

1-1-2009

# A Tail of Hope: Canada's North Atlantic Straddling and Highly Migratory Fish Stocks, and the Prince of Darkness

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## Recommended Citation

George T. Williamson, *A Tail of Hope: Canada's North Atlantic Straddling and Highly Migratory Fish Stocks, and the Prince of Darkness*, 40 U. Miami Inter-Am. L. Rev. 383 (2009)

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# A Tail of Hope: Canada's North Atlantic Straddling and Highly Migratory Fish Stocks, and the Prince of Darkness

George T. Williamson\*

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*It is difficult to know exactly what goes on underwater. We have yet to come up with a Jane Goodall who will go live with the salmon and figure them out.*

— Jon L. Jacobson, 1998.

## I. INTRODUCTION

It was once reported by English fishing skippers that cod shoals in Canada's North Atlantic waters were so thick that the fishermen could hardly row their boats through them.<sup>1</sup> Awestruck onlookers recorded the existence of salmon-packed bays, massive herring spawns, freakishly enormous twenty-pound lobsters and seven-foot cod.<sup>2</sup> For centuries, these mythical creatures flourished in an ecosystem whose bounty seemed limitless. But, as the saying goes, "all good things must come to an end." A 2003 study reported that only 10% of the world's large predatory fish remained in the sea,<sup>3</sup> many of which were once found in enormous quantities off Canada's North Atlantic coast.<sup>4</sup> Sadly, this confirms that a half-century of overfishing has devastated Canada's once-fertile waters.

Until the 1950s, Canada's North Atlantic was fished primarily by local fishing operations, as foreign vessels were unable to yield catches large enough to recoup the costs of fishing distant waters.<sup>5</sup> However, in the mid-1950s, international industrialization and technological advances made it easier to locate and capture particularly valuable, straddling and highly migratory fish stocks ("SHMFS").<sup>6</sup> These stocks are especially vulnerable to

1. *A Run on the Banks: How "Factory Fishing" Decimated Newfoundland Cod*, E/ THE ENVTL. MAG., Mar.-Apr. 2001, available at <http://www.emagazine.com/view/?507> [hereinafter *A Run on the Banks*].

2. *Id.*

3. Ransom A. Myers & Boris Worm, *Rapid Worldwide Depletion of Predatory Fish Communities*, 423 NATURE 280, 282 (2003).

4. *Id.* at 280. These large predatory species include codfish, tuna, billfish, and swordfish. *Id.*

5. See Greenpeace, *History of the Grand Banks Cod Fishery*, <http://www.greenpeace.org/usa/news/no-fish-hunt-seals/history-of-the-grand-banks-cod> (last visited Oct. 13, 2008).

6. Julie R. Mack, *International Fisheries Management: How the U.N. Conference on Straddling and Highly Migratory Fish Stocks Changes the Law of Fishing on the*

overfishing because they habitually straddle or swim in and out of state-protected waters, allowing their capture by fisherman in regulation-free, international waters.<sup>7</sup> Armed with technological advances, foreign vessels flooded the waters off Canada's east coast, pillaging the plentiful SHMFS. Initially, the international community recognized the dangers of overfishing and forged preliminary agreements in an attempt to regulate distressed stocks.<sup>8</sup> However, the agreements proved largely ineffective, and eventually overfishing of the North Atlantic by international and domestic fleets resulted in the mass depletion of Canada's SHMFS.<sup>9</sup>

On the domestic front, Canada was slow in taking proactive measures to defend against the annihilation of SHMFS off its coast, and unfortunately, the side effects of inaction proved disastrous to the fragile North Atlantic ecosystem. For example, by the 1980s, the Canadian cod fishery had collapsed, forcing Canadian officials to declare a moratorium on the harvest of cod in a last ditch effort to prevent the species' extinction.<sup>10</sup> The delay of State action in defending the cod industry and other SHMFS frustrated many and drew criticism as "a ridiculous example of closing the barn door after the horse has escaped."<sup>11</sup> However, much of the delay stems from the difficulties faced by international and domestic regulators in isolating and adequately protecting Canada's waning SHMFS.<sup>12</sup>

The story of Canada's struggle is of interest for several reasons. First, Canada's nutrient-rich North Atlantic waters are fished by states around the world that depend on its bounty. The obliteration of SHMFS in these waters will necessarily damage a sector of the global economy that accounts for \$84.9 billion in annual revenue and 41 million jobs.<sup>13</sup> Second, the story illustrates the interplay of international law, domestic law, and political

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*High Seas*, 26 CAL. W. INT'L L. J. 313, 314 (1996); Michael Bhargava, *International Year of the Ocean, Redux*, 31 ECOLOGY L.Q. 413, 414 (2004).

7. *E.g.*, Karen L. Smith, *Highly Migratory Fish Species: Can International and Domestic Law Save the North Atlantic Swordfish?*, 21 W. NEW ENG. L. REV. 5, 6 (1999).

8. *See, e.g.*, Convention on Fishing and Conservation of the Living Resources of the High Seas, Apr. 29, 1958, 17 U.S.T. 138, 559 U.N.T.S. 285 [hereinafter High Seas Fishing Convention].

9. *See* Andrew Fagenholz, *A Fish in Water: Sustainable Canadian Atlantic Fisheries Management and International Law*, 25 U. PA. J. INT'L ECON. L. 639, 640 (2004).

10. *See A Run on the Banks*, *supra* note 1.

11. *Id.*

12. *Id.*; *see also* Mack, *supra* note 6, at 314.

13. *See* U.N. Food & Agric. Org. [FAO] Fisheries & Aquaculture Dep't, *The State of*

activities by affected industry and non-governmental organizations in dealing with a serious environmental problem. Third, and most importantly, Canada's dilemma is analogous to that faced by many other states in attempting to regulate their own distressed SHMFS. Thus, the Canadian paradigm addressed by this article and the recommendations made herein are applicable to states with similarly threatened fisheries. This article submits that Canada's steadfast dedication to the enforcement of a combined international and domestic regulatory scheme is making strides to nurture distressed North Atlantic SHMFS back to healthy, sustainable levels. Moreover, a global realization of the damages caused by the overfishing of SHMFS and a resolve to nurture the once magnificent fishery has begun to positively impact the health of these stocks.

Part II of this article presents a historical analysis of laws relating to the harvest of North Atlantic SHMFS and will be broken down into two codependent sections. The first will detail a shift in international law from the traditional notion of freedom of the high seas, towards the acceptance of specific conventions aimed at the conservation and management of SHMFS on the high seas. The second section will explore the damage caused by Canada's initial reliance on international law to protect these stocks and the country's necessary evolution towards the enforcement of a combined international and domestic regulatory scheme. Part III demonstrates how Canada's adherence to the combined regulatory scheme has provided a view towards sustainable fisheries through a case study of the North Atlantic swordfish fishery. Part IV provides recommendations on how Canada can move closer to achieving maximum sustainable yields from its North Atlantic fishery by applying lessons learned from the North Atlantic swordfish fishery to other problematic SHMFS.

## II. REGULATION OF NORTH ATLANTIC FISH STOCKS

### A. *International Regulation: A Historical Journey towards the Fish Stocks Agreement*

International fishery regulation has been based in large part upon a state's absolute control of territorial waters. Traditionally, the international community accepted that a state's territory included waters and natural resources extending up to three miles

from its shores.<sup>14</sup> This tradition also dictated that waters outside a state's territorial limits were considered high seas, freely accessible by all.<sup>15</sup> Nevertheless, by the latter half of the twentieth century many states unilaterally disregarded this tradition by claiming territorial waters well beyond three miles, mostly in an attempt to protect distressed fisheries and other natural resources, necessitating uniformity.<sup>16</sup>

## 1. United Nations Convention on the Law of the Sea ("UNCLOS I")

In 1958, the international community recognized the need to create a uniform agreement on the limitations of the reach of territorial waters at UNCLOS I.<sup>17</sup> However, the resulting territorial treaty, the Convention on the Territorial Sea and the Contiguous Zone ("Territorial Sea Convention"),<sup>18</sup> failed to codify such a standard limitation.<sup>19</sup> Interestingly, the Convention's Commission unanimously agreed that international law would not permit an extension of a state's territorial sea beyond twelve miles. Thus, in accordance with international law, a state was permitted to claim as its own territorial waters extending between three and twelve miles off its coastline.<sup>20</sup> Nonetheless, the Commission's failure to explicitly include this language in the Territorial Sea Convention frustrated a basic purpose of UNCLOS I, leading to continued uncertainty over the scope of territorial waters.

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14. HARRY N. SCHEIBER, *LAW OF THE SEA: THE COMMON HERITAGE AND EMERGING CHALLENGES* xiii (Harry N. Scheiber ed., 2000).

