular meetings to discuss crosscutting shark issues. See Memorandum of Understanding on the Conservation of Migratory Sharks, Feb. 12, 2010 (entered into force Mar. 1, 2010) [hereinafter Sharks MoU], available at <http://www.ecolex.org/server2.php/libcat/docs/TRE/Multilateral/En/TRE154630.pdf>. Expert bodies are now increasingly supplying information on sharks, such as the International Commission for the Conservation of Atlantic Tuna [ICCAT] Sharks Rapporteur. See *Standing Committee on Research and Statistics (SCRS)*, ICCAT, <http://www.iccat.int/en/SCRS.htm> (last updated July 19, 2011). This information may be shared across organizations in different subject-matter areas to achieve a more holistic approach to shark problems.

103. See Cambi et al., *supra* note 29, at 430–31 (noting that wildlife conservation treaties have been used to address perceived gaps in the fisheries regime and that these provide a “complementary route” to shark conservation).

104. Convention on Biological Diversity, *opened for signature* June 5, 1992, 1760 U.N.T.S. 79 [hereinafter CBD].

105. See Barker & Schluessel, *supra* note 34, at 330.

1. The Convention on Biological Diversity

The CBD is a framework treaty containing broad conservation principles. Although the United States is not a party to the CBD, other major fishing nations and the European Union are.¹⁰⁶ The CBD obliges a member state to protect biological diversity and resources, including sharks, within its national jurisdiction and when subjected to activities under its national control.¹⁰⁷ Activities under national control include all fishing carried out by ships flying the member state's flag.¹⁰⁸ The treaty's principle of sustainable use resonates in other environmental conventions, such as the U.N. Fish Stocks Agreement (UNFSA).¹⁰⁹ Since many marine species are not confined to national boundaries, the broad application of the CBD is especially relevant in the marine context.¹¹⁰ Thus, CBD member states should ensure that sharks are sustainably used and protected on the national level.

The CBD has had norm-setting influence beyond imposing somewhat amorphous obligations to preserve biological diversity. Key principles from the treaty—such as sustainable use—have influenced fisheries law, at least by being inserted into the vocabulary of fisheries law.¹¹¹ The CBD has achieved this by explicitly connecting the U.N. Law of the Sea Convention (UNCLOS)¹¹² to its own provisions.¹¹³ UNCLOS by itself did call for

106. 3 MULTILATERAL TREATIES DEPOSITED WITH THE SECRETARY-GENERAL ch. XXVII, no. 8, http://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtmsg_no=XXVII-8&chapter=27&lang=en (last updated Feb. 11, 2012). The United States is a signatory to the CBD, however, and so under customary treaty law should not act so as to defeat its purpose. *Id.*; see Vienna Convention on the Law of Treaties art. 18, *opened for signature* May 23, 1969, 1155 U.N.T.S. 331.

107. The general obligations on member states are laid down in Article 8 of the CBD and include ensuring regulation of biological resources to ensure conservation and sustainable use, protection of habitat, and rehabilitating degraded species. See CBD, *supra* note 104, art. 8(c)–(d), (f).

108. *Id.* art. 4.

109. U.N. Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Aug. 4, 1995, 2167 U.N.T.S. 3 (entered into force Dec. 11, 2001) [hereinafter UNFSA]. See also *infra* note 162 and accompanying text.

110. See A. CHARLOTTE DE FONTAUBERT ET AL., *BIODIVERSITY IN THE SEAS: IMPLEMENTING THE CONVENTION ON BIOLOGICAL DIVERSITY IN MARINE AND COASTAL HABITATS* 2–4 (1996).

111. See *infra* notes 160, 167 and accompanying text (explaining the interaction between the CBD and UNCLOS, and noting that the UNFSA contains a sustainable use obligation); LEE A. KIMBALL, *CBD TECHNICAL SER. NO. 19, THE INTERNATIONAL LEGAL REGIME OF THE HIGH SEAS AND THE SEABED BEYOND THE LIMITS OF NATIONAL JURISDICTION AND OPTIONS FOR COOPERATION FOR THE ESTABLISHMENT OF MARINE PROTECTED AREAS (MPAs) IN MARINE AREAS BEYOND NATIONAL JURISDICTION* 10 (2005), available at <http://www.cbd.int/doc/publications/cbd-ts-19.pdf>.

112. U.N. Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 397 (entered into force Nov. 16, 1994) [hereinafter UNCLOS].

113. CBD, *supra* note 104, art. 22(2). See *infra* note 160 and accompanying text.

cooperation in fisheries management, but did not set any background principles to mitigate overfishing problems.¹¹⁴ Now, CBD's principles guide the amorphous cooperation mandate towards the goal of sustainable use.

2. Wildlife Conservation Treaties

Wildlife conservation treaties include several regional regimes¹¹⁵ and two global ones—the Convention on International Trade in Endangered Species (CITES)¹¹⁶ and the Convention on Migratory Species (CMS).¹¹⁷ Both global treaties have been active in shark conservation.

Both CMS and CITES operate by listing species on appended lists. Depending on the list the species is on, member states incur particular international obligations. For instance, they may be required to prohibit killing of a listed species under CMS, or to prohibit or monitor trade in the species under CITES.¹¹⁸ Several shark species are included in these appendices, though only the more well-known, iconic shark species have received strong protection under these agreements.¹¹⁹ Some countries have proposed listing species such as the porbeagle shark, which is commercially valuable and highly overfished, on a CITES appendix. However, these proposals have been defeated in two successive Conferences of the Parties,¹²⁰ indicating that

114. See *infra* notes 156–161 and accompanying text.

115. For instance, the Bern Convention, which is similar to the CMS, applies only within Europe. Convention on the Conservation of European Wildlife and Natural Habitats, *opened for signature* Sep. 19, 1979, E.T.S. No.104 (entered into force June 1, 1982); BOWMAN ET AL., *supra* note 98, at xvii–xxvi, 13–23.

116. Convention on International Trade in Endangered Species of Wild Fauna and Flora arts. III–IV, *opened for signature* Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243 [hereinafter CITES].

117. CMS, *supra* note 7.

118. CMS has two appendices: for species listed on Appendix I, the convention imposes strict obligations on states to prohibit taking (which includes killing) of species; for species listed on Appendix II, the convention only encourages cooperation to improve conservation. See CMS, *supra* note 7, arts. III, IV. CITES has three appendices, each imposing a decreasing degree of trade restrictions, from very strict limitations on the trade in species listed on Appendix I to hardly any restrictions on the trade in species listed on Appendix III. See CITES, *supra* note 116, arts. III–V.

119. The only two listed on both Appendix I of CMS and Appendix II of CITES, and thus receiving strong protection, are the great white and the basking sharks. The whale shark, the largest fish in the world, is listed on Appendix II of CITES and Appendix II of CMS. The shortfin and longfin mako sharks are also on Appendix II of CMS. See *List of Common Names, CMS Appendices I and II*, CMS.INT, http://www.cms.int/pdf/en/CMS_Species_61ng.pdf (last updated Apr. 2011); *Appendices I, II and III*, CITES.ORG, <http://www.cites.org/eng/app/appendices.php> (last updated Apr. 27, 2011).

120. The original porbeagle proposal was put forward by Germany on behalf of the European Union in 2007. Fourteenth Meeting of the Conference of the Parties, The Hague, Neth., June 3–15, 2007, *Consideration of Proposals for Amendment of Appendices I and II: Inclusion of Lamna nasus*, at 1, CoP14 Prop. 15 (Apr. 18, 2007), available at <http://www.cites.org/eng/cop/14/prop/E14-P15.pdf>; see also Fowler et al., *supra* note 31, at 6 (noting that originally, the German proposal was not even accepted within the European Union). That

securing shark conservation through an appendix listing is perhaps not the most effective way forward.

A more positive development happened in 2010 under the auspices of the CMS. A memorandum of understanding was signed in February of that year, aimed at improving conservation of several pelagic sharks.¹²¹ The memorandum explicitly calls for increased cooperation between all relevant international organizations and other stakeholders. These organizations include the U.N. Food and Agriculture Organization (FAO)—which has a voluntary International Plan of Action for Sharks (IPOA-Sharks)¹²²—and the several RFMOs.¹²³ The United States is one of the initial signatories to the memorandum,¹²⁴ despite not being a party to the CMS itself.¹²⁵ In November 2011, the memorandum received a major boost when the European Union and several of its member states signed it. The total number of parties as of November 2011 stands at twenty-four.¹²⁶ Hopefully their participation will greatly boost the effectiveness of the memorandum.

While there are some problems with the implementation of the treaties themselves,¹²⁷ a more fundamental problem is that they are not focused on the *use* of species but on their *preservation*. They are invoked only when a species is close to extinction, and they are not well designed to address the proactive, holistic management needs of a fisheries resource.¹²⁸ Since the

proposal was rejected; it was reintroduced at the next Conference of the Parties in 2010, this time by Sweden and Palau. Fifteenth Meeting of the Conference of the Parties, Doha, Qatar, Mar. 13–25, 2010, *Consideration of Proposals for Amendment of Appendices I and II: Inclusion of Lamna nasus*, at 2, CoP15 Prop. 17 (Dec. 1, 2009), available at <http://www.cites.org/eng/cop/15/prop/E-15-Prop-17.pdf>. That proposal initially passed but, to the dismay of many environmental NGOs, was later defeated again, together with seven other shark proposals, when the debate was reopened under pressure of Asian countries. See Will Ramos, *Porbeagle Shark Dealt Setback at UN Meeting*, CONSORTIUM FOR OCEAN LEADERSHIP (Mar. 26, 2010, 7:02 AM), <http://www.oceanleadership.org/2010/porbeagle-shark-dealt-setback-at-un-meeting/>.

121. Sharks MoU, *supra* note 102, annex 1 (listing the seven shark species of concern).

122. FAO, INTERNATIONAL PLAN OF ACTION FOR THE CONSERVATION AND MANAGEMENT OF SHARKS ¶ 10 (1999) [hereinafter IPOA-Sharks], available at <http://www.fao.org/docrep/006/x3170e/x3170e03.htm>.

123. Sharks MoU, *supra* note 102, ¶ 6.

124. *Summary Sheet of the Memorandum of Understanding on the Conservation of Migratory Sharks*, CMS.INT, http://www.cms.int/pdf/en/summary_sheets/sharks.pdf (last updated Nov. 25, 2011) [hereinafter *Summary Sheet*].

125. This is allowed under Article V(2) of the CMS. See CMS, *supra* note 7.

126. See *Summary Sheet*, *supra* note 124.

127. For an overview of how these treaties and the IPOA-Sharks operate to protect sharks and how they could be improved, see Holly Edwards, *When Predators Become Prey: The Need for International Shark Conservation*, 12 OCEAN & COASTAL L.J. 305, 340 (2007). Edwards notes several shortcomings, including the lack of an implementing agreement under the CMS, which at least has since been resolved.

128. See CITES, *supra* note 116, art. II. Appendix I is reserved for species threatened with extinction, and Appendix II for species that are close to being threatened. See also John C. Kunich, *Fiddling Around While the Hotspots Burn Out*, 14 GEO. INT'L ENVTL. L. REV. 179,

iconic larger sharks are rare and not often commercially targeted except for finning or recreation, it was much easier to agree that they cannot be taken at all.¹²⁹ While the CMS Memorandum of Understanding is a great step towards improving interaction between the different treaties and their purposes, the principal use of wildlife conservation treaties for shark conservation is perhaps best characterized as a “stop-gap measure” when fisheries regimes “have failed to ensure the sustainable use of shark species in trade.”¹³⁰

3. International Trade Law

The international trade regime, primarily the World Trade Organization (WTO), has also been put forward as a way to improve fisheries management more generally.¹³¹ Since fish, including sharks, are increasingly a traded food commodity,¹³² subsidies that aid fisheries could fall under the WTO Subsidies and Countervailing Measures Agreement as they do for farm products.¹³³ Alternatively, pressure on foreign countries to use more sustainable fishing methods through unilateral trade measures, such as those allowed in the *U.S.—Shrimp* case,¹³⁴ has been suggested as a way to improve fisheries.¹³⁵ For instance, major fish importers such as the United States or European Union¹³⁶ could refuse to import fish that has been caught

197–98 (2001) (“CITES operates one species at a time, and cannot help until a species approaches its deathbed—a decidedly ineffective approach even to aiding individual species, let alone entire ecosystems or hotspots.”).

129. See *supra* note 119 and accompanying text. See also Camhi et al., *supra* note 29, at 423 (“Too often, such action is reserved for the most charismatic or targetable species . . .”).

130. Camhi et al., *supra* note 29, at 431.

131. See, e.g., Bilsky, *supra* note 37, at 621. CITES is also a trade agreement, but is usually classified with wildlife conservation agreements as its aim is not so much facilitating trade as it is curbing trade in protected species. See Camhi et al., *supra* note 29, at 431.

