

FINDING NEMO . . . AND EATING HIM: THE FAILURE OF THE UNITED NATIONS TO FORCE INTERNALIZATION OF THE NEGATIVE SOCIAL COSTS THAT RESULT FROM OVERFISHING

INTRODUCTION

On September 10, 2004, the United Nations Food and Agriculture Organization (FAO) issued a press release indicating that catches of commercially valuable fish may exceed permitted levels by more than 300%.¹ Studies conducted by Nova Scotia's Dalhousie University report population decreases reaching ninety percent among some critical stocks.² In the last fifty years, the global tuna catch rose from less than 500,000 tons to over 3.7 million tons.³ The world's oceans are straining under the weight of aggressive—and often illegal—commercial fishing activities that frequently abandon conservation and precautionary principles.

A number of factors contribute to create an environment that encourages commercial fisheries and countries, benefiting from their production, to pursue catch levels beyond maximum sustainable levels.⁴ Increasing worldwide demand for sushi and sashimi threatens the sustainability of a number of fish stocks,⁵ and technological advancements drastically increase the ability of commercial fishermen to locate and

1. Press Release, Food and Agric. Org. of the United Nations, Shutting the Door on Illegal Fishing: At FAO-brokered Meeting, Countries Debate Ways to Block Access to Seaports by Ships Involved in IUU Fishing (Sept. 10, 2004) [hereinafter FAO Press Release], available at <http://www.fao.org/newsroom/en/news/2004/50167/index.html>.

2. Mort Rosenblum, *Net Loss Experts Say the Amount of Fish, Especially Tuna, Is Being Rapidly Depleted by Fishermen Who Lie about Their Catch and Countries That Are Lax on Regulations*, S. FL. SUN-SENTINEL, July 25, 2004, at 1H.

3. *Id.* "Total capture fisheries production in 2000 reached 94.8 million tons, the highest level ever. The estimated first sale value of this production amounted to some US\$81 billion . . ." FISHERIES DEPT., FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, *The State of World Fisheries and Aquaculture 2002*, at 68 (2002) [hereinafter SOFIA], available at <http://www.fao.org/docrep/005/y7300e/y7300e00.htm>.

4. SOFIA estimates that seventy-five percent of the world's fisheries' resources are exploited at or beyond sustainable levels. *Id.* at 23.

5. A single bluefin tuna weighing over 1200 pounds is worth as much as \$150,000 in Japanese fish markets. With a lifespan beyond thirty years, however, they are slow to reach maximum sizes. Bluefin are endangered in the Mediterranean, Atlantic, and Pacific Oceans. Similarly, bigeye and yellowfin tuna are nearing full exploitation in the central and western Pacific Ocean. Rosenblum, *supra* note 2, at 1H.

capture large schools of fish.⁶ However, the problem largely results from Illegal, Unreported, and Unregulated (IUU) fishing.⁷

IUU fishing incorporates a wide array of illicit activities, including: “operating without licenses; targeting and catching prohibited species; using outlawed types of gear; disregarding catch quotas; or non-reporting or underreporting of species and catch weights.”⁸ Numerous problems arise when commercial fishermen engage in IUU fishing. “IUU fishing . . . undermines international efforts to conserve and manage shared fisheries’ resources, disadvantages legitimate fishers, jeopardizes food security, and is often associated with a general disregard for labor rights and

6. Commercial fishermen use a light-weight Kevlar nylon long line up to 2,500 feet long to catch bluefin tuna. *Id.* Using lights and tiny cameras, fishermen feed the lines into underwater caves where giant bluefin tuna hide. *Id.* For other tuna species, “purse seine” nets are highly effective.

Purse seine fishing includes the use of spotter aircraft to locate schools of tuna. Upon finding tuna, a ship discharges a skiff that encircles the school with a net. The skiff then returns the net to the main boat where a fisher purses the net at the bottom, by drawing a line attached to the net by rings. This action envelops the school, allowing both the net and the fish to be brought on board the ship.