15. See Smith, *supra* note 7, at 10.

16. See Harry N. Scheiber & Christopher J. Carr, *From Extended Jurisdiction to Privatization: International Law, Biology, and Economics in the Marine Fisheries Debates, 1937-1976*, 16 *BERKELEY J. INT'L L.* 10, 41 (1998) (asserting that many states claimed 12-mile territorial waters, but in some extreme cases, states claimed over 200 miles).

17. See *Report of the International Law Commission to the General Assembly*, 11 U.N. GAOR Supp. (No. 9), U.N. Doc. A/3159, reprinted in [1956] 2 *Y.B. INT'L L. COMM'N* 253, 265, U.N. Doc. A/3159 [hereinafter *Report of the International Law Commission to the General Assembly*].

18. Convention on the Territorial Sea and the Contiguous Zone, Apr. 29, 1958, 15 U.S.T. 1606, 516 U.N.T.S. 205.

19. A minority of the convention's commissioners "held that the rule fixing the breadth at three miles had been widely applied in the past and was still maintained by a number of important maritime[s]tates, it should, in the absence of any other rule of equal authority, be regarded as recognized by international law and binding on all [states]. That view was not supported by the majority of the Commission . . ." *Report of the International Law Commission to the General Assembly*, *supra* note 17, at 265-66.

20. *Id.*

Overshadowing this failure was the Territorial Sea Convention's success in producing the High Seas Fishing Convention.<sup>21</sup> This agreement demonstrated an international awareness of the problems overfishing presented and the need to encourage conservation of fish stocks on the high seas.<sup>22</sup> In substance, the agreement called for states engaged in fishing for the same stock on the high seas to enter into negotiations to adopt measures to ensure conservation of those stocks.<sup>23</sup> However, the High Seas Fishing Convention has been characterized as "very general [and] only provid[ing] vague obligations"<sup>24</sup> in large part because the agreement was silent as to what type of measures should be taken in order to protect the stocks.<sup>25</sup> Further, conservation measures were only allowed if three conditions were met: 1) there was an urgent need in light of the existing knowledge of the fishery, 2) the measures adopted were based on scientific findings, and 3) the measures did not discriminate in form or in fact against foreign fisherman.<sup>26</sup> Thus, the burden was on a state to prove that its fishery was in need of conservation efforts, rather than a presumption that such efforts were needed to sustain the fishery. While the High Seas Fishing Convention represented an initial international attempt at limiting exploitation of fish stocks on the high seas, the agreement was not practical because it provided minimal mechanisms to ensure enforcement.<sup>27</sup>

## 2. International Commission for the Conservation of Atlantic Tuna ("ICCAT")

In 1966, ICCAT was established at the Conference of Plenipotentiaries in Rio de Janeiro, Brazil. ICCAT is responsible for the management and conservation of roughly thirty tuna, or tuna-like species in the Atlantic Ocean.<sup>28</sup> The Commission undertakes a

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21. See High Seas Fishing Convention, *supra* note 8.

22. See Fagenholz, *supra* note 9, at 650; Smith, *supra* note 7, at 11.

23. Smith, *supra* note 7, at 11.

24. Fagenholz, *supra* note 9, at 650.

25. See High Seas Fishing Convention, *supra* note 8, at arts. 2-4. The agreement concluded that conservation efforts should be measures that "render[] possible the optimum sustainable yield from those resources so as to secure a maximum supply of food and other marine products . . . for human consumption." *Id.* at art. 2.

26. *Id.* at art. 7.

27. See High Seas Fishing Convention, *supra* note 8.

28. A sampling of the HMFS that are of direct concern to ICCAT includes the Atlantic bluefin, skipjack, yellowfin, albacore, bigeye tuna, and other smaller tuna; swordfish; and billfish such as white marlin, blue marlin, sailfish, and spearfish. See International Commission for the Conservation of Atlantic Tunas, <http://www.iccat.int/en/introduction.htm> (last visited Feb. 15, 2009).

wide range of research and studies of SHMFS with "a principal focus on the effects of fishing on stock abundance."<sup>29</sup> At the same conference, ICCAT prepared and adopted the International Convention for the Conservation of Atlantic Tunas ("Atlantic Tuna Convention").<sup>30</sup> The international treaty was formed among countries with a common interest in protecting Atlantic tuna and other tuna-like species,<sup>31</sup> in order to maintain these stocks at a level that would allow for the maximum sustainable catch for food and other purposes.<sup>32</sup>

The Atlantic Tuna Convention directs that the Commission may establish panels to monitor the health of stock levels on the basis of species or geographical location.<sup>33</sup> Generally, these panels are composed of a party's delegates and are aided by experts who specialize in the study of the species of a particular panel's purview.<sup>34</sup> The panels make recommendations to the Commission regarding measures that will preserve the health of a particular stock. As provided by the treaty, panels receive and analyze data submitted to them by the parties and submit a biennial proposal for recommendation to the Commission.<sup>35</sup> If the Commission adopts the recommendation, it becomes binding on all parties six months after their notification.<sup>36</sup>

The Atlantic Tuna Convention built upon High Seas Fishing Convention's modest successes and represented a giant step in the direction of strong international regulation of North Atlantic SHMFS. The Convention recognized the need to protect such highly sought-after stocks and endeavored to set international standards for the management and conservation of the stocks. However, like the High Seas Fishing Convention, the Atlantic Tuna Convention was a far cry from the solution to a global dilemma.

Much of the criticism of the Atlantic Tuna Convention stems

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29. *Id.*

30. International Convention for the Conservation of Atlantic Tunas, May 14, 1966, 20 U.S.T. 2887, 673 U.N.T.S. 63 [hereinafter Atlantic Tuna Convention].

31. "The Governments of the following seventeen States were represented: Argentina, Brazil, Canada, Cuba, Democratic Republic of the Congo, France, Japan, Portugal, Republic of Korea, Republic of South Africa, Senegal, Spain, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela." *Id.* at para. 3.

32. *Id.* at pmb1.

33. *Id.* at art. VI.

34. *Id.* at R. 12.

35. *Id.* at art. IX.

36. *Id.* at art. VIII(2).



from the agreement's limited jurisdiction.<sup>37</sup> In theory, the area covered by the agreement seems adequate to protect Atlantic stocks: the entire Atlantic basin and the adjacent waters to which tuna species may also migrate.<sup>38</sup> In reality, this area is limited to waters which are outside of a state's territorial control.<sup>39</sup> The Convention disclaims an intention to interfere with a state's jurisdiction over its territorial waters under international law.<sup>40</sup> Thus, at the time of the convention's passage, states maintained complete control over areas anywhere between three and twelve miles off their coastline. Consequently, these areas were not capable of being protected by the Atlantic Tuna Convention. Moreover, with the aid of satellite tracking devices, it has recently been discovered that tuna in the western Atlantic migrate into the eastern Mediterranean where they are subjected to higher pressure from international fishing fleets—and where ICCAT has no jurisdiction.<sup>41</sup>

Further weakening the Atlantic Tuna Convention is its directive that panels must use data received from member states in their analysis of a particular species.<sup>42</sup> Most data collected by member states are a product of reported catches by commercial fisherman who are alleged by many scientists of skewing reports in their favor.<sup>43</sup> If the data submitted are in fact inaccurate, and are used by a panel in its analysis, the resulting proposal for recommendation will be flawed. This in turn defeats the treaty's goal of international oversight; because of this failure, those frustrated by ICCAT's flawed regulations have dubbed it the "International

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37. See Smith, *supra* note 7, at 21.

38. See Atlantic Tuna Convention, *supra* note 30, at art. I.

39. See Smith, *supra* note 7, at 21.

40. See Atlantic Tuna Convention, *supra* note 30, at art. II.

41. See Dorinda Dallmeyer, *Fish and Other Migrating Species in the Canada / U.S. Context*, 28 CAN.-U.S. L.J. 377-78 (2002).

42. Atlantic Tuna Convention, *supra* note 30, at annex II ("Agreeing that it is essential that all countries fishing these Atlantic tuna resources should collect adequate statistics on catch and fishing effort and the necessary biological data, and make available for publication the statistical and related economic data with a view to enabling the International Commission for the Conservation of Atlantic Tunas to fulfill its functions adequately as soon as it is established.") (emphasis in original).

43. See Mort Rosenblum, *Bluefin Tuna Losing Battle for Survival*, July 19, 2004, <http://www.msnbc.msn.com/id/5428979/> (last visited Oct. 2, 2008) ("[T]he main problem is that since ocean fish cannot be accurately counted, no one can be certain about numbers. As a result, fishermen and conservationists push data to opposite extremes . . . . [I]n theory, commercial fishermen should want to protect stocks to guarantee their own future livelihood. In practice, the experts say, many captains opt for maximum immediate profit.")