132. Trade in oceanic species has risen from less than a million metric tons in 1980 to almost 2.5 million metric tons in 2000. SIMON UPTON & VANGELIS VITALIS, ORG. FOR ECON. CO-OP. & DEV. [OECD], STOPPING THE HIGH SEAS ROBBERS: COMING TO GRIPS WITH ILLEGAL, UNREPORTED AND UNREGULATED FISHERIES ON THE HIGH SEAS 4 (2003), available at <http://www.oecd.org/dataoecd/5/42/39360798.pdf>.

133. Bilsky, *supra* note 37, at 632 (“Since all Article 3 subsidies are deemed to be specific, amending Article 3 to prohibit subsidies to fishing enterprises would be an effective solution to the problem.”).

134. Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, ¶¶ 3, 152, WT/DSS58/AB/RW, (Oct. 22, 2001). This case is also known commonly as the *Shrimp-Turtle* case.

135. Bilsky, *supra* note 37, at 639.

136. A Green Paper by the European Commission in 2009 noted that “more than half of the fish consumed on the European market is now imported.” *Commission Green Paper*, *supra* note 68, at 5.

by vessels from countries without a proper shark bycatch reduction program.¹³⁷

However, reaching agreements during current WTO negotiations has been challenging, and not only in the area of subsidies.¹³⁸ Despite recently renewed calls by other organizations to comprehensively address fisheries subsidies,¹³⁹ this is an issue on which “negotiations have lagged.”¹⁴⁰ Considering that most seafood in major Western nations like the United States is imported,¹⁴¹ unilateral measures could be effective but problematic under WTO rules.¹⁴² As such, it is doubtful that the WTO could effectively protect

137. For example, the U.S. government could find Congressional authorization for this in 16 U.S.C. § 1826k. The statute allows the Secretary of Commerce to identify nations that have fishing practices that result in bycatch of “a protected living marine resource,” which includes nontarget fish such as sharks, and engage in intensive negotiations to ensure other nations adopt good fishing practices. *Id.* § 1826k(a)(1)(A)(i). If both international and bilateral negotiations fail, the government could classify fishing by such nations as IUU fishing under § 1826j(e)(3) and impose (unilateral) sanctions. *Id.* § 1826j(e)(3). The new Shark Conservation Act in fact explicitly allows such classification at least under some circumstances, as it adds fishing in violation of “shark conservation requirements” imposed by international organizations to the list of fishing that may be classified as IUU fishing under that section. Shark Conservation Act of 2010, Pub. L. No. 111–348, sec. 102(b)(1), § 609(e)(3)(A), 124 Stat. 3668, 3669 (2010) (amending the High Seas Driftnet Fishing Moratorium Protection Act) (codified at 18 U.S.C. § 1826j(e)(3) (2011)). Spurred by CITES, the UNFSA, and RFMOs, the European Union is currently in the early stages of considering the use of trade restrictions to promote fisheries conservation under its exclusive fisheries and trade competences. *Commission Roadmap on EU Trade-Related Measures for the Conservation of Fish Resources*, at 2 (Apr. 2011), available at http://ec.europa.eu/governance/impact/planned_ia/docs/2011_mare_042_trade_related_measures_en.pdf. See *infra* Part III.C.2 for a discussion of unilateral measures countries generally can take to improve shark conservation.

138. Because a consensus on various topics cannot be reached, negotiations have now broken up along three tracks, with the most contentious issues, including subsidies, being put on the “slow” track. *Members Support Lamy’s Proposed Three-Speed Search for Doha Outcome in December*, WORLD TRADE ORG. [WTO] (May 31, 2011), http://www.wto.org/english/news_e/news11_e/tnc_infstat_31may11_e.htm.

139. For example, the U.N. Environment Programme published a report in December 2010 on the need for the WTO to address fisheries subsidies. *UNEP Report Highlights Role of Fisheries Subsidies Reform in Ocean Sustainability*, U.N. ENV’T PROGRAMME (Dec. 22, 2010), <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=653&ArticleID=6875>.

140. Jonathan Lynn, *WTO’s Lamy Says Final Doha Countdown Has Begun*, REUTERS, Nov. 30, 2010, available at <http://www.reuters.com/article/2010/11/30/us-trade-doha-idUSTRE6AT30T20101130>.

141. See, e.g., *FishWatch—U.S. Seafood Facts*, NMFS, http://www.nmfs.noaa.gov/fishwatch/trade_and_aquaculture.htm (last updated Sep. 13, 2011). The United States alone imports over a billion dollars worth of tuna annually. *See id.*

142. Unilateral trade measures to protect natural resources are generally only allowed when bi- and multilateral negotiations to address the problem have been exhausted, especially when the problem is transboundary in nature. Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, ¶¶ 166–68, WT/DS58/AB/R (Oct. 12, 1998). Since the dialogue on sharks is ongoing in several international fora, it might be that the exhaustion requirement is not met. On the other hand, the WTO panel did not require full

sharks in the short term, although it is undoubtedly an important forum in which to address the problem of fisheries subsidies.¹⁴³

III. INTERNATIONAL FISHERIES LAW: MANAGEMENT STRATEGIES

A decade ago, conservationists and governments turned away from international fisheries law as a way to conserve sharks, instead favoring wildlife treaties.¹⁴⁴ However, the wildlife conservation treaties' performance in conserving sharks has been disappointing, as illustrated by the most recent CITES Conference of the Parties,¹⁴⁵ and WTO negotiations on fisheries subsidies continue to move at a glacial pace. Since other regimes are currently failing to protect sharks, fisheries organizations remain the most suitable venue to ensure shark conservation more immediately. They are uniquely well situated to address the problems that cause the depletion of shark populations. Fisheries management organizations can impose fishing restrictions to combat shark overfishing and bycatch, and they can set up programs to accumulate much-needed shark fisheries data.¹⁴⁶ Unfortunately, most RFMOs have been extremely slow in adopting shark-related measures.¹⁴⁷ Reviewing the fisheries regime's past efforts to protect sharks and analyzing the potential for its improvement are both essential in finding solutions to the problems that face sharks.

A. *The International Fisheries Regime*

International fisheries law is a highly regionalized body of law.¹⁴⁸ There are two important framework conventions that guide most of the interstate cooperation that occurs in RFMOs: The U.N. Convention on the Law of the Sea and the U.N. Fish Stocks Agreement.

conclusion of the negotiations. *Id.* ¶¶ 123, 133. So, whether trade restrictions would stand is an open question. *See also infra* Part III.C.2.

143. *See* Bilsky, *supra* note 37, at 640–41.

144. Camhi et al., *supra* note 29, at 430.

145. *See supra* note 120 and accompanying text.

146. *See* Edwards, *supra* note 127, at 341; *see also* Camhi et al., *supra* note 29, at 428–30.

147. Camhi et al., *supra* note 29, at 428.

148. For a graphical overview of the many RFMOs and other regional seas conventions in existence in 2001, see FAO, Ecosystem-Based Management of Fisheries: Opportunities and Challenges for Coordination Between Marine Regional Fishery Bodies and Regional Seas Conventions, Annex 2, Doc. No. RFB/II/2001/7 (2001), available at <http://www.fao.org/docrep/meeting/003/x9377e.htm>. Since then, more organizations, such as the Western and Central Pacific Fisheries Commission (WCPFC), have come into existence.

1. U.N. Convention on the Law of the Sea

The fisheries regime is organized within the broad principles of UNCLOS.¹⁴⁹ This convention created the rules on EEZs, and it allowed nations to use domestic law to conserve marine resources within these zones.¹⁵⁰ While opening the high seas to fishing for all nations,¹⁵¹ UNCLOS also imposed broad obligations on states to ensure conservation of marine living resources, including sharks.¹⁵² The broadest obligations are found in Part XII, especially Article 192, which imposes an “obligation to protect and preserve the marine environment.”¹⁵³ Also relevant is Article 194(5), imposing an obligation on states to protect the habitat of endangered species.¹⁵⁴ Such measures, binding on all states, were needed to avoid the tragedy of the commons that results from fishing freedoms on the high seas. Despite these provisions, the oceans continue to be afflicted by all manner of tragedies, such as IUU fishing.¹⁵⁵ As such, exploring the avenues for improving RFMOs has become all the more important.

Most importantly for sharks, the participating states agreed to cooperate in managing highly migratory and straddling fish stocks.¹⁵⁶ Under Article 237, any specific future international obligation on marine environmental protection, incurred for instance under a fisheries treaty, must be carried out consistently with the broader (and vaguer) UNCLOS principles.¹⁵⁷

Despite the relatively open-ended obligations contained in UNCLOS, it is still an important starting point in solving fisheries problems. In the words of one observer, UNCLOS “is not perfect” but remains “essential for the

149. UNCLOS, *supra* note 112. All E.U. countries are members. The United States is one of the few nonmember states; it is only a signatory. However, the U.S. President stated in 2010 that he would pursue accession. Exec. Order No. 13,547, 75 Fed. Reg. 43,023, § 2(b)(iii) (July 19, 2010). Regardless, the provisions on protection of the marine environment are widely accepted as customary international law, including by the United States, and thus UNCLOS is very much relevant in the discussion on fisheries management. See BIRNIE ET AL., *supra* note 8, at 387.

150. UNCLOS, *supra* note 112, arts. 55–56, 61–62.

151. *Id.* art. 116.

152. *Id.* arts. 117–20.

153. *Id.* art. 192.

154. *Id.* art. 194(5).

155. See Erickson, *supra* note 27, at 288–89.

156. UNCLOS, *supra* note 112, arts. 63–64. Technically, in Article 64, the states parties only agreed to cooperate in managing the highly migratory species in Annex I to the convention. *Id.* art. 64. Annex I does include oceanic sharks, along with species such as tuna and dolphins. *Id.* annex I. The states parties do cooperate to manage all straddling stocks, that is, fish stocks that occur in (“straddle”) the EEZs of two adjacent states, or a state’s EEZ and the high seas. *Id.* art. 63.

157. See *id.* art. 237; Jennifer L. Talhelm, *Curbing International Overfishing and the Need for Widespread Ratification of the United Nations Convention on the Law of the Sea*, 25 N.C.J. INT’L L. & COM. REG. 381, 417 (2000).

world to begin to solve the overfishing problem.”¹⁵⁸ UNCLOS by itself is insufficient, however, as it does not specifically focus on proactive fisheries management. Since the agreement has not solved the overfishing problem but continues to favor open-access high seas fishing, it has even been called a “tool for over exploitation” by some.¹⁵⁹

To solve UNCLOS’s problems, fisheries management on both the domestic and regional level has been pushed to incorporate emerging concepts and proactive principles such as sustainable use. These more proactive principles are replacing more reactive activity, a model in which fisheries managers respond only minimally when stakeholders, such as fishermen or environmental groups, complain of crises. Because the reactive response is aimed at satisfying particular interest groups and not at ensuring long-term use of the fisheries resource, this has traditionally allowed overfishing to occur.¹⁶⁰ The concept of sustainable development, geared toward improving environmental resource management, is taken from the 1992 Rio Declaration and remains “the leading concept of international environmental policy.”¹⁶¹ Over a decade after the signing of UNCLOS, a framework agreement to manage international fisheries was created that incorporated these new environmental policy concepts: UNFSA.¹⁶²

2. U.N. Fish Stocks Agreement

The UNFSA further elaborates on the general UNCLOS obligations to cooperate in the conservation of fish stocks.¹⁶³ Because most of the agreement applies to fish that live in the high seas, or partly in the high seas and partly within national jurisdictions,¹⁶⁴ many of its provisions are highly rele-

158. Talhelm, *supra* note 157, at 417. Although Talhelm calls for U.S. ratification of UNCLOS, this is not hugely essential; as far as sharks are concerned, the U.S. ratification of the UNFSA was probably of much greater significance. After all, the UNFSA is the treaty that governs how RFMOs operate, and it is the RFMOs that, I argue, should be the primary organizations protecting sharks. See *infra* Part III.A.2.

159. Erin A. Clancy, *The Tragedy of the Global Commons*, 5 GLOBAL LEGAL STUD. J. 601, 609 (1998).

160. Kevern L. Cochrane & Serge M. Garcia, *Introduction—Fisheries Management*, in A FISHERY MANAGER’S GUIDEBOOK 1, 7–8 (Kevern L. Cochrane & Serge M. Garcia eds., 2009).

161. BIRNIE ET AL., *supra* note 8, at 53. The incorporation of sustainable development in, for instance, the CBD has influenced fisheries law, as Article 22 of the CBD states that UNCLOS and the CBD should be implemented consistently. CBD, *supra* note 104, art. 22(2).

162. UNFSA, *supra* note 109.

163. *Id.* art. 2.