Patrick A. Nickler, *A Tragedy of the Commons in Coastal Fisheries: Contending Prescriptions for Conservation, and the Case of the Atlantic Bluefin Tuna*, 26 B.C. ENVTL. AFF. L. REV. 549, 555 (1999) (citations omitted). Advancements in radar imaging allow commercial and recreational fishermen to locate flocks of birds feeding on schooling fish. Such radar technology is affordable and rapidly increasing in popularity. Allan Tarvid, *Radar: It's for the Birds*, SPORT FISHING MAGAZINE, Apr. 6, 1999.

7. FAO Press Release, *supra* note 1.

8. *Id.* In a draft memorandum, the United Nations identified a number of activities that qualified as IUU fishing:

- a) fishing without a valid license, authorization or permit issued by the flag state;
- b) failing to maintain accurate records of catch and catch-related data;
- c) fishing in a closed area, fishing during a closed season or without, or after attainment of a quota;
- d) directed fishing for a stock which is subject to a moratorium or for which fishing is prohibited;
- e) using prohibited fishing gear;
- f) falsifying or concealing the markings, identity or registration of the vessel;
- g) concealing, tampering with or disposing of evidence relating to an investigation; or
- h) conducting activities which together might be regarded as seriously undermining applicable conservation and management measures.

FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, REPORT OF THE EXPERT CONSULTATION TO REVIEW PORT STATE MEASURES TO COMBAT ILLEGAL, UNREPORTED AND UNREGULATED FISHING, ROME, NOV. 4–6, 2002, FAO FISHERIES REPORT NO. 692, FIPL/R692(EN), 13–16 (2002), available at ftp://ftp.fao.org/fi/document/EC-openRegistries/PortState-R692-report_E.pdf.

Scientists often refer to Illegal, Unreported, and Unregulated fishing as “illicit biomass extraction.” Paul Salopek, *Fade to Blue: A Tale of Fish, Pirates, Greed, and The End of a Global Frontier*, CHI. TRIBUNE, Aug. 15, 2004, at C1. In this context, it includes: “outright poaching in another nation’s territorial waters; buying local fishing rights but then flouting established catch quotas; and using prohibited gear, such as small-mesh nets.” Salopek, *supra*.

environmental protection.”⁹ The prevalence of IUU fishing has significantly affected global fisheries’ resources.¹⁰ For example, after only five years of commercial exploitation, the unreported catches of Patagonian and Antarctic toothfish equaled or exceeded the legal catches.¹¹

The 1958 Geneva Convention on the High Seas¹² operated under the premise that every country has a communal right to the high seas.¹³ Article 4 of the 1958 Geneva Convention explicitly provided that a state can authorize vessels to sail under its flag.¹⁴ That country is referred to as a “flag state”¹⁵ and has virtually exclusive jurisdiction over the vessel.¹⁶ The vessel is then bound to any treaty, international or local, of which the flag state is a member. Most states set clear requirements for ownership and control of the vessel; however, several countries have open registries.¹⁷

9. Deirdre Warner-Kramer, *Control Begins at Home: Tackling Flags of Convenience and IUU Fishing*, 34 GOLDEN GATE U. L. REV. 497, 501 (2004).

10. FISHERIES DEPT., FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, FAO TECHNICAL GUIDELINES FOR RESPONSIBLE FISHERIES NO. 9, IMPLEMENTATION OF THE INTERNATIONAL PLAN OF ACTION TO PREVENT, DETER AND ELIMINATE ILLEGAL, UNREPORTED AND UNREGULATED FISHING, FAO TECHNICAL GUIDELINES FOR RESPONSIBLE FISHERIES (2002), available at <ftp://ftp.fao.org/docrep/fao/005/y3536e/y3536e00.pdf> [hereinafter IPOA-IUU IMPLEMENTATION]. In addition to its impact on global fisheries, IUU “undermines the morale of legitimate fishers and, perhaps more importantly, encourages them to disregard the rules as well. Thus, IUU fishing tends to promote additional IUU fishing, creating a downward cycle of management failure.” *Id.* at 1 (citations omitted). The FAO notes that IUU fishing is increasing worldwide and accounts for up to thirty percent of total catches every year. *Id.* at 2.