Conspiracy to Catch All Tuna.”<sup>44</sup>

### 3. Northwest Atlantic Fisheries Organization (“NAFO”)

In 1979, NAFO (and its corresponding Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries)<sup>45</sup> was founded as an intergovernmental fisheries science and management body, responsible for the conservation of fish stocks on the high seas.<sup>46</sup> NAFO establishes annual total allowable catch (“TAC”) regulations that are divided into quotas and allocated to member states.<sup>47</sup> The organization also agrees annually on Conservation and Enforcement Measures that include a wide range of management and control regulations,<sup>48</sup> a monitoring scheme,<sup>49</sup> and inspection and surveillance measures.<sup>50</sup>

A serious obstacle restricting NAFO’s scheme of management and conservation of SHMFS is the “free-rider problem.”<sup>51</sup> In practice, this occurs when foreign fleets not bound by NAFO’s regula-

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44. *Id.*

45. Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries, Oct. 24, 1978, <http://www.nafo.int/about/overview/convention/convention.pdf> (last visited Oct. 2, 2008) [hereinafter Northwest Atlantic Convention].

46. Northwest Atlantic Fisheries Organization, <http://www.nafo.int/about/frames/about.html> (last visited Oct. 2, 2008) [hereinafter NAFO].

47. Fagenholz, *supra* note 9, at 656; *see also* NAFO, *supra* note 46 (“In 2007, NAFO ha[d] 12 Members from Central and North America, Europe and Asia. Among them [were] four coastal members bordering the Convention Area: USA, Canada, France (in respect of St. Pierre et Miquelon), and Denmark (in respect of Faroe Islands and Greenland.)”).

48. “Control measures include authorization to fish, chartering arrangements, vessel register, vessel requirements, marking of gear and product labeling requirements.” NAFO, *supra* note 46. In addition, NAFO establishes “gear requirements, area and time restrictions, coral protection zones, minimum fish size, [measures for the conservation and management of sharks,] and by-catch requirements.” *Id.*

49. “The monitoring of fisheries consists in the recording of catch and stowage, reporting of catch and fishing effort (by flag states), a satellite-based VMS (Vessel Monitoring System) for 2-hourly position reports, communication of catches and an observer program (independent observer on board of every fishing vessel).” *Id.*

50. “NAFO also has a joint (collaborative) inspections and surveillance scheme in place under which licensed inspectors board and inspect fishing vessels in international waters. Furthermore, all vessels landing catches from the Northwest Atlantic in ports of NAFO member states are submitted to a rigorous and obligatory port inspection. Finally, NAFO has developed a scheme to prevent IUU fishing by non-member vessels.” *Id.*

51. Fagenholz, *supra* note 9, at 657 (citing Code of Conduct for Responsible Fisheries, U.N. Food and Agriculture Organization, art. 6.3 (1995), <http://www.fao.org/docrep/005/v9878e/v9878e00.htm>) (last visited Sept. 21, 2008) (“States should prevent excess fishing capacity and should implement management measures to ensure that fishing effort is commensurate with the productive capacity of the fishery resources and their sustainable utilization.”).

tions fish in areas under the jurisdiction of the organization. In this situation, member states' fleets are bound by the organization's directives. However, nonmembers are free to disregard them as they see fit, benefiting from the conservation efforts of the member states. In an effort to stem this practice, NAFO provides that all nonmember vessels landing catches from the Northwest Atlantic in ports of NAFO member states are to be submitted to a rigorous and obligatory port inspection.<sup>52</sup> If after inspection it is found that a nonmember vessel has undermined the effectiveness of the Conservation and Enforcement Measures established by NAFO,<sup>53</sup> the landing and transshipment of the vessel's catch is prohibited.<sup>54</sup>

Another argument against the effectiveness of NAFO's conservation efforts is the organization's failure to overcome "political scheming."<sup>55</sup> In order for NAFO to make recommendations to member states regarding their respective quotas, the figures must be agreed upon by a majority vote of its members.<sup>56</sup> However, if a member state objects to its recommended quota it may file a formal objection and is then freed from abiding by the NAFO established quota.<sup>57</sup> Political scheming was illustrated on a grand scale in 1986 when the European Union formally objected to its NAFO established quota of 700 tons of flounder, and instead netted a catch of 21,161 tons.<sup>58</sup>

#### 4. United Nations Convention on the Law of the Sea III ("UNCLOS III")

In essence, UNCLOS I codified the freedom of the high seas tradition.<sup>59</sup> This forced coastal states to rely on regional fishery management organizations ("RFMO") such as ICCAT and NAFO

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52. NAFO Conservation and Enforcement Measures, art. 48, NAFO FC Doc. 08/1 Serial No. N5480, <http://www.nafo.int/fisheries/CEM/CEM.pdf> (last visited Oct. 2, 2008).

53. *Id.* at arts. 46, 50.

54. *Id.* at art. 50.

55. See Thomas A. Telesca, *Sovereignty or the Precautionary Principle: Which Will Save Our Fish?*, 12 SOUTHEASTERN ENVTL. L.J. 23, 39-40 (2003).

56. NAFO Rules of Procedure and Financial Regulations, Rules of Procedure for the General Council, Rule 2.3, <http://www.nafo.int/about/overview/convention/rules.pdf> (last visited Oct. 3, 2008).

57. See Northwest Atlantic Convention, *supra* note 45, at art. XII.

58. Telesca, *supra* note 55, at 40 (citing DAVID HUNTER, JAMES SALZMAN & DURWOOD ZAELEKE, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 127 (2d ed. Found Press 2002)).

59. See *Report of the International Law Commission to the General Assembly*, *supra* note 17, at 265-66.

to protect fish stocks on the high seas. On paper, this two-headed regime seemed adequate to protect fish stocks on the high seas. In reality, the success of ICCAT and NAFO were both extremely limited due to a host of deficiencies in the organizations' enforcement mechanisms.<sup>60</sup> This presented an unfortunate dilemma for coastal states: while they could patrol their own territorial waters for poaching vessels, under international law, they could only rely on ICCAT and NAFO to protect stocks on the high seas.

Accordingly, many coastal states began to feel that the inadequacy of RFMOs in protecting fish stocks on the high seas would justify a unilateral extension of territorial waters.

[A]ttention began to shift to possibilities of limited entry in international fisheries. Here the actors (at least in the first instance) would be the coastal nations, as they might extend their offshore limits and exclude foreign-flag fleets from fishing, or at least subject the foreign vessels to restrictive controls; in the second instance, the new restricted zones might also become the arena for limited entry or other types of economic-efficiency-oriented regulation of domestic-flag vessels as well. Even though little progress had as yet been made, to the early 1960s, in legitimization of limited entry principles in evolving international law, at least the issue of extended jurisdiction beyond the traditional three-mile offshore limit had become a focal point of debate and tension, with the possibility of new opportunities for limited entry policies—or, seen in other terms, the possibility that limited entry policy might become an absolute imperative for many coastal nations. Moreover, with the rising pressure on fisheries in Canadian and American coastal waters, as the result of increasing numbers of foreign fleets and rising scale of operations, the policy imperatives seemed to favor limited entry ideas.<sup>61</sup>

The practice of unilaterally extending territorial waters began in South America in 1947 with Chile's ambitious 200-mile claim.<sup>62</sup> This practice was soon followed by other underdeveloped

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60. See Jon L. Jacobson, *Symposium: The New Internationalization of North Pacific Fisheries*, 6 WILLAMETTE J. INT'L L. & DISP. RESOL. 1, 3-4 (1998) ("[E]nforcement of any such rules was not undertaken by the commission itself; rather, enforcement was the responsibility of the party states. Occasionally, arrest and seizure by other parties was permitted but ultimately delivery of the arrested vessel to the flag state was required.").

61. Scheiber & Carr, *supra* note 16, at 39-40.

62. See Jacobson, *supra* note 60, at 6 ("The 200-mile limit has its genesis in 1947. World War II had just ended and Chileans feared the Europeans and Japanese would resume whaling off Chile's Southern Coast. Chilean companies had begun whaling in

countries in the 1960s and early 1970s in a desperate attempt to limit the pillaging of their natural resources.<sup>63</sup> Initially, industrial states who sought to exploit those resources resisted the unilateral extensions and adhered to the traditional three mile limit. However, as mounting pressure from domestic and international fleets strained the health of fish stocks, by 1976 even the United States extended its territorial jurisdiction to 200 miles.<sup>64</sup> At this point, the international community recognized that UNCLOS I was no longer effective at managing the earth's waters and an international convention was needed, in part, to settle the territorial waters jurisdictional debate.

In 1982, UNCLOS III<sup>65</sup> resolved the territorial debate by dividing the earth's waters into three distinct categories: territorial waters, an exclusive economic zone ("EEZ"), and high seas.<sup>66</sup> Territorial waters were extended from three miles to twelve miles,<sup>67</sup> and an EEZ was created which extended from the coast-line outward 200 miles.<sup>68</sup> As was tradition, states retained virtually complete control over territorial waters and no control over the high seas.<sup>69</sup> However, UNCLOS III gave states exclusive rights for the exploration, exploitation, management, and conservation of living and non-living resources within the newly created 200 mile EEZ.<sup>70</sup>

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the absence of competing interests and the industry did not want competition to return.").