164. *Id.* art. 3. Only straddling and highly migratory fish stocks “beyond areas of national jurisdiction” are covered. *Id.* Since many sharks spend at least part of their life cycle on the high seas, they fall squarely within UNFSA’s provisions. See OCEANA, HIGHLY MIGRATORY SHARKS NEGLECTED IN ICCAT 1 (2010), available at http://na.oceana.org/sites/default/files/reports/ICCAT_Highly_Migratory_Sharks_English_2.pdf (noting that seventy-two shark species were listed on UNCLOS Annex I as highly migratory).

vant to shark conservation.¹⁶⁵ However, even for stocks within national jurisdictions and transboundary stocks (those migrating between EEZs), the precautionary approach (discussed below) should apply, and national management should be compatible with international measures.¹⁶⁶

First, the UNFSA promulgates several important general principles. States should optimally manage fish stocks with an aim at long-term sustainable use.¹⁶⁷ Such management should be based on the best scientific evidence available,¹⁶⁸ but should also be precautionary.¹⁶⁹ This idea, called the precautionary principle, is broadly applicable in environmental law, but it is particularly important to fisheries conservation. It stands for the proposition that when information is uncertain, states must be more cautious in managing stocks.¹⁷⁰

Second, the UNFSA firmly establishes the general framework within which these principles are to be effectuated: the RFMOs.¹⁷¹ It provides several guidelines on how RFMOs should function.¹⁷² It also introduces the important rule that a state's nationals may only fish for a particular high seas stock if their state is a member of the RFMO managing that stock, or one that agrees to apply the RFMO's rules.¹⁷³ This provision, at the "heart of the UNFSA,"¹⁷⁴ means that all states fishing for a stock are forced to cooperate

165. See Barker & Schluessel, *supra* note 34, at 330 (calling the UNFSA part of the "basic framework . . . for managing global shark resources" together with the CBD, CITES, and CMS).

166. OCEANA, *supra* note 164; see also BARREIRA, *supra* note 6, at 14. In that respect, even though the UNFSA only formally applies to "a fraction of the global fish catch" it does "raise the threshold" of what is expected of states and RFMOs. KIMBALL, *supra* note 32, at 25.

167. UNFSA, *supra* note 109, art. 5(a).

168. *Id.* art. 5(b).

169. *Id.* art. 5(c).

170. *Id.* art. 6. One of the main problems in shark management is the pervasive lack of data on shark stocks, making this provision extremely important. See *infra* Part III.C.1. The precautionary principle was perhaps most famously stated in the 1992 Rio Declaration. See United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3–14, 1992, *Rio Declaration on Environment and Development*, princ. 15, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I), Annex I (Aug. 12, 1992) [hereinafter *Rio Declaration*]. It is becoming, or arguably has become, customary international law. See Arie Trouwborst, *The Precautionary Principle in General International Law: Combating the Babylonian Confusion*, 16 REV. EUR. CMTY. & INT'L ENVTL. L. 185, 193–95 (2007) (explaining the status of the precautionary principle and its consequences for states' obligations).

171. UNFSA, *supra* note 109, art. 8(1).

172. *Id.* arts. 9–10.

173. *Id.* art. 8(4). If there is no RFMO for a straddling or highly migratory stock, states are to cooperate to establish a new one or otherwise ensure management. *Id.* art. 8(5). As a matter of basic international law, this obligation only applies to the UNFSA member states—nonmembers are subject to the customary regime from UNCLOS, which preserves freedom of high seas fishing with only open-ended obligations to cooperate to conserve fish stocks. See *supra* notes 151–152 and accompanying text.

174. Gordon R. Munro, *The United Nations Fish Stocks Agreement of 1995: History and Problems of Implementation*, 15 MARINE RESOURCES ECON. 265, 274 (2001).

in managing it, instead of being free to fish as much of the resource as they can without constraints. This may avoid some of the problems of a partially open-access resource, but it also creates some new member and free rider problems.¹⁷⁵

Third, the UNFSA provides for somewhat stronger enforcement measures, at least compared to the UNCLOS regime that governed before the UNFSA entered into force.¹⁷⁶ Flag states, port states, and other member states of the RFMOs are called on to cooperate in improving inspection.¹⁷⁷ Much remains to be improved in the field of enforcement, though,¹⁷⁸ and while the UNFSA provides an important basic framework within which states can operate, it recognizes that more effective cooperation, management, and enforcement can only take place in regional bodies.¹⁷⁹

Thus, on paper at least, the UNFSA has “given international fisheries law an environmental and inter-generational aspect consistent with the pursuit of sustainable development.”¹⁸⁰ However, its structure creates some problems. Because it encourages participation in RFMOs by any state that wants to fish for a particular stock, be it a nearby coastal state or a distant-water fishing nation,¹⁸¹ it implicitly creates pressure for overfishing as every participant will want a share of the resource.¹⁸² Despite some problems and criticisms, most notably the failure of RFMOs to properly implement the UNFSA, the member states have left the provisions of UNFSA intact after reviewing them in 2006.¹⁸³

175. See *id.* at 275–77. See also *infra* notes 181–182.

176. See KIMBALL, *supra* note 32, at 27–28.

177. UNFSA, *supra* note 109, arts. 19–23. Every vessel has to be registered under a state, which becomes its flag state. The port state is the state where a vessel is docked for any reason, such as to unload or refuel. *Id.*

178. See *infra* Part III.B.3.

179. See UPTON & VITALIS, *supra* note 132, at 6.

180. BIRNIE ET AL., *supra* note 8, at 203.

181. Technically, only states with a “real interest in the fisheries,” a term left undefined, may join an RFMO. UNFSA, *supra* note 109, art. 8(3). Some criteria to take into account when assessing new members, such as stock status, are laid down in Article 11. See *id.* art. 11. This can become a thorny issue, as there is freedom of fishing on the high seas, and it is unlikely that states simply want to apply the RFMO’s conservation measures without having a say in them. However, it is undesirable to have these states forego cooperation entirely. See GORDON MUNRO ET AL., FAO, FISHERIES TECHNICAL PAPER 465, THE CONSERVATION AND MANAGEMENT OF SHARED FISH STOCKS: LEGAL AND ECONOMIC ASPECTS 41–42 (2004).

182. This is almost a reversion to the tragedy of the commons that RFMOs were designed to combat. Game theory predicts that open-membership RFMOs, as under UNFSA they almost always must be, have much trouble establishing an optimal cooperative outcome. See Trond Bjørndal, *Overview, Roles, and Performance of the North East Atlantic Fisheries Commission (NEAFC)*, 33 MARINE POL’Y 685, 687 (2009).

183. Andrew Serdy, *Accounting for Catch in Internationally Managed Fisheries: What Role for State Responsibility?*, 15 OCEAN & COASTAL L.J. 23, 23–24 (2010).

3. U.N. General Assembly Fisheries Resolutions

No discussion of fisheries law would be complete without mentioning the now annual U.N. General Assembly (UNGA) resolutions on sustainable fisheries, which are directly related to the UNFSA.¹⁸⁴ Although UNGA resolutions are traditionally viewed as soft law,¹⁸⁵ they have at times been highly influential, including in the fishing context.¹⁸⁶ The most recent UNGA sustainable fisheries resolution, like previous resolutions,¹⁸⁷ mentions sharks explicitly in its first section.¹⁸⁸ It calls on states to implement the FAO's IPOA-Sharks instrument,¹⁸⁹ and to take "immediate and concerted action" to improve implementation of shark measures in RFMOs and on the national level.¹⁹⁰ Several RFMOs have started taking steps (explored below), but the UNGA correctly notes that much remains to be done.¹⁹¹

B. A Review of Existing Measures, Problems, and Possibilities Within Selected RFMOs

No specialized fisheries organization specifically manages sharks in any ocean.¹⁹² However, several RFMOs that manage other species have increasingly started managing sharks. Four specific RFMOs are highlighted here. They include ones in which major actors such as the United States and European Union participate, and together include the organizations that cover both major oceans.

184. Since the 1990s, the UNGA has passed an annual resolution on the law of the sea, and since the adoption of the UNFSA, there are now two resolutions: one on the oceans and law of the sea, and another on sustainable fisheries. The latter is traditionally adopted by consensus. See U.N. Div. of Ocean Affairs & Law of the Sea, *Oceans and the Law of the Sea in the General Assembly of the United Nations: General Assembly Resolutions and Decisions*, UNITED NATIONS, http://www.un.org/Depts/los/general_assembly/general_assembly_resolutions.htm (last updated Jan. 4, 2012).

185. UNGA resolutions are not legally binding on states. See U.N. Charter art. 10.

186. The most well-known example of a highly influential fisheries resolution is the moratorium on driftnets, a UNGA resolution that influenced some countries to ban driftnetting by their nationals. See Christopher J. Carr & Harry N. Schneiber, *Dealing with a Resource Crisis: Regulatory Regimes for Managing the World's Marine Fisheries*, 21 STAN. ENVTL. L.J. 45, 65 (2002).

187. As the international community became more aware of shark problems, sharks were eventually mentioned in the UNGA sustainable fisheries resolution. The first time sharks were mentioned prominently was in 2004. See G.A. Res. 59/25, ¶¶ 72–74, U.N. Doc. A/RES/59/25 (Nov. 17, 2004).

188. G.A. Res. 65/38, ¶¶ 13–16, U.N. Doc. A/RES/65/38 (Dec. 7, 2010).

189. See FAO, *supra* note 122.

190. G.A. Res. 65/38, *supra* note 188, ¶ 14.

191. *Id.* pmb1.

192. Most HMS are not managed by a specific organization. See PACIFIC FMP, *supra* note 63, at 4. Tuna is the main exception, which has several RFMOs dedicated to its management, and there are also some salmon, halibut, and pollock organizations. BIRNIE ET AL., *supra* note 8, at 740. Other RFMOs manage fisheries generally within their region. *Id.*

Two major tuna RFMOs are highly important in shark management, as sharks are often bycaught, and sometimes even targeted, in tuna fisheries.¹⁹³ They are the International Commission for the Conservation of Atlantic Tuna (ICCAT)¹⁹⁴ and the Inter-American Tropical Tuna Commission (IATTC).¹⁹⁵ Additionally, two of the regional fisheries commissions, important because of their geographic scope and history, manage most fisheries within their geographic regions: the Northwest Atlantic Fisheries Organization (NAFO)¹⁹⁶ and the Western and Central Pacific Fisheries Commission (WCPFC).¹⁹⁷

Both NAFO and ICCAT operate in the Atlantic Ocean,¹⁹⁸ whereas IATTC and WCPFC operate in the Pacific.¹⁹⁹ Together they form the major institutions that can regulate shark fishing in both oceans.²⁰⁰ Their ages,

193. OCEANA, *supra* note 164, at 2.

194. International Convention for the Conservation of Atlantic Tunas, *opened for signature* May 14, 1966, 20 U.S.T. 2887, 673 U.N.T.S. 63 [hereinafter ICCAT Convention].

195. The original bilateral Convention for the Establishment of an Inter-American Tropical Tuna Commission, U.S.-Costa Rica, May 31, 1949, 1 U.S.T. 230, 80 U.N.T.S. 3, was replaced in 2010 by the multilateral Antigua Convention. *See* Convention for the Strengthening of the Inter-American Tropical Tuna Commission Established by the 1949 Convention Between the United States of America and the Republic of Costa Rica, *adopted* June 27, 2003, S. TREATY DOC. NO. 109-2, (entered into force Aug. 27, 2010) [hereinafter IATTC Convention]. The original convention remains in force for the parties who have not ratified the new convention, and presumably any binding measures promulgated by the IATTC before the Antigua Convention entered into force remain binding. *See* IATTC Res. C-03-02 (June 27, 2003). The remainder of this Note will refer to the new convention and relevant IATTC measures that are listed by the commission as still in force.

196. Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries, Oct. 24, 1978, S. TREATY DOC. NO. 96-20, 1135 U.N.T.S. 369 [hereinafter NAFO Convention]. Substantial amendments to modernize the convention were adopted in 2007 but have not yet been ratified. *See* NAFO General Council, *Amendment to the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries*, 29th Annual Meeting, Sept. 2007, NAFO/GC Doc. 07/4 (Sept. 28, 2007), *available at* <http://archive.nafo.int/open/gc/2007/gcdoc07-04.pdf>. For purposes of this Note, the old NAFO convention will be considered authoritative.

197. Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Sept. 5, 2000, 2275 U.N.T.S. 43 [hereinafter WCPFC Convention].

198. NAFO operates in the waters between Greenland and Canada, and extends eastward to Greenland and southward to about North Carolina. *See* NAFO Convention, *supra* note 196, art. 1. ICCAT has a much larger geographic scope—it simply applies to “all waters of the Atlantic Ocean,” including seas such as the Mediterranean. ICCAT Convention, *supra* note 194, art. I. This means that NAFO’s and ICCAT’s geographic jurisdictions overlap.