11. Warner-Kramer, *supra* note 9, at 521. See also Budislav Vukas & Davor Vidas, *Flags of Convenience and High Seas Fishing: The Emergence of a Legal Framework*, in GOVERNING HIGH SEAS FISHERIES: THE INTERPLAY OF GLOBAL AND REGIONAL REGIMES 53, 56 (Olav Schram Stokke ed., Oxford Univ. Press 2001).

While the reported catch of the Patagonian toothfish in the 1996–7 season in the entire CCAMLR [Convention on the Conservation of Antarctic Marine Living Resources] area amounted to approximately 10,000 metric tons, the unreported catch in the Indian Ocean sector of the CCAMLR area was estimated to be between 107,000 and 115,000 metric tons. Over 100 vessels were observed to be involved in IUU fishing for Patagonian toothfish in the CCAMLR area, and the total wholesale value of this catch has been estimated in the order of half a billion dollars.

Id. (citations omitted).

12. United Nations Convention on the High Seas, Apr. 29, 1958, 13 U.S.T. 2312, 450 U.N.T.S. 11 [hereinafter Convention on the High Seas].

13. This concept is often called the “freedom of the seas.” “Historically, humans have implicitly considered oceanic fish stocks as part of a global commons belonging to no person or nation, moving where they will on the high seas and coastal waters” Nickler, *supra* note 6, at 551.

14. Vukas & Vidas, *supra* note 11, at 57.

15. A flag state is commonly defined as “a State in whose territory a vessel is registered and whose flag is entitled to fly.” IPOA-IUU IMPLEMENTATION, *supra* note 10, at 7 n.13.

16. Convention on the High Seas, *supra* note 12, art. 6(1).

17. Among the countries most notorious for allowing Flags of Convenience (FOCs) are Belize, Honduras, Panama, St. Vincent, and the Grenadines. Warner-Kramer, *supra* note 9, at 500 n.11.

These countries exercise minimal supervision over the fleets registered to their country.

“The vessels involved in illegal, unreported, and unregulated fishing often fly flags of convenience (FOCs), or employ reflagging, as a means of deliberately avoiding fisheries conservation and management measures based on regional arrangements applicable on the high seas.”¹⁸ Such lax enforcement, in light of the flag state’s exclusive jurisdiction, means that vessels caught IUU fishing are neither punished nor sanctioned and may simply reregister with another country.¹⁹

From a microeconomic analytical framework, the relevant United Nations measures proscribe only partial remedies to the problems posed by IUU or FOC fishing. This Note examines global and regional responses, specifically United Nations agreements and treaties, to the multi-faceted threats posed by vessels IUU fishing while flying FOCs. First, this Note outlines three applicable UN enactments: (1) the 1982 United Nations Convention on the Law of the Sea (UNCLOS); (2) the 1993 Food and Agriculture Organization Compliance Agreement (FAO Compliance Agreement);²⁰ and (3) the 1995 Straddling and Highly Migratory Fish Stocks Agreement (1995 Fish Stocks Agreement).²¹ Using these UN enactments as a framework, this Note examines the gradual dissemination of responsibility to “port”²² and “coastal”²³ states and the corresponding erosion of flag state jurisdiction. Second, this Note outlines the macroeconomic frameworks governing state actions to deter criminal behavior that illegally reduces a natural resource.

Thirty-two states maintain open registries which allow reflagging with relative ease. JUDITH SWAN, FAO FISHERIES DEP’T., FISHING VESSELS OPERATING UNDER OPEN REGISTERS AND THE EXERCISE OF FLAG STATE RESPONSIBILITIES—INFORMATION AND OPTIONS, FAO FISHERIES CIRCULAR NO. 980, FIPP/C980, at 43 (2002), available at <ftp://ftp.fao.org/docrep/fao/005/y3824e/y3824e00.pdf>. “Of the 11 largest fishing registers in the world, 3 are operating by open registry states.” *Id.* at 27.