63. *Id.*; see also Scheiber & Carr, *supra* note 16, at 41.

64. Scheiber & Carr, *supra* note 16, at 41.

65. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS III].

66. *Id.*; see also Smith *supra* note 7, at 12; Mack, *supra* note 6, at 317. In the interest of accuracy, but not relevant to this discussion, UNCLOS III also established two other categories of waters: the Contiguous Zone, and the Continental Shelf. See UNCLOS III, *supra* note 65, at arts. 33, 76. The contiguous zone can extend an additional twelve miles from the boundaries of a state's territorial waters, but cannot exceed twenty-four miles from shore. Within the contiguous zone, a nation can act to prevent violations of its environmental, customs, fiscal, or immigration laws, or to apprehend vessels suspected of violating them. *Id.* On the other hand, the Continental Shelf's boundaries "shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 [meter] isobath, which is a line connecting the depth of 2,500 [meters]." *Id.*

67. UNCLOS III, *supra* note 65, at art. 3.

68. *Id.* at art. 57.

69. Telesca, *supra* note 55, at 38 ("Article 87 of the UNCLOS asserts Grotius's freedom of the seas doctrine. It states that the high seas are open to all States, whether coastal or land-locked.") (citations omitted) (quotations omitted).

70. UNCLOS III, *supra* note 65, at art. 56(1). Specifically, the agreement directs that within the EEZ a coastal state shall determine the TAC of living resources

The introduction of an EEZ into international law added a significant weapon to Canada's arsenal for the protection of its distressed fish stocks. When combined, the EEZ and territorial waters account for 40% of the world's oceans and 90% of its marine resources.<sup>71</sup> Accordingly, the jurisdictional areas carved out by UNCLOS III allowed Canada much greater control over fish stocks off its coasts. However, like many of its predecessors, the agreement failed in large part to codify proactive measures designed to regulate SHMFS, and thus the agreement alone was unable to adequately protect those stocks.

UNCLOS III hinted at the idea of multilateral regulation and conservation efforts for SHMFS, but stopped short of taking the actual measures necessary to accomplish these objectives.<sup>72</sup> Instead, UNCLOS III endorsed the establishment of RFMOs such as ICCAT and NAFO.<sup>73</sup> The agreement directed that states had a duty to cooperate in good faith to set up management measures with other states engaged in the fishing for SHMFS.<sup>74</sup> However, the duty to cooperate was not clarified further by the agreement, and its vagueness resulted in states choosing not to cooperate in the regulation of SHMFS.<sup>75</sup> Moreover, it should be noted that while UNCLOS III endorsed RFMOs, it did nothing to bolster the enforcement provisions of those organizations already in place. This deficiency can be summarized as follows:

On the high seas, vessels were only accountable to the flag state and laws imposed on them by the flag state. If a regional management organization developed such rules

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within the zone's boundaries; it shall ensure the proper conservation and management of resources while taking into account the best scientific evidence available; conservation and management measures shall be designed to restore populations of distressed fish to their maximum sustainable yield and shall protect stocks whose levels may become seriously threatened; and finally, the agreement provides that all scientific information on the levels of fish stocks shall be contributed and exchanged regularly through international organizations. *Id.* at art. 61(1-5).

71. Mack, *supra* note 6 (citing Jon L. Jacobson, *Symposium: Law of the Sea: International Fisheries Law in the Year 2010*, 45 *LA. L. REV.* 1161, 1179 (1985); Alison Rieser, *A.S.I.L. Observer Comments on UN Conference on Straddling and Migratory Fish Stocks*, *A.S.I.L. NEWSLETTER*, Nov. 1993, at 12.).

72. "The problems of straddling and migratory fish stocks were known to the participants of UNCLOS III, but their conservation was not seen as urgent." Atlantic Tuna Convention, *supra* note 30, at art. VI; Mack, *supra* note 6, at 317-18 (citing Statement made by the Chairman of the Conference at the Opening of the Organizations Session, at 1, U.N. Doc. A/CONF.164/7 (1993)).

73. See Mack, *supra* note 6, at 317-18.

74. UNCLOS III *supra* note 65, at arts. 63, 64, 118.

75. See Mack, *supra* note 6, at 318 (citing Background Paper Prepared by Secretariat, at 22-25, U.N. Doc. A/CONF.164/INF/5 (1993)).

for its members, each member could participate in inspection or surveillance of all others. But once a violation was found, flag states alone had the ability to prosecute the offender. Member states were usually unwilling to give other states the authority to take action against violators. Consequently, sanctions and prosecutions were not always carried through.<sup>76</sup>

As this excerpt illustrates, UNCLOS III perpetuated the status quo of ineffective enforcement provisions of RFMOs.

While UNCLOS III's progressive jurisdictional scheme allowed a state to exercise exclusive control of natural resources further from its coasts, a glaring problem associated with the UNCLOS I three-mile territorial limitation remained unsolved: highly migratory fish stocks habitually swim out of not only territorial waters but also EEZs, and into the unprotected high seas where their capture is unregulated. Canada's struggle to protect SHMFS off its Atlantic Coast did not end with the passage of UNCLOS III, and in fact would continue into the 1990s.

#### 5. United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks ("Fish Stocks Agreement")

Before discussion of the final international agreement aimed at protecting SHMFS, the two categories of stocks should be differentiated in order to better understand the challenges the species present.

First, straddling stocks, such as cod, represent fish whose habitat straddles the EEZ and the high seas, the area beyond the control of the EEZ. Second, highly migratory species, including tuna and swordfish, delineate fish that may traverse the waters of several nations as well as the high seas.<sup>77</sup>

During the late 1980s and 1990s, Canada watched as international fleets ravaged North Atlantic cod stocks just outside its EEZ. Soon, the State feared that other straddling stocks would follow the same route of devastation as cod stocks had.<sup>78</sup> In 1995,

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76. Mack, *supra* note 6, at 322-23 (citations omitted).

77. Telesca, *supra* note 55, at 37 (citations omitted).

78. See Anne Swardson, *Canada Fires Warning Shots; Seizes Spanish Fishing Boat*, WASH. POST, Mar. 10, 1995, available at <http://tech.mit.edu/V115/N10/canada.10w.html>.

Canada's passivity in allowing the depletion of its cod stocks turned to aggressive actions taken in defense of the turbot.

The turbot is straddling stock, widely recognized as a substitute for cod. "It is a slime-bodied bottom-feeder—a putrid-colored fish with ugly, raised eyes that Canadian supermarkets can hardly give away. Not the sort of prize, then, that would normally be expected to bring two nations to the verge of open warfare on the high seas."<sup>79</sup> However, this stock had been the target of a Spanish trawler's illegal nets<sup>80</sup> just outside Canada's EEZ. The trawler was spotted by a Canadian reconnaissance aircraft and naval gunships were immediately dispatched to intercept the vessel. When the vessel became aware that gunships were rapidly approaching, it cut its nets free and began evasive maneuvers in an attempt to escape its pursuers. The trawler was eventually persuaded to stop when the Canadian gunships fired warning shots across its bow. The Spanish vessel was then boarded, the captain and crew were arrested, and the boat was towed back to the Newfoundland port of St. John's where it was detained.<sup>81</sup>

At this point, it was apparent to the international community that UNCLOS III's regulatory scheme for the conservation and management of SHMFS was completely unworkable. In an effort to prevent a much more serious conflict, a United Nations Earth Summit was held to create an agreement which was capable of substantially eliminating disputes arising from the fishing of these stocks. After over two years of intense international negotiations, the result of the conference was the Fish Stocks Agreement.<sup>82</sup>

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79. John DeMont et al, *Canada Seizes Spanish Boat*, MACLEAN'S MAG., Mar. 20, 1995, available at <http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=M1ARTM0010344>.

80. The illegality of driftnets has been summarized as follows: "[d]uring the time period between the 1982 Convention and the Earth Summit, there was a large-scale problem with high seas driftnets, especially those placed by Taiwan, Korea, and Japan. These nets were used, among other places, in the North Pacific to fish for squid. These techniques were accused [of being] and eventually labeled [as the] 'strip mining of the seas,' or at least the upper layer of the sea. While targeting squid, videos were taken showing driftnets killing salmon and injuring mammals and sea birds. This emotional issue led to the so-called United Nations moratorium on driftnets. The United Nations General Assembly did not establish a ban on large-scale high seas driftnet fishing, but urged countries to adopt a ban by the end of 1992." Jacobson, *supra* note 60, at 8-9 (quotations omitted) (citations omitted).

81. See generally Swardson, *supra* note 78; DeMont et al., *supra* note 79.

82. Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea of 10 December 1982, Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Dec. 4, 1995, 34 I.L.M. 1542 [hereinafter Fish Stocks Agreement].