199. IATTC operates in the eastern Pacific Ocean, from the American coast to 150° west longitude. IATTC Convention, *supra* note 195, art. III. WCPFC operates in the western Pacific Ocean, from 150° west longitude to the Asian continent, extending south from western Alaska. *See* WCPFC Convention, *supra* note 197, art. 3(1). This means these conventions are complementary in covering the Pacific.

200. The United States and the European Union are also members of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), *done* May 20, 1980, 33 U.S.T. 3476, 1329 U.N.T.S. 47, which is essentially the Antarctic RFMO but, because of its

structures, and memberships vary, but each have over ten members and include most of the relevant coastal states and distant-water fishing nations.

NAFO and WCPFC have the power to manage sharks as they would any other fish stock within their jurisdiction.²⁰¹ The decision-making bodies²⁰² of the tuna conventions have, at the very least, competence to set regulations for sharks as bycatch species²⁰³ for both members and cooperating nonmembers.²⁰⁴ The practical difference between the tuna and the other RFMOs is not very significant, as especially ICCAT has interpreted its bycatch mandate broadly and has included prohibitions on retaining some species of shark, essentially setting a zero quota for those species. The new IATTC Convention also gives the power to its commission to conserve all stocks covered by the convention, including bycaught sharks.²⁰⁵

Under these four RFMOs several steps have already been taken to protect sharks, though they are generally regarded as insufficient.²⁰⁶ Fisheries

limited scope, this one is less relevant to the conservation of the vast majority of sharks than the RFMOs operating in the Atlantic and Pacific Oceans. It does have progressive shark management measures, though, which are discussed *infra* note 223. NAFO is complemented geographically by the North East Atlantic Fisheries Commission (NEAFC), operating under the Convention on Future Multilateral Co-Operation in North-East Atlantic Fisheries, *concluded* Nov. 18, 1980, 1285 U.N.T.S. 129. While NEAFC is also an important body, it is not part of the survey here.

201. See NAFO Convention, *supra* note 196, art. I(4) (stating that the convention applies to “all fishery resources” of the area except tuna, salmon, marlin, and cetaceans); WCPFC Convention, *supra* note 197, arts. I(f), 2 (stating that the convention’s objective is conserving highly migratory fish stocks, defined as stocks on UNCLOS Annex I, which includes oceanic sharks).

202. The main decision-making bodies are the commissions, in which all parties are represented. They make the actual binding decisions on fisheries measures. They have slightly different names, depending on the convention. See, e.g., NAFO Convention, *supra* note 196, art. XI (calling the NAFO body simply the Fisheries Commission); WCPFC Convention, *supra* note 197, art. 9(1) (calling the WCPFC body a name similar to that of its founding convention).

203. See ICCAT Convention, *supra* note 194, art. IV(1) (noting that the commission may investigate “such other species of fishes exploited in tuna fishing” not covered by another organization); IATTC Convention, *supra* note 195, art. I(1) (defining “fish stocks covered by this Convention” to include “other species of fish taken by vessels fishing for tunas”).

204. Cooperating nonmembers are states that apply an RFMO’s measures without having formal membership in the organization. These states formally “agree to apply the conservation and management measures” of an RFMO. UNFSA, *supra* note 109, art. 8(4). When they do, they are generally referred to as cooperating noncontracting parties (CNCs) or cooperating nonmembers (CNMs). See, e.g., Recommendation by ICCAT Concerning the Duties of Contracting Parties and Cooperating Non-Contracting Parties, Entities, or Fishing Entities in Relation to Their Vessels Fishing in the ICCAT Convention Area, ICCAT Recommendation 03-12 (2003) (stating that the obligations of both contracting states and CNCs to effectively control their vessels are the same).

205. IATTC Convention, *supra* note 195, art. VII(c). See *infra* Part III.C.1.d for a full overview of the management measures in place.

206. Both environmental NGOs and academics believe that RFMOs need to do much more to protect sharks. See, e.g., Dustin Cranor, *ICCAT Says “I Can’t,”* OCEANA (Nov. 27,

management works in roughly three steps: gathering information to ensure decisions are sound and to get feedback on the results of the plan; formulating management decisions in a plan and adjusting them over time; and ensuring compliance with, and enforcement of, the measures in place.²⁰⁷ Shark management, not unlike most fisheries management, has been unsuccessful at every step. The lack of accurate data makes shark management extremely difficult. And although some management measures do exist, they are generally weak and ensuring compliance is plagued by problems.

1. The Data Problem

Fisheries management stands or falls by good scientific data. In fact, the UNFSA emphasizes that management decisions should be based on “the best scientific data available.”²⁰⁸ However, it is difficult to get accurate assessments of marine life, as the deeper oceanic zones are hard to reach and ocean life generally has received less scientific attention than terrestrial life.²⁰⁹ The situation is even worse for sharks, which historically have commanded less interest as they were economically less valuable.²¹⁰ The first species-specific assessment of a group of oceanic sharks was completed only in 2008.²¹¹ To make matters worse, the data that states do collect is often misreported, making management even more difficult.²¹²

The need to collect accurate, species-specific data to legitimize management measures is almost universally recognized.²¹³ RFMOs have taken

2010), <http://na.oceana.org/en/news-media/press-center/press-releases/iccat-says-i-can-t>; Camhi et al., *supra* note 29, at 428.

207. See Cochrane & Garcia, *supra* note 160, at 14–16 (emphasizing the importance of information, implementation, and a sound plan). The considerations that play a role in formulating a management plan are of course highly complex and involve stakeholder, institutional, legal, and economic concerns. See *id.* at 3 (graphically representing the management process and its many substeps and inputs).

208. UNFSA, *supra* note 109, art. 5(b).

209. Erickson, *supra* note 27, at 284.

210. Dulvy et al., *supra* note 1, at 465; see also Barker & Schluessel, *supra* note 34, at 325–26 (noting that in 2004, species-level data was almost “non-existent”).

211. Dulvy et al., *supra* note 1, at 465.

212. Such misreporting may include intentional misreporting or failure to report shark catch—a problem already prominent a decade ago in Asia—or it may be accidental misreporting due to smuggling, which obscures real catch numbers. Edwards, *supra* note 127, at 325–28; see also OCEANA, *supra* note 164, at 2 (noting that in 2008, several countries still failed to report shark catch under ICCAT).

213. See, e.g., Barker & Schluessel, *supra* note 34, at 335; CLAUDINE GIBSON ET AL., INT’L UNION FOR THE CONSERVATION OF NATURE, THE CONSERVATION OF NORTHEAST ATLANTIC CHONDRICTHYANS: REPORT OF THE IUCN SHARK SPECIALIST GROUP NORTHEAST ATLANTIC RED LIST WORKSHOP 22 (2008) (noting that a lack of data does not mean management should be lacking). The IPOA-Sharks also includes a call for states to collect accurate, specific data. IPOA-Sharks, *supra* note 122, ¶¶ 21–22.

some steps to encourage collection of data on the species-specific level;²¹⁴ however, over the past years there has been continuing concern over the quality of the data supply, especially ICCAT's.²¹⁵ As the WCPFC at its latest meeting recognized by setting up a shark research program, more work is needed.²¹⁶

2. Management Measures

The data we do have about sharks paints a bleak picture: most stocks “are declining, and none are increasing.”²¹⁷ Thus, management measures have become critically important for shark conservation. They include fishing restrictions such as quotas and gear restrictions, finning bans, and species protections.²¹⁸ RFMOs have the ability to enforce all of these. Though species-specific protections are more common in the wildlife

214. See, e.g., Recommendation by ICCAT on Atlantic Shortfin Mako Sharks Caught in Association with ICCAT Fisheries, ICCAT Recommendation 10-06 (2010) (prohibiting retention of shortfin mako after 2013 unless states provide data on the species).

215. See, e.g., CLEO SMALL, BIRDLIFE INT'L, REGIONAL FISHERIES MANAGEMENT ORGANISATIONS: THEIR DUTIES AND PERFORMANCE IN REDUCING BYCATCH OF ALBATROSSES AND OTHER SPECIES 49 (2005) (noting that ICCAT “scores poorly in terms of bycatch data collection”); see also N. R. HAREIDE ET AL., EUR. ELASMOBRANCH ASS'N, EUROPEAN SHARK FISHERIES: A PRELIMINARY INVESTIGATION INTO FISHERIES, CONVERSION FACTORS, TRADE PRODUCTS, MARKETS AND MANAGEMENT MEASURES 1 (2007) (stating that ICCAT assessors themselves noted there was much uncertainty in their data).

216. An optimistic press release stated at the time that “the Commission approved a shark assessment and research program . . . which aims to determine the stock status of key Commission-managed shark species in the WCPO.” *International Fisheries Management Commission Agrees to Strategy to Amend Measures to End Bigeye Tuna Overfishing*, WORLD-WIRE (Dec. 16, 2010), <http://www.world-wire.com/news/1012160001.html>. The original proposal, which details the background of the conservation measure, is available on the WCPFC website. WCPFC Scientific Committee Sixth Regular Session, Nuku'alofa, Tonga, Aug. 10–19, 2010, *A Proposal for a Research Plan to Determine the Status of Key Shark Species*, WCPFC-SC6-2010/EB-WP-01 (2010) (by Shelley Clarke & S.J. Harley), available at <http://www.wcpfc.int/node/2950>. The research program creates no new obligations, as it is nowhere mentioned in the actual shark measure. WCPFC Conservation and Management Measures [CMM] for Sharks, WCPFC CMM 2010-07 (Dec. 10, 2010) [hereinafter WCPFC CMM 2010-07]. Unfortunately, the WCPFC has made no progress in shark conservation in 2010, as this measure is nearly an exact replica of its predecessor measure, CMM 2009-04. See *id.*; WCPFC CMM 2009-04 (Dec. 11, 2009). Hopefully in 2011, the WCPFC will progress after the first review of the Shark Research Plan at the Scientific Committee's August 2011 meeting. See Provisional Annotated Agenda, WCPFC Scientific Committee, Seventh Regular Session, at 7, WCPFC-SC7-2011-03 (May 10, 2011), available at <http://www.wcpfc.int/doc/wcpfc-sc7-2011-03/provisional-annotated-agenda>.

217. Camhi et al., *supra* note 29, at 437.

218. *Id.* at 420–25.

conservation context,²¹⁹ some species-specific shark measures have been adopted by RFMOs as well,²²⁰ in both binding and nonbinding forms.²²¹

First, some fishing restrictions have been imposed by the various RFMOs, mostly based on the first comprehensive ICCAT shark recommendation.²²² Formal quotas have not been imposed yet, and none of the four RFMOs surveyed here go as far as completely prohibiting the targeting of commercially valuable sharks.²²³ In 2010, though, ICCAT has prohibited retention of some specific sharks,²²⁴ a measure essentially equal to a zero quota. All of these species are commercially invaluable and highly threatened.²²⁵

Very few formal gear restrictions are specifically intended to protect sharks,²²⁶ though all of the RFMOs encourage research on, and use of, more selective gear to minimize shark bycatch.²²⁷ Another popular fishing re-

219. See *id.* at 421–22, 424 (showing species-specific measures, mainly under CMS and CITES; RFMOs only have a species “focus”).

220. For (slightly dated) tabular overviews of shark management measures in several major RFMOs, see *id.* at 421, 429; see also LACK & SANT, *supra* note 44, at 25–29.

221. Somewhat paradoxically, ICCAT (as did IATTC before the Antigua Convention entered into force) issues “resolutions” and “recommendations,” with the former being non-binding and the latter being binding. See Resolution by ICCAT Regarding Consolidation of Its Resolutions and Recommendations, ICCAT Res. 02-29 (Dec. 4, 2002). NAFO and WCPFC use nonbinding “resolutions” and binding “conservation and management measures,” or CMMs. See *Conservation and Management Measures, and Resolutions*, WCPFC, <http://www.wcpfc.int/conservation-and-management-measures> (last updated Apr. 19, 2011).

222. Recommendation by ICCAT Concerning the Conservation of Sharks Caught in Association with Fisheries Managed by ICCAT, ICCAT Recommendation 04-10 (Oct. 2004) [hereinafter ICCAT Recommendation 04-10]; see Camhi et al., *supra* note 29, at 421 (noting that most RFMOs have the “same measures as ICCAT”). ICCAT was also the first RFMO to note the issue of shark bycatch formally in 1995, then calling for increased cooperation with the FAO and among RFMOs to improve shark data. See Resolution: Cooperation with FAO to Study Status of Stocks & Shark By-Catches, ICCAT Res. 95-02 (Dec. 21, 1995).

223. Bycatch is, by its nature, almost unavoidable, but targeted catch may be prohibited, essentially setting a zero quota. Only the CCAMLR, *supra* note 200, has done so. See Conservation of Sharks, CCAMLR Conservation Measure 32-18 (2006).