The Fish Stocks Agreement has been heralded as an international environmental achievement.<sup>83</sup> The agreement corrects the flaws of UNCLOS III in two main respects. First, the Fish Stocks Agreement provides for mandatory membership in RFMOs. To achieve this, the agreement directs that where a RFMO has been established to regulate SHMFS on the high seas, any state fishing for those stocks must become a member of that RFMO, or must agree to abide by its conservation and management measures.<sup>84</sup> Further, any states that choose not to become members of a RFMO, or who do not abide by its regulations, are not permitted access to the stocks that the organization regulates.<sup>85</sup> Second, and most importantly, the agreement strengthens RFMOs by explicitly providing for their enforcement. The treaty authorizes a coastal state's enforcement and surveillance agents<sup>86</sup> to board, inspect, arrest, and begin judicial proceedings against a vessel and its crew if a coastal state suspects violations.<sup>87</sup>

These specific directives are revolutionary in that they "drastically alter[] the traditional idea of freedom of the high seas."<sup>88</sup> The centuries-old notion that no state enjoyed property rights on the high seas was limited in order to, as the Fish Stocks Agreement determined, "ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks."<sup>89</sup> Moreover, the agreement demonstrates a gradual shift toward an acceptance of the "precautionary approach"<sup>90</sup> in the conservation and management of SHMFS. In essence, this approach "aims to prevent irreversible damage to the environment by implementing strict conservations measures, even in the absence of scientific evidence that environmental degradation is being caused by human intervention."<sup>91</sup> Thus, the Fish Stocks Agreement represents an international awareness of the damages overfishing has caused SHMFS, and a pact to err on the side of conservation when harvesting those stocks.

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83. Telesca, *supra* note 55, at 42.

84. Fish Stocks Agreement, *supra* note 82, at art. 8(3).

85. *Id.* at arts. 8(4), 17(2).

86. Telesca, *supra* note 55, at 42 ("in the United States, Coast Guard officers").

87. *See* Fish Stocks Agreement, *supra* note 82, at art. 21(1).

88. Mack, *supra* note 6, at 326.

89. Fish Stocks Agreement, *supra* note 82, at intro.

90. *See generally* Telesca, *supra* note 55.

91. *Id.* at 43 (quotations omitted) (citing Victor R. Restrepo et al., *The Precautionary Approach: A New Paradigm, or Business as Usual?*, in *OUR LIVING OCEANS: REPORT ON THE STATUS OF U.S. LIVING MARINE RESOURCES 2* (1999), available at <http://spo.nwr.noaa.gov/fa1.pdf> (last visited Oct. 9, 2008)).

## B. Canadian regulation

### 1. The Department of Fisheries and Oceans (“DFO”) and the Oceans Act

In 1985, Canada’s DFO was established with the passage of the Department of Fisheries and Oceans Act.<sup>92</sup> The Act directs that the DFO, and its appointed minister, are responsible for the oversight of all aspects of fisheries, harbors, marine sciences, and government programs and policy in respect to oceans.<sup>93</sup> The management scheme of the Act grants the minister broad authority to manage Canadian waters;<sup>94</sup> however, the minister’s main function is to enforce *international law*.

After the passage of UNCLOS III and the Fish Stocks Agreement, the Canadian Government resolved to “affirm in *Canadian domestic law* Canada’s sovereign rights, jurisdiction and responsibilities in the exclusive economic zone of Canada . . . [and to] promote[] the wide application of the precautionary approach to the conservation, management and exploitation of marine resources . . . .”<sup>95</sup> The Oceans Act<sup>96</sup> of 1996 codified these objectives, and expanded the power of the minister to enforce international law via domestic law.<sup>97</sup> “That is, the Act [gave] DFO sufficient flexibility and authority to lead Canadian fisheries management in compliance with the mandates and principles of UNCLOS, the Fish Stocks Agreement, NAFO, [and other RFMOs] . . . .”<sup>98</sup>

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92. Department of Fisheries and Oceans Act, R.S.C., ch. F-15 (1985) (Can.), available at <http://laws.justice.gc.ca/en/showtdm/cs/F-15>.

93. See *id.* ch. F-15(4).

94. See Fagenholz, *supra* note 9, at 659.

95. Oceans Act, R.S.C., ch. 31, pmb1. (1996) (Can.) (emphasis added), available at <http://laws.justice.gc.ca/en/showtdm/cs/O-2.4>.

96. See *generally id.*

97. See Fagenholz, *supra* note 9, at 660-61 (“[T]he Oceans Act clearly provides a statutory mandate that Canada manage its fisheries in compliance with ecosystem-wide and precautionary approaches, as required by international law . . . [T]he domestic Oceans Act provides sufficiently broad authority to DFO to increasingly assume a directorial, executive management role by ensuring that departments and policies are complementary and that efforts are coordinated. The text of the Act provides support for the conclusion that Parliament’s intent was for DFO to lead progressive reform of fisheries regulation, and intentions of legislators provide statutes with meaning.”).

98. *Id.* at 661.

## 2. Species At Risk Act (“SARA”) and the Committee on the Status of Endangered Wildlife in Canada (“COSEWIC”)

Intent on showing its dedication to the preservation of its ecosystems, Canada became the first western industrialized state to ratify the United Nations Convention on Biological Diversity, another important agreement that came out of the 1992 Earth Summit.<sup>99</sup> The Convention on Biological Diversity was established for the purpose of achieving three main goals: “the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources.”<sup>100</sup> These efforts were not entirely successful.

On ratification of that treaty, Canada pledged to provide “effective protection” for Canadian species at risk and the critical habitat and ecosystems on which they depend. Ten years passed, and despite repeated promises to the Canadian public, overwhelming public support, and several failed attempts Canada was still without legal protection for its 415 species at risk.<sup>101</sup>

In 2003, ten years after signing the Convention on Biological Diversity, Canada took a step towards meeting the goals of the Convention by enacting SARA.<sup>102</sup>

SARA’s principal contribution to Canada’s conservation efforts was its establishment of COSEWIC. This is an independent body<sup>103</sup> comprised of both wildlife experts and scientists, whose purpose is to “assess the status of each wildlife species considered by COSEWIC to be at risk,”<sup>104</sup> and “identify existing and potential threats to [those] species.”<sup>105</sup> Upon the assessment of a particular species, COSEWIC is responsible for issuing a report to

99. United Nations Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79, available at <http://www.cbd.int/doc/legal/cbd-un-en.pdf>; Canada’s Species at Risk Act (SARA), Wilderness Committee, <http://www.wildernesscommittee.org/campaigns/wildlife/campaigns/wildlife/readers/sara/> (last visited Oct. 10, 2008) [hereinafter Wilderness Committee].

100. Sustaining Life on Earth, Convention on Biological Diversity, <http://www.cbd.int/convention/guide.shtml> (last visited Oct. 10, 2008).

101. Wilderness Committee, *supra* note 99.

102. Species at Risk Act, 2002 S.C., ch. 29 (Can.), available at [http://www.sara.registry.gc.ca/approach/act/sara\\_e.pdf](http://www.sara.registry.gc.ca/approach/act/sara_e.pdf).

103. “The members are not, because of being a member, part of the public service of Canada.” *Id.* at ch. 29(16)(4).

104. *Id.* at 29(15)(1)(a).

105. *Id.* at ch. 29(15)(1)(a).

the Minister of the Environment,<sup>106</sup> and he must, “within 90 days, include in the public registry a [detailed] report on how [he] intends to respond to the assessment.”<sup>107</sup> If the Minister chooses to add the species to Canada’s List of Wildlife Species at Risk<sup>108</sup> as an extirpated, endangered, or threatened species, SARA protects it from being killed, harmed, harassed, captured, or taken.<sup>109</sup>

Critics of SARA have complained that “the act is a paper tiger, reliant on political will, discretionary wording and largely unenforceable habitat provisions.”<sup>110</sup> This is so partly because the assessment of a threatened species is only undertaken at the will of COSEWIC. If the board chooses not to perform an assessment, then the species remains unprotected. Moreover, even if the species is put on the List of Wildlife Species at Risk, critics suggest that no steps are taken to preserve the “critical habitat” of that species as directed by SARA,<sup>111</sup> which essentially defeats the purposes of the species’ protection.<sup>112</sup>

Recently, these issues came to a head that resulted in the filing of a lawsuit by six environmental groups from across Canada, claiming that the DFO failed to protect the critical habitat of two populations of Orcas that reside in British Columbia coastal waters.<sup>113</sup>

On September 10, without consulting killer whale scientists, the Department of Fisheries and Oceans declined to issue an order under the federal Species at Risk Act to protect the resident killer whales’ critical habitat from destruction.

The department issued a statement claiming that resident killer whale critical habitat is protected by existing laws and policies.

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106. *Id.* at ch. 29(25)(1).

107. *Id.* at ch. 29(25)(3)(1).

108. Canada’s List of Wildlife Species at Risk, Species at Risk Public Registry, [http://www.sararegistry.gc.ca/species/schedules\\_e.cfm?id=1](http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1) (last visited Feb. 20, 2009).

109. Species at Risk Act ch. 29(32)(1).

110. See Wilderness Committee, *supra* note 99.

111. See Species at Risk Act, at ch. 29(11)(2)(d).

112. See *Canada Sued for Failure to Protect Killer Whale Habitat*, ENV’T NEWS SERVICE, Oct. 8, 2008, <http://www.ens-newswire.com/ens/oct2008/2008-10-08-03.asp> (“Bill Wareham, [the] senior marine conservation specialist at the David Suzuki Foundation, said, “To truly protect killer whales’ critical habitat, Canada needs to legally protect areas that serve the killer whales’ basic needs for food and rest. Comprehensive marine use plans that include new protected areas are essential, if we hope to recover populations of these magnificent whales.”).

113. See *id.*

These killer whales are attempting to survive despite decreasing numbers of salmon; increased boat traffic; toxic contamination; and noise from dredging, seismic testing and military sonar.

Frustrated by the federal government's failure to take steps under the Species at Risk Act to protect the orcas, the David Suzuki Foundation, Environmental Defence, Greenpeace Canada, the International Fund for Animal Welfare, the Raincoast Conservation Society and the Wilderness Committee have turned to the courts.

"Department of Fisheries and Oceans' decision not to protect critical habitat of resident killer whales is symptomatic of the federal government's widespread failure to implement the Species at Risk Act," said Gwen Barlee, policy director of the Wilderness Committee. "BC's endangered species deserve better."<sup>114</sup>

While SARA has not proven to be Canada's end-all to controversy arising from its domestic regulation of fish stocks, it has pointed the ship in the right direction. It moves Canada away from its roots of passivity towards a more comprehensive scheme for the management and conservation of SHMFS. Canada once relied on lax international law to protect these stocks which lead to the eventual annihilation of many of its most prized fish stocks. However, Canada now enforces a combination of international and domestic law which is better suited to manage these problematic stocks. The early success of this management system has been clearly evidenced by the recent resurgence of the North Atlantic swordfish fishery.

### III. CASE STUDY: NORTH ATLANTIC SWORDFISH FISHERY

The Broadbill Swordfish (*Xiphias gladius*) is a deep-water, highly migratory fish whose catch was once almost unsalable.<sup>115</sup> Today the swordfish is a delicacy to many consumers and a high value catch to fisherman, adding an important revenue source to coastal states all over the world.<sup>116</sup> Accordingly, by the late 1990s the growing demand for swordfish meat resulted in the overfish-

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114. *Id.*

115. See Malia Schwartz, Deborah Grossman-Garber & Henry Milliken, Rhode Island Sea Grant Fact Sheet, Swordfish, <http://seagrant.gso.uri.edu/factsheets/swordfish.html> (last visited Oct. 13, 2008).

116. Indian Ocean Tuna Commission [IOTC], Peter Ward & Sue Elscot, *Broadbill Swordfish: Status of World Fisheries*, 3 IOTC PROC. 208, 209 (2000), available at <http://www.iotc.org/files/proceedings/2000/wpb/IOTC-2000-WPB-08.pdf> [hereinafter Ward & Elscot].

ing of the North Atlantic swordfish stock to the verge of extinction. However, recent data suggest a reversal in the historical trend of depletion towards a healthy and sustainable North Atlantic swordfish fishery. This resurgence is directly traceable to the integration of stricter Canadian and international regulations imposed upon the fishery, and represents a glimpse of the success such measures can have when implemented. This article urges Canada and the international community to apply similar measures for the protection and preservation of many other struggling North Atlantic SHMFS.

### A. *Swordfish Characteristics: The Prince of Darkness*

In order to understand the swordfish's attractiveness to commercial fisherman, it is necessary to begin the case study with a brief discussion of the fish's characteristics. Like other billfish, the swordfish is a fecund, highly migratory fish, inhabiting most of the tropical and temperate oceans of the world.<sup>117</sup> The swordfish is not a schooling fish. It moves alone with ocean currents, using its long sword-like bill to slash and kill its prey. The swordfish principally feeds at night, feasting on squid, herring, mackerel, menhaden, and various other small fish.<sup>118</sup> Unique to the swordfish is a retina heating tissue that insulates its eyes, keeping them warm and functional in very frigid waters. Because of this heating apparatus, the swordfish is able to stalk its prey throughout the water column, either in shallow waters or at depths below 300 meters,<sup>119</sup> thus earning its nickname, "the prince of darkness." Female swordfish grow faster and larger than males and can weigh as much as 1,200 pounds.<sup>120</sup> These fish reach sexual maturity between their second and third year and thereafter spawn multiple times a year.<sup>121</sup>

### B. *The History of Harvesting: From Harpoons to Longlines*

The practice of swordfishing began thousands of years ago in subtropical regions as a near-shore subsistence activity. The early

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117. Ward & Elscot, *supra* note 116, at 209; *see also* Smith, *supra* note 7, at 8.

118. *See* Smith, *supra* note 7, at 8; Ward & Elscot, *supra* note 116, at 209.

119. *See* Emma Young, *Swordfish Heat Their Eyes for the Hunt*, NEWSIDENTIST, Jan. 10, 2005, available at <http://www.newscientist.com/article.ns?id=DN6861>.

120. Ward & Elscot, *supra* note 116, at 209; *see also* Smith, *supra* note 7, at 8.

121. *See* Schwartz et al., *supra* note 115; National Marine Fisheries Service, FishWatch, Life History and Habitat, [http://www.nmfs.noaa.gov/fishwatch/species/n\\_atl\\_swordfish.htm](http://www.nmfs.noaa.gov/fishwatch/species/n_atl_swordfish.htm) (last visited Apr. 3, 2009).

method of harvesting swordfish primarily involved harpooning large female swordfish found basking at the sea surface.<sup>122</sup> This harpooning practice is believed to have begun in the North Atlantic in the early 19th century off the coast of New England.<sup>123</sup> Harpooning is an extremely efficient method of catching large swordfish in that it allows a fisherman to estimate the size of a fish before undertaking its landing. However, this tactic proved excessively time consuming for commercial purposes as it only allowed a fisherman to catch one swordfish at a time.

The solution to harpooning was discovered in the 1950s with the development of the commercial longline vessel.<sup>124</sup> Longlining is a method whereby a vessel floats a cable stretching up to eighty miles across the surface of the ocean. The cable subsequently suspends thousands of lines which dangle at different depths in the water column and are tipped with baited hooks.<sup>125</sup> This allowed commercial fisherman who were once limited to harpooning a single basking fish to catch numerous swordfish at once.<sup>126</sup> However, in comparison to the early practice of harpooning, longlining is highly inefficient. When deployed, the unmanned longline indiscriminately hook any organism that takes its bait, including undersized swordfish and completely undesired "bycatch" species such as sea turtles, marlin, and shark.<sup>127</sup> Most by-catch instinctively struggle to free themselves from the hooks until they expire, which in turn leads to the eventual discard of a total of twenty-seven million tons of by-catch a year.<sup>128</sup>

Longline vessels targeting swordfish are able to chill the fish on ice for extended periods after catch as the meat has good storage qualities and its price is less sensitive to product quality than many other prize fish.<sup>129</sup> Because of these characteristics, "[f]resh-chill longline fisheries [targeting] swordfish exhibit a development pattern where the risk-takers in the fleet progressively move further offshore, initially taking high catch rates. Other longliners

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122. Ward & Elscot, *supra* note 116, at 209.

123. See Smith, *supra* note 7, at 8 (citing National Marine Fisheries Service, Draft Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks including an Environmental Assessment and Regulatory Impact Review 6-80 (1998)).

124. See Ward & Elscot, *supra* note 116, at 209.

125. See, e.g., Telesca, *supra* note 55, at 27.

126. Smith, *supra* note 7, at 8.

127. See *id.* at 8-9; Telesca, *supra* note 55, at 27.

128. See Telesca, *supra* note 55, at 27 (citing COLIN WOODARD, OCEAN'S END (Basic Books 2000)).

129. See Ward & Elscot, *supra* note 116, at 209.

follow and the fleet ranges further offshore for longer trips . . . .”<sup>130</sup> Thus, as vessels developed the capabilities to fish further from their home states, foreign longline vessels flocked to the North Atlantic in search of abundant swordfish stocks. A scientist from the University of British Columbia best characterized this sequence of events as “a hole burning through paper. As the hole expands, the edge is where the fisheries concentrate until there is nowhere left to go.”<sup>131</sup> In support of this conclusion, ICCAT estimated catch data suggests that in 1955 Canada landed over 77% of the total catch of 3,502 tons of North Atlantic swordfish.<sup>132</sup> By 1970, Canada’s share in the total catch had been reduced by 27% to 50%, while total landings of North Atlantic swordfish increased by over 63%, to 9,495 tons.<sup>133</sup>

As previously discussed, UNCLOS III was adopted in 1982 and created a 200 mile EEZ.<sup>134</sup> Applying the Convention’s directives, Canada was empowered to regulate a vast new area of highly depleted fishing grounds. However, swordfish and other SHMFS typically live in deep waters located outside of any state’s EEZ. Accordingly, plundering of the North Atlantic swordfish stocks continued throughout the late 1980s, reaching its peak level in 1987 with thirteen countries combining to report a total catch of 20,236 tons of swordfish.<sup>135</sup> This staggering catch was completely unsustainable and levels dwindled in subsequent years. By the passage of the Fish Stocks Agreement in 1995, catch levels for North Atlantic swordfish had dropped to a rate of 16,844 tons.<sup>136</sup> The data were particularly alarming as efforts to target

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130. *Id.* at 210 (An example of this development is seen in the “Hawaii-based longliners . . . [who] regularly make trips of more than 30 days. They venture 1000-2000 nm from port and average about 250 days at sea per year.”).