224. Recommendation by ICCAT on the Conservation of Oceanic Whitetip Shark Caught in Association with Fisheries in the ICCAT Convention Area, ¶1, ICCAT Recommendation 10-07 (July 2010) (prohibiting retention of oceanic whitetip sharks); Recommendation by ICCAT on Hammerhead Sharks (Family *Sphyrnidae*) Caught in Association with Fisheries Managed by ICCAT, ¶ 1, ICCAT Recommendation 10-08 (Aug. 2010) (prohibiting the retention of hammerhead sharks). Parties should “strongly endeavor” to prohibit targeted fishing for thresher sharks as well. Recommendation by ICCAT on the Conservation of Thresher Sharks Caught in Association with Fisheries in the ICCAT Convention Area, ¶ 3, ICCAT Recommendation 09-07 (July 2009) [hereinafter ICCAT Recommendation 09-07].

225. Cranor, *supra* note 206. Such an approach is highly reminiscent of “deathbed conservation.” See Kunich, *supra* note 11, at 550–52.

226. NAFO used to have a mesh size restriction for some targeted shark fisheries, but the current NAFO regulations do not have that restriction anymore. See BARREIRA, *supra* note 6, at 28.

227. ICCAT Recommendation 04-10, *supra* note 222, ¶ 8; Resolution on the Conservation of Sharks Caught in Association with Fisheries in the Eastern Pacific Ocean, ¶ 8, IATTC

striction is the live release of sharks, which is mandated for some species and encouraged for most.²²⁸ “Full utilization,” which essentially means that fishermen have to retain most parts of the shark until the first landing, is present in the measures as well.²²⁹

Area and time restrictions on fishing could protect important shark habitat, and such measures have been imposed to protect other marine life such as vulnerable corals.²³⁰ Considering the importance of critical habitat such as pupping and nursery grounds,²³¹ closed areas could be an effective measure in protecting sharks if those areas can be identified.²³² Some RFMOs already protect seamounts,²³³ which are important shark habitats as well.²³⁴

Second, all of the RFMOs have adopted measures to counter finning. The main measure in place across the board is a so-called fin-to-carcass ratio. This means that although fishermen may cut the fins off sharks, the total weight of the fins on board may not be more than a set percentage of the weight of the rest of the shark carcasses present, generally five percent.²³⁵ This is a relatively ineffective measure, as none of the measures specifies whether live or dressed weight should be the baseline.²³⁶ Moreover, five percent is not an adequate estimate of the average fin-to-carcass ratio at least

Res. C-05-03 (June 2005); NAFO Conservation & Enforcement Measures, art. 17(7), NAFO FC Doc. 11/1, Serial No. N5876 (Dec. 3, 2010) [hereinafter NAFO CEMs]; Resolution on Non-Target Fish Species, ¶ 1, WCPFC Res. 2005-03 (Dec. 16, 2005) (encouraging minimizing of bycatch); WCPFC CMM 2010-07, *supra* note 216, ¶ 4 (encouraging research in techniques such as chemical and magnetic shark deterrents).

228. *E.g.*, ICCAT Recommendation 09-07, *supra* note 224, ¶ 2 (mandating live release of bigeye threshers); NAFO CEMs, *supra* note 227, art. 17(6).

229. *E.g.*, ICCAT Recommendation 04-10, *supra* note 222, ¶ 2; WCPFC CMM 2010-07, *supra* note 216, ¶ 6.

230. NAFO CEMs, *supra* note 227, art. 16.

231. *See* GIBSON ET AL., *supra* note 213, at 23.

232. BARREIRA, *supra* note 6, at 21.

233. *See, e.g.*, NAFO CEMs, *supra* note 227, art. 15(5).

234. *See generally* Feodor Litvinov, *Fish Visitors to Seamounts: Aggregations of Large Pelagic Sharks Above Seamounts*, in SEAMOUNTS: ECOLOGY, FISHERIES & CONSERVATION 202 (Tony J. Pitcher et al. eds., 2007) (noting that there is a higher concentration of sharks around seamounts).

235. The ratio is set at five percent by at least all RFMOs surveyed here. Their measures copy ICCAT, which chose this ratio in Recommendation 04-10. *See* ICCAT Recommendation 04-10, *supra* note 222, ¶ 3. It also left open the possibility of changing this ratio if more information became available. *Id.* ¶ 4. This fin-to-carcass ratio is also used by the European Union, which has been highly criticized for it. *See supra* notes 80–83 and accompanying text.

236. Live weight is the weight of the entire shark, whereas dressed weight is the weight of the shark, gutted and with its fins and head cut off. Since a live shark weighs more than a dressed shark, fin weight as a percentage of body weight is lower when using live weight as a baseline. Leaving the baseline ambiguous then allows for manipulation of the numbers. *See Safeguarding Sharks: Managing Shark Fisheries and Ending Shark Finning*, SHARK ALLIANCE (May 2010), http://www.sharkalliance.org/do_download.asp?did=977.

for live sharks.²³⁷ As a result, if a shark's fin weighs in at less than five percent of its total live weight, a vessel can dump carcasses until the ratio is met, defeating the waste-reducing purpose of the measure. A fins-attached requirement, such as the one required by the United States and maintained in its new Shark Conservation Act,²³⁸ is generally considered a much more effective way to ensure shark finning will not occur.²³⁹

Third, originally species-specific measures were mostly the province of the conservation treaties, which operate by listing particular species in their appendices.²⁴⁰ However, since the 2010 ICCAT Commission meeting, ICCAT has been getting more involved in shark management on the species level, rather than simply enacting measures targeted at sharks generally.²⁴¹ This is a positive development, as it shows that the organization interprets its mandate broadly and believes that in principle it can address shark overfishing on a species-specific level.²⁴² However, no action has yet been taken for important species that scientists have identified as needing protection by RFMOs.²⁴³

Overall, the promulgation of shark management measures by RFMOs is a "positive development," but these measures are still a far cry from what the RFMOs can and should be doing.²⁴⁴ Given both the basic knowledge that sharks are in bad shape and the lack of full, accurate, and specific data, successful management measures should be precautionary in nature.²⁴⁵ However, this is not what has happened. ICCAT, for instance, has been de-

237. See GIBSON ET AL., *supra* note 213, at 19 (noting the ambiguity on the baseline was left in to accommodate differing member state practices); LACK & SANT, *supra* note 44, at 15 (stating that the ratio has no clear scientific basis, varies widely among shark species, and depends on cutting techniques).

238. Shark Conservation Act of 2010, Pub. L. No. 111-348, sec. 103(a)(1), § 307(1), 124 Stat. 3668, 3670 (2010) (amending the Magnuson-Stevens Fishery Conservation and Management Act) (codified at 16 U.S.C. § 1857(1)(P) (2011)).

239. See, e.g., GIBSON ET AL., *supra* note 213, at 19 ("Most scientists and conservationists agree that the most reliable means for ensuring an end to finning is to prohibit the removal of shark fins at sea."); LACK & SANT, *supra* note 44, at 16.

240. See *supra* note 118 and accompanying text.

241. See *supra* note 224. So far, only ICCAT has binding shark-specific measures. The RFMOs do all provide species-specific codes for sharks to facilitate data collection. See, e.g., NAFO CEMs, *supra* note 227, annex II. The WCPFC has identified several key shark species in its shark measure. WCPFC CMM 2010-07, *supra* note 216, ¶ 4.

242. Formally, the commission may only "make recommendations designed to maintain the populations of tuna and tuna-like fishes . . . at levels which will permit the maximum sustainable catch." ICCAT Convention, *supra* note 194, art. VIII(1)(a).

243. Principally, shortfin mako and porbeagle have been of concern. See Camhi et al., *supra* note 29, at 430. Especially since the failure of CITES to protect the porbeagle in 2010, the lack of action in ICCAT is concerning.

244. SMALL, *supra* note 215, at 50.

245. See Camhi et al., *supra* note 29, at 437.

scribed as “extremely unsuccessful at managing bycatch species.”²⁴⁶ Since the management measures of other RFMOs are substantially the same as ICCAT’s, they would probably receive similarly unfavorable reviews. To make matters worse, this bad management is due not only to the lack of data and weak management measures, but also to the lack of compliance with these measures.

3. Enforcement and Compliance

No management measure can be effective without some means of securing compliance.²⁴⁷ Fisheries compliance is particularly difficult to achieve,²⁴⁸ and enforcement of and compliance with international environmental norms is difficult to measure.²⁴⁹ Sharks would benefit from improved fisheries enforcement, but they are not unique from other fish in that regard.²⁵⁰ For instance, reduction of IUU fishing, which undermines conservation measures, is a problem for RFMOs that is relevant to both sharks and other fish species.²⁵¹ While it is beyond the scope of this Note to offer solutions for all fisheries enforcement problems, highlighting some generally recognized problems provides a useful overview of the situation sharks are in, and pinpoints areas where RFMOs can improve.

First, it is a general proposition of international law that states cannot be bound without their consent, and RFMOs are no different from most international organizations in reflecting this reality. The RFMO founding treaties therefore either offer an opt-out procedure for parties that do not wish to implement a particular management measure, or they simply require unanimity.²⁵² Some measures are not binding, or are binding but very open in nature; in the latter case, states have considerable leeway in their

246. Juan C. Levesque, *International Fisheries Agreement: Review of the International Commission for the Conservation of Atlantic Tunas Case Study—Shark Management*, 32 *MARINE POL’Y* 528, 532 (2008).

247. Compliance is used here in a broader sense of norm setting and reinforcement on the international and domestic levels, instead of in the narrow law-as-force or “enforcement” sense that critics of international law have used to delegitimize international institutions. See *supra* Part II.A. Force is a component of compliance, and it will be discussed here, but it is not the only one.

248. See Cochrane & Garcia, *supra* note 160, at 14–15.

249. See BOWMAN ET AL., *supra* note 98, at 116.

250. BARREIRA, *supra* note 6, at 55.

251. *Id.* at 45; ANTHONY COX ET AL., OECD, STRENGTHENING REGIONAL FISHERIES MANAGEMENT ORGANISATIONS 98, 107 (2009).

252. See, e.g., ICCAT Convention, *supra* note 194, art. VIII(3)(c) (recommendations not binding on objecting party); IATTC Convention, *supra* note 195, art. IX(1) (decision making by consensus); NAFO Convention, *supra* note 196, art. XII(1) (objection procedure). The WCPFC procedures are somewhat more complicated, but in principle, decision making is by consensus. WCPFC Convention, *supra* note 197, art. 20(1). However, in case of a deadlock, a vote may be held, and though a member that votes against a measure may have the measure reviewed, if the measure is not changed, it does become binding. *Id.* art. 20(6), (8). However, the important decision of setting quotas has to be made by consensus. *Id.* art. 10(4).

implementation of these measures, which makes enforcement difficult and weakens the conservation scheme.²⁵³

Second, although “RFMOs are the engine room of enforcement activity today on the high seas,”²⁵⁴ enforcement remains a national affair. Where an RFMO exists, parties are generally expected to implement the organization’s measures into national law, and cooperate with the organization by having their fisheries enforcement agencies enforce the RFMO’s measures.²⁵⁵ In the United States, for instance, the Coast Guard primarily provides at-sea enforcement.²⁵⁶ However, since at-sea enforcement is costly, domestic resources to enforce shark management measures may be lacking even in wealthy states.²⁵⁷

The most important and cost-effective enforcement state remains the flag state, which has a duty to enforce applicable fisheries measures for vessels flying its flag.²⁵⁸ However, flag-state enforcement is not a panacea, as many states provide flags of convenience. Such states exercise hardly any control over vessels flying their flag, and most are not members of any of the fisheries conventions.²⁵⁹ A vessel wishing to fish for protected sharks thus only needs to reflag to a flag of convenience to avoid enforcement of shark protection measures by its flag state.²⁶⁰

253. *E.g.*, ICCAT Recommendation 04-10, *supra* note 222, ¶¶ 6, 8–9 (stating that parties “shall encourage the release of live sharks” and “shall, where possible, undertake research”). Whether research will actually take place is substantially left up to states, which means there is “no guarantee” such research occurs. *See* Camhi et al., *supra* note 29, at 428, 430.

254. UPTON & VITALIS, *supra* note 132, at 12.

255. *See* UNFSA, *supra* note 109, art. 20 (international cooperation in enforcement). This article is reflected in the RFMO conventions. *See, e.g.*, IATTC Convention, *supra* note 195, art. XVIII; ICCAT Convention, *supra* note 194, art. IX(3) (“The Contracting Parties undertake to collaborate . . . to set up a system of international enforcement . . .”).

256. *See* U.S. COAST GUARD, U.S. DEP’T OF HOMELAND SEC., OCEAN GUARDIAN: FISHERIES ENFORCEMENT STRATEGIC PLAN app. F (2004), available at <http://www.uscg.mil/hq/cg5/cg531/LMR.asp>. While most of the plan is focused on “force” (boarding and inspections), the plan also shows some aspects of norm setting and reinforcing: it aims at integrating fisheries norms into the broader strategic plan, and it wants to reinforce international fisheries norms by encouraging nations to sign the UNFSA. *Id.* at F-4.

257. Dennis M. King et al., *Reassessing the Value of U.S. Coast Guard At-Sea Fishery Enforcement*, 40 OCEAN DEV. & INT’L LAW 350, 355–56 (2009) (showing that detection of a single violation of fisheries laws by the Coast Guard costs millions of dollars).

258. UNCLOS gave primacy to the flag state, leaving only pollution enforcement to port and coastal states. UNCLOS, *supra* note 112, arts. 217, 218, 220. UNFSA still gives a primary role to flag states, but imposes a stricter obligation to ensure compliance with RFMO measures in Articles 18 and 19, especially Article 18(1). *See* Montserrat Gorina-Ysern et al., *Ocean Governance: A New Ethos Through a World Ocean Public Trust*, in *DEFYING OCEAN’S END: AN AGENDA FOR ACTION* 197, 205 (Linda K. Glover & Sylvia A. Earle eds., 2004) (“The flag-State [sic] has extensive duties to comply and to enforce the UNFSA.”).

259. Deirdre Warner-Kramer, *Control Begins at Home: Tackling Flags of Convenience and IUU Fishing*, 34 GOLDEN GATE U. L. REV. 497, 500–01 (2004); *see also* UPTON & VITALIS, *supra* note 132, at 5 (calling them “errant flag states”).

260. *See* Warner-Kramer, *supra* note 259, at 500–01.

In response to the weaknesses in flag-state enforcement, port-state responsibilities have been increased under the UNFSA and in RFMOs. Port states may regulate and inspect docking vessels for fish caught “in a manner which undermines the effectiveness of . . . conservation measures on the high seas.”²⁶¹ RFMOs, including ICCAT, have taken measures requiring their member states to do exactly this, and several also require parties to ban imports of some fish products caught illegally.²⁶² These measures have been relatively effective in curbing IUU fishing,²⁶³ but port-state measures specifically for shark protection do not yet exist.

Another way to enforce RFMO measures is boarding and inspection on the high seas, but this power is generally circumscribed and cannot be exercised against vessels flying the flag of a non-UNFSA state.²⁶⁴ Coastal state enforcement in areas under national jurisdiction also remains important, as most known IUU shark fishing occurs within EEZs,²⁶⁵ and coastal sharks by definition stay close enough to land to remain within the EEZs. However, even coastal state management has been inadequate.²⁶⁶ Although the UNFSA has mitigated some of the incentives for coastal states to set high catch limits, the enduring emphasis on sovereignty over the EEZ allows states to permit continuous overfishing.²⁶⁷ Even those states that do attempt to combat shark overfishing and finning face resource problems, like Palau’s single patrol boat to cover its entire EEZ.²⁶⁸

The FAO has been involved for almost two decades in an attempt to ameliorate these problems through a mix of soft and hard law,²⁶⁹ but it

261. UNFSA, *supra* note 109, art. 23(2)–(3). This is not a treaty power, but a power grounded in customary law as a corollary to state sovereignty over its ports. *See* BIRNIE ET AL., *supra* note 8, at 744.

262. KIMBALL, *supra* note 32, at 58–59. *See generally* Judith Swan, *Ocean and Fisheries Law: Port State Measures to Combat IUU Fishing: International and Regional Developments*, 7 SUSTAINABLE DEV. L. & POL’Y 38 (2006) (describing the development of port-state measures to combat IUU fishing).

263. Warner-Kramer, *supra* note 259, at 529 (“IUU vessels will find it harder to evade agreed rules no matter where they are flagged.”).

264. UNFSA, *supra* note 109, art. 21(1); *see also* BIRNIE ET AL., *supra* note 8, at 744 (“The power to board and detain is hedged about with extensive safeguards, both to prevent abuse . . . and to protect the position of the flag state.”).

265. CITES, Twenty-Fourth Meeting of the Animals Committee, Apr. 20–24, 2009, *Illegal, Unreported and Unregulated Shark Catch: A Review of Current Knowledge and Action*, at 6, Doc. No. AC24 Inf. 2 (Apr. 2008) (by M. Lack & G. Sant).

266. *See* Donna R. Christie, *It Don’t Come EEZ: The Failure and Future of Coastal State Fisheries Management*, 14 J. TRANSNAT’L L. & POL’Y 1, 4–5 (2004) (noting that “EEZ fisheries management, even by developed nations, has been unsuccessful”).

267. *Id.* at 26.

268. *See supra* note 85 and accompanying text. The problem of high at-sea enforcement cost is the same for a coastal state as it is for a state having its boats patrol to enforce RFMO measures. *See supra* note 257 and accompanying text.

269. Warner-Kramer, *supra* note 259, at 505.

has met with mixed success. The ambitious Compliance Agreement,²⁷⁰ which imposes strict duties on flag states to control their vessels and, under certain circumstances, to cooperate to ensure the activities of vessels of nonparty flag states do not undermine the fisheries regime,²⁷¹ did not enter into force until a decade after its creation.²⁷² The nonbinding Code of Conduct for Responsible Fisheries²⁷³ and the International Plan of Action to combat IUU fishing²⁷⁴ also play a role in curbing illegal fishing, though whether they have had any real effect has been debated.²⁷⁵

Third, a shark-specific problem in enforcement is that sharks are often hard to identify on the species level, especially when landed without fins or heads.²⁷⁶ Fins by themselves are also hard to identify, making fin trade and mislabeling hard to control.²⁷⁷ With ICCAT now prohibiting retention of certain species, it is imperative that these species can be identified correctly to ensure proper enforcement. To that end, several RFMOs have developed

270. Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, *adopted* Nov. 24, 1993, S. TREATY DOC. No. 130-24, 2221 U.N.T.S. 91 (entered into force Apr. 24, 2003).

271. *Id.* art. VIII(2). However, parties must cooperate “consistent with . . . international law” when ensuring nonparty vessels’ compliance with conservation measures. *Id.* It thus is a toothless provision. If the nonparty is a flag of convenience that has not ratified any other agreement except UNCLOS, other states must respect its flag-state rights, “no matter how disreputable their activities may be.” UPTON & VITALIS, *supra* note 132, at 6.

272. See UPTON & VITALIS, *supra* note 132, at 6 (“If the 1993 Agreement is anything to go by, there is an inverse relationship between treaty requirements and enthusiasm to accede.”). The Compliance Agreement currently has thirty-nine states parties, indicating slowly growing acceptance of the need to enforce conservation measures, though no new party has acceded since 2009. See *Treaty Status*, U.N. TREATY SERIES ONLINE COLLECTION, <http://treaties.un.org/pages/showDetails.aspx?objid=080000028007be1a> (last visited Feb. 22, 2012).

273. FAO, CODE OF CONDUCT FOR RESPONSIBLE FISHERIES (1995), *available at* <http://www.fao.org/DOCREP/005/v9878e/v9878e00.htm>.

274. IPOA-IUU, *supra* note 43.

275. UPTON & VITALIS, *supra* note 132, at 7 (“The hard question is whether anything has been added by the negotiation of texts which describe the world as regulators would like to see it rather than the regulatory minimum they have managed to negotiate.”). *But see* Kevern L. Cochran & David J. Doullman, *The Rising Tide of Fisheries Instruments and the Struggle to Keep Afloat*, 360 PHIL. TRANSACTIONS ROYAL SOC’Y B 77, 81 (2005) (noting that the IPOA-IUU shows “substantial national progress in implementation”).

276. See LACK & SANT, *supra* note 44, at 21 (noting that misidentification complicates data collection); Barker & Schluessel, *supra* note 34, at 335 (“[T]eeth are key diagnostic features for identification.”).

277. CUNNINGHAM-DAY, *supra* note 19, at 132. Genetic testing has advanced to the point that mislabeled shark products can now be identified genetically, though the procedure is still expensive and rather cumbersome. See Mahmood S. Shivji et al., *Genetic Profiling Reveals Illegal International Trade in Fins of the Great White Shark, Carcharodon carcharias*, 6 CONSERVATION GENETICS 1035, 1036 (2005) (identifying mislabeled fins of great white sharks).

shark identification guides.²⁷⁸ However, difficulties in identification are good additional reasons for RFMOs to strengthen their finning bans and require sharks to be landed with their fins and heads attached,²⁷⁹ a measure that is also easier to enforce by port states.

C. How to Fix the Gaps: Improving Shark Protection in RFMOs

Because of these problems, RFMOs have not received glowing reviews, particularly concerning their management of bycatch, including sharks.²⁸⁰ As one commentator noted pessimistically about a 2008 conference reviewing the functioning of the UNFSA: “[The] sentiment that most RFMOs are not performing their main duty, which is to achieve the long-term sustainability of fish stocks, prevailed.”²⁸¹ RFMOs must improve their performance to ensure that sharks—and other fish they regulate, such as tuna²⁸²—survive the twenty-first century. All nations can help solve shark problems and thereby fulfill their international obligations under the various fisheries treaties by actively promoting the strengthening of RFMOs and taking unilateral measures to pressure the international community where necessary. The latter would be especially effective if implemented by one of the major fish trading actors, most likely the United States or the European Union.²⁸³

278. See Kobe II Bycatch Workshop, Brisbane, Austl., June 23–24, 2010, *Kobe II Bycatch Workshop Background Paper: Sharks* 6 (2010), available at http://www.tuna.org/Documents/Aus/Kobe_II_Bycatch_Workshop_Paper_Sharks_FINAL_ENG_rev.pdf.

279. Currently, RFMOs allow discarding of the head and use a fin-to-carcass ratio to combat finning, both of which hamper shark identification. See, e.g., ICCAT Recommendation 04-10, *supra* note 222, ¶¶ 2, 3 (2004) (not requiring retention of the shark’s head as part of “full utilization” and setting a five percent fin-to-carcass ratio). See also CAMHI ET AL., *supra* note 43, at 35 (“Such a [fins-attached] policy simultaneously facilitates species-specific recording of landings . . .”).

280. Levesque, *supra* note 246, at 532.

281. BARREIRA, *supra* note 6, at 16.

282. In July 2011, the IUCN classified several tuna species as “being at serious risk of extinction,” and simultaneously called for stronger RFMO measures to avoid that outcome. *Increased Protection Urgently Needed for Tunas*, IUCN (July 7, 2011), <http://www.iucn.org/knowledge/news/?77820>.

283. Asian countries, mainly China and Japan, would make a huge impact if they decided to stop shark finning and trading. This is highly unlikely in the short term, however, considering the cultural significance of sharks in China and the history of both states in voting against increased shark protections in CITES. See *supra* note 47 and accompanying text; Ramos, *supra* note 120 (noting that at the most recent CITES conference, shark protection measures voted down by Japan, were supported by other Asian countries).

1. International Solutions: Strengthening RFMOs, Increasing Participation, and Combating Perverse Incentives

Because RFMOs are the “engine room of enforcement on the high seas,”²⁸⁴ they are the most relevant organizations to manage shark fishing. Beyond RFMOs, nations that are concerned about sharks should certainly use international law to its fullest extent to protect them, and include working within the WTO, CITES, and CMS frameworks as important parts of their management solutions.²⁸⁵

a. Strengthening RFMOs’ Structures

Strengthening RFMOs has become a priority in recent years as the ocean resource crisis has become more pronounced. The Organization for Economic Cooperation and Development (OECD) in 2009 published a report surveying several RFMOs and recommending many different ways to improve them, such as strengthening precautionary measures, encouraging specific nations to take leadership roles, and increasing participation in fisheries treaties.²⁸⁶ Despite the high costs of delaying action, RFMOs have traditionally been reluctant to take action until overfishing is actually occurring.²⁸⁷ Encouraging participation in modern, proactive shark management as the OECD advises should be a key priority for the United States, the European Union, and all other nations that stand to gain from the continued survival of sharks.²⁸⁸

Most of the RFMO conventions discussed in this Note have been modernized over the last decade, and NAFO will hopefully be modernized soon.²⁸⁹ Streamlining the decision-making process and including a dispute settlement mechanism are important parts of improving the management process.²⁹⁰ A two-tiered decision-making system, where not in place, would be an improvement, for instance. The first tier involves a “push for consensus” that encourages parties to actively participate and reach agreement,

284. UPTON & VITALIS, *supra* note 132, at 12.

285. *See supra* Part II.B.

286. COX ET AL., *supra* note 251, at 111–18.

287. *Id.* at 113.

288. *See* Cochrane & Garcia, *supra* note 160, at 16 (“The reality [is] that effective, proactive planning is still badly neglected in many fisheries around the world.”).

289. *See* COX ET AL., *supra* note 251, at 18. The one exception is ICCAT—the RFMO that, interestingly enough, has been most active in shark management despite its founding document dating from the 1960s. *See id.* at 61 (discussing how failures “to agree on conservation and management measures” have compromised “the sustainability of the reforms that have been undertaken to date”).