131. National Geographic News, *Big-Fish Stocks Fall 90 Percent Since 1950*, *Study Says*, May 15, 2003, [http://news.nationalgeographic.com/news/2003/05/0515\\_030515\\_fishdecline.html](http://news.nationalgeographic.com/news/2003/05/0515_030515_fishdecline.html).

132. ICCAT, *Report of the 2006 Atlantic Swordfish Stock Assessment Session*, ICCAT Doc. SCI-040/2006, at 19 (Sept. 4-8, 2006) (estimating Canada to be responsible for landing 2,722 tons out of a total 3,502 tons) [hereinafter *2006 Swordfish Stock Assessment*].

133. *Id.* In 1955, it is estimated that only three countries targeted the North Atlantic swordfish: Canada, the United States of America, and Spain. By 1970, nine other states had joined, including Chinese Taipei, Cuba, Portugal, Japan, Korea, Morocco, Norway, U.S.S.R., and Venezuela. *Id.*

134. See Scheiber & Carr, *supra* note 16, at 41.

135. ICCAT, SUMMARY: REPORT OF THE 2006 ATLANTIC SWORDFISH STOCK ASSESSMENT SESSION 89 (2006). <http://www.iccat.int/Documents/SCRS/ExecSum/SWO-ATL1%20EN.pdf> (last visited Oct. 23, 2008) [hereinafter SUMMARY: REPORT OF THE 2006 SWORDFISH ASSESSMENT].

136. See *2006 Swordfish Stock Assessment*, *supra* note 132, at 20.



the swordfish had not decreased. In fact, two more countries had joined in the hunt since 1987, bringing the total to fifteen countries specifically targeting the swordfish in the North Atlantic.<sup>137</sup>

### C. *Recent Developments in the North Atlantic Swordfish Fishery*

The Fish Stocks Agreement made ICCAT's 1995 TAC quotas mandatory on all vessels which were harvesting swordfish in the North Atlantic.<sup>138</sup> Despite the mandate, the effectiveness of the quota was not immediately apparent. A marked decrease in total catch levels was not seen until 1997, two years after the passage of the Fish Stocks Agreement. In that year the total reported North Atlantic catch was 12,997 tons, representing a 14.3% drop in catch from the previous year.<sup>139</sup> Despite the fishery's slow reaction to ICCAT mandated TAC quotas, a global awareness of the damages caused by overfishing was born out of the enforcement of the TAC quotas, and many states began taking unilateral actions in an effort to protect the fishery.

#### 1. Canadian Efforts

In defense of the swordfish, Canada adopted an "overall conservation objective . . . to ensure that Canada's role in supporting the conservation and sustainability objectives of the ICCAT international stock management regime is achieved."<sup>140</sup> To that end, Canada has been aggressive in the enforcement of ICCAT's domestic swordfish quota and in the defence of its 200 mile EEZ. A recent example was seen on September 23, 2008, when a Canadian surveillance aircraft spotted Captain Linda Greenlaw<sup>141</sup> and her 67-foot longline vessel, "Sea Hawk," fishing for swordfish

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137. *Id.*

138. See DEPARTMENT OF FISHERIES AND OCEANS, CANADIAN ATLANTIC SWORDFISH AND OTHER TUNAS: 2004-2006 INTEGRATED MANAGEMENT PLAN, ch. 3.1, available at [http://www.dfo-mpo.gc.ca/communic/fish\\_man/ifmp/swordfish/index\\_e.htm](http://www.dfo-mpo.gc.ca/communic/fish_man/ifmp/swordfish/index_e.htm) (last visited Sept. 23, 2008) ("The first national allocations to ICCAT Contracting Parties were made for 1995 and went to those member countries with a history of fishing swordfish, namely . . ." the European Union (most notably Spain and Portugal), the United States of America, Canada, and Japan.) [hereinafter DFO 2004-2006 Swordfish Plan]; ICCAT, Recommendation by ICCAT Relating to the Rebuilding Program for North Atlantic Swordfish (June 3, 2003), <http://www.iccat.int/Documents/Recs/compendiopdf-e/2002-02-e.pdf>.

139. See 2006 *Swordfish Stock Assessment*, *supra* note 132, at 20

140. See DFO 2004-2006 SWORDFISH PLAN, *supra* note 138, at ch. 6.1.2.

141. Linda Greenlaw is famous for her novel "The Hungry Ocean" as well as the portrayal of her in the recent blockbuster movie, "The Perfect Storm."

inside Canada's EEZ. Canadian Department of Fisheries and Oceans officers boarded the vessel at sea, and arrested Greenlaw.<sup>142</sup> An account of what occurred post-arrest is as follows:

According to the DFO, the 210-foot Canadian Coast Guard ship *Cygnus* escorted *Sea Hawk* into St. John's, Newfoundland, early on Friday. Greeted by a hoard of media, a handcuffed Greenlaw later appeared in the Provincial Court on charges of violating Canada's Coastal Fisheries Protection Act. She was released on \$10,000 (Canadian) cash bail, and ordered to return to court on Oct. 27. The *Sea Hawk* and its catch of swordfish were released on \$55,000 bond and reported sailed for Fairhaven [Massachusetts].<sup>143</sup>

Recently, the Department of Fisheries and Oceans has also limited the timeframe of the swordfish season. The fishery traditionally operated from April until December,<sup>144</sup> but starting in 1999, has ended in August due to reduced quota.<sup>145</sup>

## 2. U.S. Efforts

By the late 1990s U.S. environmental groups such as SeaWeb and the Natural Resources Defense Council identified the swordfish as "one of the most popular restaurant species that many chefs and consumers are familiar with . . . emblematic of the problems facing marine fish, including ineffective management, overfishing, destructive gear, and by-catch."<sup>146</sup> Accordingly, in 1998 these conservation groups began a campaign entitled "Give Swordfish a Break!" to "implement[ ] adequate recovery measures for north Atlantic swordfish, [in order to create] a model that may be replicated for other depleted fish."<sup>147</sup> The campaign's method was simple and effective: ask chefs to take swordfish off their menus.

Incredibly, Give Swordfish a Break! brought about significant public awareness and mobilized the U.S. government to consider closures of swordfish nursery areas in U.S. waters. This consider-

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142. See Stephen Rappaport, *Canada Busts Linda Greenlaw; Territorial Waters Issues Emerge*, THE ELLSWORTH AMERICAN, Oct. 2, 2008, available at [http://ellsworthmaine.com/site/index.php?option=com\\_content&task=view&id=17139&Itemid=85](http://ellsworthmaine.com/site/index.php?option=com_content&task=view&id=17139&Itemid=85).

143. *Id.* (Interestingly, there was an NBC camera crew aboard the vessel at the time of its seizure documenting the trip for an upcoming reality T.V. series on swordfishing in the North Atlantic.)

144. See DFO 2004-2006 SWORDFISH PLAN, *supra* note 138, at ch. 3.3.

145. See 2006 *Swordfish Stock Assessment*, *supra* note 132, at 2.

146. SeaWeb, Give Swordfish a Break! Frequently Asked Questions, <http://www.seaweb.org/programs/swordfish/swordfaq.html> (last visited Oct. 31, 2008).

147. *Id.*

ation was also effectuated by the 1999 case, *Center for Marine Conservation v. National Marine Fisheries Service*.<sup>148</sup> This was an action brought by a conservation group alleging that Hawaiian longline fisherman were killing leatherback sea turtles as by-catch, in violation of the Endangered Species Act.<sup>149</sup> The District Court hearing the matter issued an injunction ordering the National Marine Fisheries Service (“NMFS”) to “make the appropriate time and area closures [of Hawaiian waters] based upon the greatest benefit to the sea turtles and considering the costs to the Hawaii-based pelagic longline fishery.”<sup>150</sup> This decision represented an enormous blow to the U.S. longline swordfish fishery. In an effort to stem other time consuming lawsuits, NMFS enacted similar closures in 2001 that cordoned off most of the fertile Grand Banks off the Newfoundland coast to U.S. swordfishing vessels, in the process cutting New England’s 2001 landings by 30% to 800 metric tons.<sup>151</sup>

### 3. E.U. and Japanese Efforts

By 2006, Spanish longline vessels had switched to almost exclusive use of mono-filament lines, from the traditional multifilament lines.<sup>152</sup> Monofilament provides a dual advantage to fisherman in that it yields higher catch rates due to its low visibility in water, and also reduces incidental by-catch of toothy predators such as sharks as they are able to easily bite through the line.<sup>153</sup> Further evidencing a shift in the fishery, Spain’s 2005 North Atlantic landings were reported at 5,521 tons, a 21% decline from the peak landings reported in 1995.<sup>154</sup> Spain’s European Union counterpart in North Atlantic swordfishing, Portugal, has also seen a shift in its North Atlantic fleet’s practices towards becoming more of a multi-species fishery. This is due to changes in the

148. *Center for Marine Conservation v. National Marine Fisheries Service*, No. 99-0152, 1999 WL 33594330 (D. Haw. Nov. 23, 1999).

149. *Id.* at \*2; *see also generally* Endangered Species Act, 16 U.S.C. § 1531, ch. 35 (2000).

150. *See* *Center for Marine Conservation*, 1999 WL 33594330, at \*2.

151. *See* Seafood Business Magazine, *Buyers Guide: Swordfish* (2000), available at [http://www.seafoodbusiness.com/buyersguide03/issue\\_sword.htm](http://www.seafoodbusiness.com/buyersguide03/issue_sword.htm) (last visited Mar. 15, 2009).

152. *See* 2006 *Swordfish Stock Assessment*, *supra* note 132, at 2-3

153. *See* Heather H. Stone & Langille K. Dixon, *A comparison of catches of swordfish, Xiphias gladius, and other pelagic species from Canadian longline gear configured with alternating monofilament and multifilament nylon gangions - Statistical Data Included*, FISHERY BULLETIN, Jan. 2001, available at [http://findarticles.com/p/articles/mi\\_m0FDG/is\\_1\\_99/ai\\_73023332/pg\\_1?tag=artBody;coll](http://findarticles.com/p/articles/mi_m0FDG/is_1_99/ai_73023332/pg_1?tag=artBody;coll).

154. *See* 2006 *Swordfish Stock Assessment*, *supra* note 132, at 4.

market price of swordfish and increases in the price of other species such as sharks.<sup>155</sup>

Between the period of February 2000 and December 2003, all Japanese longline vessels fishing in the North Atlantic were required to release or discard all swordfish, given that Japanese quotas had been met.<sup>156</sup> At the conclusion of this period, the Japanese government requested that Japanese longline vessels continue releasing their live catch, but allowed vessels to retain their dead catch.<sup>157</sup> The result of this moratorium was seen in the form of dwindling catch levels, as estimated landings in 2000 of 1090 tons decreased to 324 tons in 2005.<sup>158</sup>

#### *D. Current Health of the North Atlantic Swordfish Stock*

The latest ICCAT swordfish assessment was published in 2006 and represents the most accurate and up to date scientific data available on the species.<sup>159</sup> This assessment found that the 2006 North Atlantic catch of 11,814 tons represented a 42% decrease in catch levels since the 1987 peak, and is consistent with the 11,600 ton average seen in the past decade.<sup>160</sup> The data collected also suggest that spawning biomass began a pattern of increase in the mid 1990s and progressed into the late 1990s. In 2006, swordfish biomass was estimated to be about 99% of the biomass needed to produce the fishery's maximum sustainable yield.<sup>161</sup> "Although there is some uncertainty in these estimates, the stock trajectory . . . shows that the status of North Atlantic swordfish is close to [ICCAT's] objectives . . ." <sup>162</sup> The 2006 report confirms that through the implementation of a combined domestic and international regulatory scheme, "it is likely that the North Atlantic swordfish stock is nearly rebuilt to the maximum sustainable yield."<sup>163</sup>

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155. *Id.*

156. *Id.* at 5.

157. *Id.*

158. *Id.*

159. *See id.*

160. *See* SUMMARY: REPORT OF THE 2006 SWORDFISH ASSESSMENT, *supra* note 135, at 89-90.

161. *Id.* at 90.

162. *Id.*

163. *Id.*

## IV. RECOMMENDATIONS AND CONCLUSION

Canada's once abundant tides are depleted; the "fish are gone and the seas, streams and rivers lie quiet and empty."<sup>164</sup> A half-century of domestic and international regulatory failures has aided in the devastation of the fish stocks in the waters off of Canada's eastern coast. However, the resurgence of the North Atlantic swordfish demonstrates that distressed SHMFS are capable of being nurtured back to sustainable levels through the enforcement of a combined domestic and international regulatory scheme.

Domestically, Canada must continue its vigilant enforcement of RFMOs' TAC quotas rendered mandatory by the Fish Stocks Agreement.<sup>165</sup> The swordfish case study illustrates that ICCAT's TAC quotas have been extremely effective at nurturing a severely distressed fishery back to health. Following this example, Canada should continue to enforce domestic TAC quotas set by other RFMOs such as NAFO, who are responsible for the management of other vulnerable SHMFS. Further, as evidenced by the swordfish case study, the domestic enforcement of RFMOs' TAC quotas will continue to increase global awareness of the dangers posed by the overfishing of SHMFS.

This article also urges the Canadian DFO to establish a mandatory reporting procedure for Canadian vessels that witness a foreign vessel's violation of a RFMO's directive on the high seas. Implementation of this procedure could be achieved by rewarding the reporting vessel with a portion of the collected fines paid by the violator. Under the Fish Stocks Agreement, Canada is authorized to patrol international waters outside its EEZ to investigate potential breaches of RFMOs' directives.<sup>166</sup> However, it is illogical to assume that Canadian agents alone possess the necessary capabilities to efficiently monitor all 202,080 km<sup>167</sup> of Canada's coastline. Thus, it is imperative that domestic fishing fleets report violations as they occur, inside or outside of the Canadian EEZ. Furthermore, in order to ensure the fisheries' future health, sustainability, and commercial longevity, Canadian agents must be proactive in investigating these reported breaches. By unilaterally

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164. See *A Run on the Banks*, *supra* note 1.

165. See Fish Stocks Agreement, *supra* note 82.

166. See *supra* notes 85-86.

167. See CENTRAL INTELLIGENCE AGENCY, THE WORLD FACTBOOK: CANADA (2009), <https://www.cia.gov/library/publications/the-world-factbook/print/ca.html> (last visited Mar. 15, 2009).

enforcing RFMOs' directives, Canada will set a stern precedent that actions at odds with a RFMO's directive will not be tolerated in North Atlantic waters.

On an international level, the United Nations must provide adequate support and funding for developing states to ensure the accomplishment of the goals set forth in the Fish Stocks Agreement.<sup>168</sup> This article recommends the creation of an international fisheries agency to identify developing states that do not possess the resources necessary to enforce RFMOs' directives, and to provide these states with adequate funding and oversight to ensure proper enforcement of the directives. Further, the agency should be given the power to monitor all states' domestic fishery agencies to make certain of their compliance with RFMOs' directives. By monitoring domestic fishery agencies, the international agency would be capable of exposing states and rooting out particular vessels who blatantly disregard RFMOs' directives. This would allow states enforcing the directives to key in on the habitual violators and, through the Fish Stocks Agreement, force their compliance.<sup>169</sup>

The establishment of an international fisheries agency should not be regarded as an unnecessary relinquishment of sovereign regulatory power. Rather, the agency should represent a concerted effort to promote maximum cooperation between states and their respective domestic fisheries agencies at enforcing RFMOs' directives. This article views the creation of an international fisheries agency and an international adherence to RFMOs' directives as absolutely necessary to achieve the ultimate goals of the Fish Stocks Agreement<sup>170</sup> and the sustainability of Canada's, and indeed the world's, once magnificent SHMFS.

Canada's efforts to defend the North Atlantic fishery demonstrate that one country's actions can help revitalize a distressed fishery. However, in order to sustain the revitalization, there must be an increased level of cooperation between all of the states to conserve and maintain healthy fisheries. Canada has taken a

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168. See Fish Stocks Agreement, *supra* note 82, at pmb1. ("Recognizing the need for specific assistance, including financial [assistance] . . . in order that developing States can participate effectively in the conservation, management and sustainable use of straddling fish stocks and highly migratory fish stocks . . .").

169. To force compliance, the Fish Stocks Agreement authorizes states to board and temporarily seize vessels suspected of violating a RFMO's directives, and alternatively to resolve [any] disputes between states by any peaceful means including negotiation, arbitration, and judicial settlement. See *id.* at arts. 20-27.

170. *Id.* at pmb1. ("Determined to ensure the long-term conservation and sustainable use of straddling and highly migratory fish stocks . . .").

long and torturous road to arrive at this juncture. Other states need not follow in Canada's footsteps, but instead should choose a more pragmatic approach to preserve their own threatened fisheries.