290. *See id.* at 107–09. Dispute settlement provisions are present in the new IATTC Convention. IATTC Convention, *supra* note 195, art. XXV. The modern WCPFC Convention incorporates UNFSA dispute settlement procedures, and it also provides for procedures when a party objects to a commission measure. *See* WCPFC Convention, *supra* note 197, art. 31; *see also* discussion *supra* note 252.

while a second tier provides for a majority voting procedure in case no consensus can be reached.²⁹¹ This setup ensures that the special interests of one or two dissenting states cannot block an important conservation measure, and thereby improves conservation without being offensive to state participation and sovereignty.²⁹²

b. Increasing Participation in Key Agreements

A major problem for international shark conservation is the lack of universal participation in key fisheries treaties such as the UNFSA and the FAO Compliance Agreement.²⁹³ Many commentators note that fisheries management can only be effective if all states agree on the basic rules²⁹⁴—yet only half of the major shark-catching countries are parties to the UNFSA.²⁹⁵ Developing states especially must be encouraged to ratify and actively implement these agreements.²⁹⁶

As a shark conservation leader, the United States should also participate in UNCLOS²⁹⁷ and the CBD.²⁹⁸ Becoming a member state will allow the United States to legitimately keep other states to their obligations under these treaties; it could then collaborate with E.U. member states to ensure these treaties are enforced with respect to sharks.

c. Changing Incentives Through Leadership

Even with good decision-making procedures and all interested states actively participating, the underlying economic incentives in fisheries remain

291. COX ET AL., *supra* note 251, at 108–09.

292. *Id.*; see also UPTON & VITALIS, *supra* note 132, at 7 (noting that pre-reform treaties usually had “decision-making procedures that can lead to deadlock (and thus inaction)”). The modern WCPFC has a fallback voting procedure to get out of such deadlocks. WCPFC Convention, *supra* note 197, art. 20.

293. COX ET AL., *supra* note 251, at 11 (showing a table of global and regional fisheries treaties and the participation in them by major fisheries countries).

294. *Id.* at 114–15; UPTON & VITALIS, *supra* note 132, at 13 (“In the absence of a high level of accession . . . we have only a very partial and patchy level of enforcement.”). In the poetic words of one commentator: “In order to save the world’s fish stocks, all international communities must both sign onto conventions that protect the entire ocean and become members to the smallest of regional management organizations that protect a specific species.” Erickson, *supra* note 27, at 287–88.

295. BARREIRA, *supra* note 6, at 14.

296. UPTON & VITALIS, *supra* note 132, at 13 (“Sign-up by flag states that have allowed IUU fishing is not in itself a solution if that fishing persists The real goal must be active support for the suppression of IUU fishing . . .”).

297. The U.S. government has indicated its willingness to accede to UNCLOS, though of course it remains to be seen if that will become a reality. See discussion *supra* note 149.

298. The United States already has an impressive set of conservation statutes in place, and so joining the CBD should not be much of a burden: “If anything, the CBD should help the U.S. coordinate and prioritize its biodiversity agenda even better.” William J. Snape III, *Joining the Convention on Biological Diversity: A Legal and Scientific Overview of Why the United States Must Wake Up*, 10 SUSTAINABLE DEV. L. & POL’Y 6, 9 (2010).

perverse because of subsidies. These incentive problems have impacted international fisheries management,²⁹⁹ leading to delays in action for sharks on both the domestic and international levels. Some sharks are commercially valuable, which makes regulation politically unfavorable.³⁰⁰ In developing countries, employment in shark fisheries may be valued higher than conservation.³⁰¹ Fins are still heavily traded in Asian markets,³⁰² so Asian countries especially are less likely to support shark conservation measures.³⁰³ The ironic “catch-22” is that since most sharks are not valuable outside Asia, they have historically not received high conservation priority in other parts of the world.³⁰⁴ So, even sharks without value have fallen prey—as by-catch—to the perverse incentives that have resulted from subsidized fishing overcapacity,³⁰⁵ and most states have not paid much attention to them until recently.

A lack of political will can undermine any regime,³⁰⁶ and the fisheries regime is no exception.³⁰⁷ Thus, as the OECD report on reforming RFMOs states, *both* the functioning of the regimes themselves *and* the underlying drivers of action and inaction must be addressed. “Without a change in incentives, it is unlikely that mere words on paper will create the political will necessary to make more fundamental, longer term changes to [ICCAT].”³⁰⁸ This holds true for sharks as well, and the United States, the European Union, and smaller states like Palau should address these problems by continuing to place sharks on the international agenda and should cooperate to combat the perverse incentives that lead to overfishing. Leadership matters in RFMOs, and it is critical that powerful states or groups like the United States or the European Union assume a leadership role in shark conservation by reducing their fisheries subsidies.³⁰⁹ Pushing for the elimination

299. Bilsky, *supra* note 37, at 611–14; *see also* Cochrane & Douman, *supra* note 275, at 83 (noting some of the general problems with fisheries law, including incentive problems).

300. *See* Griffin, *supra* note 35, at 2 (explaining that increasingly, sharks are targeted as they have become valuable).

301. Barker & Schluessel, *supra* note 34, at 331.

302. *See supra* notes 45–47 and accompanying text.

303. The best example of the political game involving sharks is the defeat in 2010 of the CITES porbeagle listing, during which Japan lobbied to “keep fisheries out of CITES.” Ramos, *supra* note 120, at 3.

304. Camhi et al., *supra* note 29, at 418.

305. *See supra* notes 37–43 and accompanying text.

306. BIRNIE ET AL., *supra* note 8, at 86 (noting that the failings of environmental regimes may be “the product of political choice” and in that respect they are no different from other international political institutions such as the United Nations).

307. COX ET AL., *supra* note 251, at 111 (naming lack of political will first in a list of problems with RFMOs).

308. *Id.* at 61.

309. It is unlikely any country can work change alone, although the next Section discusses some unilateral measures at the disposal of the powerful, including the United States and European Union, to enhance international coalition building. Such a coalition is critical to avoid RFMOs moving too slowly. The United States has already expressed its frustration at

of fisheries subsidies at the WTO level is equally important, although less likely to happen in the short term.³¹⁰

d. Using and Sharing Best Practices and Management Tools

Where the political will does exist, a “wide array of management tools and strategies” are available for managing fisheries, as mentioned above. Some of these tools could be highly effective for conserving sharks specifically.³¹¹ On the individual RFMO level, most commentators agree that quotas or prohibitions on targeting should be put in place considering the critical state of most shark stocks, with additional regulations mandating the use of equipment and gear that minimizes nonquota bycatch.³¹² For shark species that may still be caught, measures such as catch documentation schemes (CDS) have been effective in reducing IUU fishing, and so may be effective in ensuring that shark catch stays within quota. These schemes can work in different ways, but they generally operate by certifying that a particular catch has been caught in accordance with regulations. Sharks or shark fins without a valid certificate could then lose value and are more easily recognized as illegal by port states.³¹³

Other ways to improve monitoring include the use of observers and electronic vessel monitoring systems (VMS). Observers are entirely independent, and go with selected fishing vessels to monitor their activities.³¹⁴ RFMOs could mandate the use of observers or VMS on vessels targeting sharks or vessels that report high shark bycatch. Both VMS and observers can serve a double purpose by collecting fishing data and ensuring compliance with regulations.³¹⁵ Such a strong combination of enforcement with

ICCAT’s slow pace; the United States’ historical dominance in the organization is not strong enough to unilaterally enable change. *See id.* at 114.

310. *See supra* notes 138–143 (discussing the slow pace of the current WTO negotiations).

311. Camhi et al., *supra* note 29, at 419.

312. *See, e.g., id.* at 420; Griffin, *supra* note 35, at 2. Catch limits by themselves create some new problems, though, as high grading (discarding smaller fish) can occur. *See* LACK & SANT, *supra* note 44, at 18.

313. *See* Stokke & Vidas, *supra* note 36, at 38. Since CDS is a form of import restriction, there have been some worries under the WTO regime, but one RFMO, CCAMLR, and the WTO have been working together to ensure there is no conflict. *See id.* at 39–40; *see also* Zachary Tyler, *Saving Fisheries on the High Seas: The Use of Trade Sanctions to Force Compliance with Multilateral Fisheries Agreements*, 20 TUL. ENVTL. L.J. 43, 88–89 (2006) (arguing that RFMO-imposed trade restrictions are likely to pass muster under the WTO rules).

314. *See* Read D. Porter, *Fisheries Observers as Enforcement Assets: Lessons from the North Pacific*, 34 MARINE POL’Y 583, 584 (2010).

315. *See* Griffin, *supra* note 35, at 3 (noting that sharks would benefit from increased observer coverage). Most RFMOs already have VMS and observer schemes. *See, e.g.,* NAFO CEMs, *supra* note 227, arts. 26, 28 (requiring VMS and setting up an observer program, respectively); WCPFC Convention, *supra* note 197, art. 24(8), 28 (requiring member states to require VMS and providing a basis for a regional observer program). For the enforcement role

increased data collection can be a driver for more lasting change within RFMOs.³¹⁶

Institutionally, specialized shark groups should be created under the RFMOs' scientific committees to process the data that come out of these programs and formulate policy advice based on these data. ICCAT, for instance, already has a special shark rapporteur within its scientific committee,³¹⁷ and the WCPFC recently started an elaborate research program to determine the stock status of sharks in the WCPFC area.³¹⁸ The International Scientific Committee for Tuna-like Species in the North Pacific Ocean (ISC), which cooperates with the Pacific RFMOs, has recently formed a shark working group as well.³¹⁹ Having such experts is no guarantee for better management, however, because they can easily be ignored. It would certainly behoove the states parties to the RFMOs to pay more attention to their scientific committees and other scientific bodies, which have flagged shark problems for years.³²⁰

On the inter-RFMO level, sharing best practices is also important for shark conservation.³²¹ Many RFMOs have followed ICCAT's lead by adopting shark management measures that are essentially copied verbatim from ICCAT's measure,³²² so especially within this organization a continuing push for stronger shark conservation is necessary. With RFMOs all using essentially the same measure, an assessment of its effectiveness and implementation, and the sharing of those results, could lead to an improvement in shark management practices. There are already bilateral RFMO memoranda

observers play in U.S. fisheries, see Porter, *supra* note 314, at 588 (“[O]bservers outside the North Pacific represent a substantial, but underutilized, enforcement resource.”).

316. See COX ET AL., *supra* note 251, at 107 (“Further efforts to improve compliance . . . (for example, timely reports on observer reports, follow-up actions on penalties, inspections, VMS hauls, etc.) will also help to build on the trust between Parties and facilitate responsiveness to future reform challenges.”).

317. See discussion *supra* note 102.

318. WCPFC SCIENTIFIC COMM., COMM’N FOR THE CONSERVATION & MGMT. OF HIGHLY MIGRATORY STOCKS IN THE W. & CENT. PAC. OCEAN, SUMMARY REPORT OF THE SIXTH REGULAR SESSION 80–81 (2011) [hereinafter SIXTH SESSION SUMMARY REPORT]; see also discussion *supra* note 216 (explaining the legal status of the program).

319. The shark working group’s first papers were published in 2011. See *ISC11 Plenary Reports and Documents*, INT’L SCIENTIFIC COMM. FOR TUNA & TUNA-LIKE SPECIES IN THE N. PAC. OCEAN, http://isc.ac.affrc.go.jp/reports/isc/isc11_reports.html#WG (last updated Sept. 6, 2011).

320. See CAMHI ET AL., *supra* note 43, at 34.

321. See COX ET AL., *supra* note 251, at 108 (noting that dissemination of best practices can strengthen RFMOs). Best practices could include improved monitoring, enforcement, and a strengthened finning ban. See *id.*; Camhi et al., *supra* note 29, at 438–39.

322. See *supra* note 222 and accompanying text.

of understanding³²³ that help in disseminating data and practices. The organizations also share blacklists of IUU fishing vessels.³²⁴

Perhaps the CMS shark memorandum can become a platform that collects knowledge, shares best practices, and connects institutions. The United States, which was among the initial signatories of the CMS, can and should move it in that direction, and with the recent addition of the European Union and several of its member states, the memorandum should have the political force behind it to evolve into an important platform.³²⁵ Sharks are cosmopolitan and occur throughout many nations' EEZs and on the high seas, so it bears repeating that coordination in management is needed.³²⁶ Such coordination among the otherwise fragmented fisheries institutions could be achieved through an overarching, focused institution like the shark memorandum, if a meaningful number of states participate in it, including distant-water fishing nations and shark-consuming countries.³²⁷

2. Unilateral Pressure: Trade, Dispute Settlement, and Port-State Rights

Concerned nations should use international law to its fullest extent to promote shark conservation. To the frequent frustration of many, though, there has traditionally been a "reluctance of the [RFMO] membership to address pressing problems"³²⁸ in international fora. As mentioned before in this Note, however, international law offers several ways for states to legitimately exert unilateral pressure on other states to conserve sharks, especially on those renegade flag states that refuse to control their fishing vessels.³²⁹

323. See, e.g., WCPFC-IATTC Memorandum, Memorandum of Understanding Between the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean and the Inter-American Tropical Tuna Commission (Aug. 27, 2009), available at <http://www.wcpfc.int/doc/wcpfc-iatcc-memorandum-understanding>. The memorandum provides for reciprocal participation in meetings and information sharing about stocks.

324. See, e.g., NAFO CEMs, *supra* note 227, art. 57(6) (sharing NAFO's IUU list with other Atlantic RFMOs).

325. See Sharks MoU, *supra* note 102, ¶¶ 6–7 (noting that RFMOs play a critical role and that cooperation among governments, RFMOs, and other organizations should be enhanced).

326. BARREIRA, *supra* note 6, at 7 ("Given the wide-ranging distribution of sharks, including on the high seas, and the long migration of many species, it is increasingly important to have international cooperation and coordination.").

327. Stitching together the patchwork of RFMOs is necessary to achieve coordinated solutions to problems that transcend the individual RFMO, such as sharks, but also IUU fishing. See UPTON & VITALIS, *supra* note 132, at 13 ("Even with comprehensive accession . . . there remains a question of how a web of regional organizations . . . can work together to bring pressure to bear on a problem that extends to the high seas as a whole.").

328. COX ET AL., *supra* note 251, at 114.

329. The problem of flag states not ensuring compliance with conservation measures by their vessels has been called the "core of the problem facing RFMO enforcement." Tyler, *supra* note 313, at 81.

First, the major fish trading states, mainly the United States and E.U. members, could impose unilateral trade restrictions or incentives. For instance, they could restrict importation of tuna that has not been caught in a shark-safe way, in other words, caught by vessels from nations that do not have shark conservation measures such as a finning ban in place. This would be a restriction analogous to the requirement that foreign nations' fishing vessels use turtle-excluding devices in shrimp fisheries, a practice that was upheld as consistent with WTO rules in the *U.S.—Shrimp* case.³³⁰ Such measures could strike a "hard economic blow to noncompliant states,"³³¹ especially considering the fact that billions of dollars' worth of tuna is sold in the United States alone.³³² Domestic U.S. law already seems to allow for imposition of such measures.³³³ The European Union has the competence to impose trade measures as well, and could use them to create positive incentives too. For instance, it could grant import tariff cuts to developing countries that are parties to the relevant RFMOs or the Shark MoU, similar to its use of tariff cuts for countries ratifying important environmental conventions, such as climate change pacts.³³⁴

Second, the UNFSA specifically provides for dispute settlement.³³⁵ Any UNFSA member could, if it believes the situation is becoming critical, hail member states that are blocking key shark conservation measures in front of an international tribunal for violating their obligations under any of the relevant conventions. Perhaps even the broad UNCLOS obligations may be enough to invoke state responsibility if the relevant court—most likely the International Tribunal for the Law of the Sea or the International Court of Justice—acknowledges that the shark predicament is so dire that action must be taken.³³⁶ Under such a concept of state responsibility, a nation

330. See *supra* note 134 and accompanying text. So far, trade restrictions that have been imposed in concert with RFMOs have been upheld: "[N]o case has been brought against any of the trade measures employed in favor of conserving [a] global fishery resource." UPTON & VITALIS, *supra* note 132, at 11. Sharks seem to be excellent candidates for such measures, considering their stock status and the slow progress of RFMOs in managing them, both characteristics that were shared by sea turtle bycatch. Whether all the *U.S.—Shrimp* requirements for imposition of unilateral measures are met is an open question. See discussion *supra* note 142.

331. Tyler, *supra* note 313, at 82.

332. See *Fish Watch—U.S. Seafood Facts*, *supra* note 141, at 1.

333. See 16 U.S.C. §§ 1826k, 1826j(e)(3). See also discussion *supra* note 137.

334. See Council Regulation 732/2008, art. 8(1)(a), 2008 O.J. (L 211) 1, 4 (EC), as amended by Parliament & Council Regulation 512/2011, 2011 O.J. (L 145) 28 (EU) (granting special tariff preferences to countries ratifying conventions such as CITES, the CBD, and the Kyoto Protocol).

335. UNFSA, *supra* note 109, art. 30.

336. Serdy, *supra* note 183, at 30–31. The International Tribunal for the Law of the Sea (ITLOS) has already dealt with a fish stock under pressure before: southern bluefin tuna. In that case, ITLOS enjoined Japan from increased fishing of the stock to prevent further deterioration. Southern Bluefin Tuna Cases (Provisional Measures) (*N.Z. v. Japan*; *Austl. v. Japan*), Case Nos. 3 & 4, Order of Aug. 27, 1999, ¶ 80, <http://www.itlos.org/index.php?id=62>.

might receive reparations as the stocks of a shark species that spends part of its life cycle in the nation's EEZ are depleted. Because it would have to be proven that the responsible state was the cause of a particular amount of depletion, however, calculating damages would be extremely difficult as a practical matter.³³⁷

Third, the United States or E.U. member states, with their developed naval fleets, could start boarding vessels on the high seas, even of non-UNFSA states. They could justify this as a countermeasure to a perceived breach of international law, by arguing that the obligation to cooperate in managing fish stocks, or at least sharks, has become a customary norm that is violated by noncooperation.³³⁸ Given the nature of customary law and the question of whether the UNFSA's specific fisheries obligations are customary law, however, such an argument would currently be difficult to make.³³⁹

Fourth, a nation could invoke its port-state rights under the UNFSA and either refuse entry to vessels that have fished for sharks in contravention of domestic or international conservation measures or impose stringent inspections on such vessels.³⁴⁰ ICCAT member states may for instance enforce the new ICCAT prohibitions on catching certain sharks through port-state inspections. A port state could probably also refuse to allow entry for vessels that have fished for sharks that are unmanaged internationally, like porbeagle or spiny dogfish,³⁴¹ if it also imposes such conservation measures on

337. Serdy, *supra* note 183, at 37.

338. *See id.* at 26–27.

339. UNCLOS's broad fisheries provisions are almost certainly customary law given the wide participation in the treaty. The United States, a nonparty, has considered them such since the treaty was signed. William T. Burke, *Fishing in the Bering Sea Donut: Straddling Stocks and the New International Law of Fisheries*, 16 *ECOLOGY L.Q.* 285, 292 (1989). However, since the UNFSA's provisions are more specific and also refer to principles such as precautionary management, it would provide stronger ground to base a countermeasure defense on. Because the UNFSA forms a framework together with UNCLOS, Agenda 21, and the FAO instruments, it has been argued that "the key responsibilities upon which high-seas fishery management will depend are becoming established in *customary* international law." D.M. Johnston, *Towards a High-Seas Fisheries Management Regime: Vision and Reality*, in 1 *DEEP SEA 2003: CONFERENCE ON THE GOVERNANCE AND MANAGEMENT OF DEEP-SEA FISHERIES* 410, 412 (Ross Shotton ed., 2005).

340. UNFSA, *supra* note 109, art. 23. *See also supra* notes 261–263 and accompanying text.

341. Both of these species are considered depleted and in need of conservation measures, and have been proposed for listing on CITES several times. CAMHI ET AL., *supra* note 43, at 37.

domestic vessels.³⁴² However, unilateral port-state measures are only of limited effect as they tend to divert rather than solve the problem.³⁴³

Lastly, mobilizing consumer purchasing power to reduce demand for certain species of fish through, for instance, ecolabeling, might create increased political pressure to force reform in shark management.³⁴⁴ Governments could promote schemes similar to the dolphin-safe tuna label that has been effective in the past.³⁴⁵ Such schemes, however, are somewhat controversial because the criteria are open ended and complex, and application might result in discrimination that is prohibited by the WTO rules.³⁴⁶

CONCLUSIONS

The U.S. Senate version of the Shark Finning Prohibition Act of 2000 contained these words: “[T]he United States . . . as a global leader in fisheries conservation and shark management . . . should lead efforts . . . to achieve coordinated international management of sharks.”³⁴⁷ While this language did not make it into the final bill, one can only hope that a decade after this statement, the United States and other nations will continue to push hard on the international level to close the gaps necessary to ensure protection of sharks. The European Commission has stated that “given its commitment to sustainable fisheries and its weight at [the] international level, the Community should assume a leading role in the development of policies aiming at the rational exploitations of chondrichthyans [which in-

342. A state may not discriminate between its own and foreign vessels in imposing port-state measures, and it may only impose measures “to promote the effectiveness of subregional, regional and global conservation and management measures.” UNFSA, *supra* note 109, art. 23(1). Whether unilaterally imposing additional limitations on the catch of sharks could be “promoting” the effectiveness of open-ended RFMO resolutions that call for minimizing shark bycatch is unclear.

343. See UPTON & VITALIS, *supra* note 132, at 9. The past decade has seen increased efforts at coordinating port-state efforts to control illegal fishing, especially by the FAO. See DAVID DOULMAN, FAO, FAO PORT STATE MEASURES AGREEMENT: HUMAN RESOURCE DEVELOPMENT (2010), available at ftp://ftp.fao.org/PI/brochure/port_state/2010/al938_e.pdf. In 2009, a port-state measure treaty was adopted by the FAO, which codifies the state’s powers to deny vessels entry to its ports and to inspect vessels in port. Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, FAO Doc. No. C 2009/LIM/11 Rev.1 (adopted Nov. 22, 2009) (not yet in force). At the moment of this writing, twenty-three states have signed, but only one has ratified the agreement: Norway. Only two states, Myanmar and Sri Lanka, have indicated willingness to be bound through accession. See Legal Office: Treaties, *Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing*, FAO, <http://www.fao.org/Legal/treaties/037s-e.htm> (last visited Feb. 12, 2012).

344. KIMBALL, *supra* note 32, at 59 (“There is a special role for consumer initiatives in promoting accountability. Several recent efforts harness consumer purchasing power to encourage sustainable fishery and mariculture practices.”).

345. Stokke & Vidas, *supra* note 36, at 42.

346. *Id.* at 43; KIMBALL, *supra* note 32, at 59.

347. S. 2831, 106th Cong. § 2(14) (2000).

cludes sharks].”³⁴⁸ This growing enthusiasm for shark conservation is a hopeful sign.

As the survey in this Note suggests, much remains to be done at all levels to improve fisheries generally. Fisheries management is far from perfect, and sharks cannot be saved without addressing the larger problems of fisheries regulation.³⁴⁹ Sharks, because they are much more vulnerable than other fish, require urgent and specialized attention even in the absence of accurate data. This means the precautionary principle should play a role, and RFMOs should take strong shark conservation measures despite a lack of data.³⁵⁰ However, as one shark authority notes, “given the depleted global status of oceanic sharks and declining catch trends . . . it may be disingenuous to be advocating for ‘precautionary’ management: it is simply too late for that. For many populations . . . aggressive, restorative management is urgently needed.”³⁵¹

International law is not the “One True Answer,”³⁵² but it is certainly one viable answer among many that should be pursued. A comprehensive international shark regime that draws on the opportunities contained in both fisheries and other environmental treaties could contribute positively to shark conservation. Domestically and within RFMOs, all nations that care about sharks should encourage a “transition towards sustainable fisheries” for sharks.³⁵³ This will ultimately require a change in attitudes within society and further development of some of the poorer fishing nations,³⁵⁴ in addition to the changes within RFMOs suggested by this Note. International law can help effectuate such a transition, and in turn such changes will reinforce international rules already in place.

Even if the pace of international reform is slow, states cannot simply throw up their hands and decry RFMOs as ineffective institutions. There is much they can do unilaterally as well. Without a strong push for shark conservation on every level of management, the slow pace of reform and lax societal attitudes towards fisheries reform may cause sharks to start going extinct before the twenty-first century is over. That decidedly “shuts doors”³⁵⁵ on the ability of future generations to enjoy the beauty of sharks, and may have disastrous effects on marine ecosystems. This dire scenario must be prevented by the concerted action of all nations.

348. EPOA-Sharks, *supra* note 91, at 3.

349. Many commentators, NGOs, and some courts continue to denounce the quotas set by national regulators. *See, e.g.,* Bilsky, *supra* note 37, at 612 (quoting *Natural Res. Def. Council v. Daley*, 209 F.3d 747, 749 (D.C. Cir. 2000)); *see also* Christie, *supra* note 266, at 10–11 (“Left to their own discretion, however, coastal states have been quite unsuccessful [at preventing overexploitation].”).

350. Camhi et al., *supra* note 29, at 437.

351. *Id.*

352. Kunich, *supra* note 2, at 125.

353. Cochrane & Doulman, *supra* note 275, at 88.

354. *See id.*

355. Kunich, *supra* note 11, at 527.