18. Vukas & Vidas, *supra* note 11, at 56.

19. Warner-Kramer, *supra* note 9, at 500–01. In one extreme example, a fishing vessel flagged to Panama was caught fishing illegally for Patagonian toothfish in 1999. *Id.* at 497–98. The vessel reflagged and changed names at least three times in as many years. *Id.* In 2002, the vessel was arrested again for illegally fishing Patagonian toothfish. *Id.*

20. Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, Nov. 24, 1993, 33 I.L.M. 968 (1994) [hereinafter FAO Compliance Agreement].

21. 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, U.N. GAOR, 6th Sess., U.N. Doc. A/CONF.164/37 (Sept. 8, 1995), available at http://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm [hereinafter 1995 Fish Stocks Agreement].

22. A port state is commonly defined as “a State in whose port a vessel is seeking or has obtained [port] access.” IPOA-IUU IMPLEMENTATION, *supra* note 10, at 7 n.13.

23. A coastal state is commonly defined as “a State bordering a marine area.” *Id.*

This Note concludes by applying appropriate economic frameworks to IUU or FOC fishing. It examines potential solutions to maximize the effectiveness of international measures to ensure the conservation of oceanic resources. In this context, the Note examines recent FAO measures, namely the International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unregulated and Unreported Fishing (IPOA-IUU).²⁴ While the IPOA-IUU takes positive steps toward implementing conservation methods adhering to microeconomic principles of criminal deterrence, there are a number of concerns hindering the effectiveness of the IPOA-IUU in preventing IUU or FOC fishing.

I. UNITED NATIONS RESPONSE TO IUU OR FOC FISHING

Currently, two prevalent approaches exist to strengthen global defenses against IUU or FOC fishing.²⁵ The first approach calls for a stronger link between the flag state and the vessel flying the state's flag. This requirement is often referred to as a "genuine link."²⁶ The actual ties required to satisfy the "genuine link" requirement have never been formally defined, although nationality and permanent residence of the vessel's beneficial owner²⁷ can serve as indicators.²⁸

24. FAO Council, *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing*, 120th Sess. (June 23, 2001) [hereinafter *IPOA-IUU*], available at <http://www.fao.org/docrep/003/y1224e/y1224e00.htm>.

25. For a recent example of the conflicting approaches, see FAO Fisheries Report no. 722, *Expert Consultation on Fishing Vessels Operating Under Open Registries and Their Impact on Illegal, Unreported and Unregulated Fishing*, Miami, Fla., U.S., Sept. 23–25, 2003, available at <ftp://ftp.fao.org/docrep/fao/006/y5244e/y5244e00.pdf>.

Some experts believed that the issue should be addressed with the purpose of clarifying the term's [genuine link] meaning. This could be accomplished, for instance, through the development of a set of criteria on what constitutes a "genuine link" between a vessel and a flag State . . . [o]ther experts expressed the view that such clarification had already been attempted, not very successfully, and that instead there was a need to look for more practical solutions or guidelines to assist flag States in exercising effective control over their fishing vessels.

Id. ¶ 11.

26. Convention on the High Seas, *supra* note 12, art. 5(1). This article codifies the requirement for a "genuine link between the State and the ship; in particular, the State must effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag." *Id.*

27. Identifying the vessel's beneficial owner is not always an easy task. "The beneficial owners of the vessels, who typically have nationalities that differ from those of their vessels, often succeed in preventing fisheries managers and law enforcement officials from ascertaining their identities." IPOA-IUU IMPLEMENTATION, *supra* note 10, at 4.

28. Vukas & Vidas, *supra* note 11, at 65–66. Recently, however, the United Nations General Assembly entertained the idea of establishing a committee to "examine and clarify the role of the 'genuine link' in both merchant shipping and illegal, unreported and unregulated fishing." *Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of*

The second approach is more pragmatic and places emphasis on the responsibilities of both flag states and non-flag states, such as port and coastal states, to assist in the enforcement of international conservation measures.²⁹ Over the last two decades, UN focus has shifted slightly toward the second approach, culminating in the IPOA-IUU.³⁰

A. United Nations Convention on the Laws of the Sea

In 1982, the United Nations Convention on the Law of the Sea (UNCLOS) opened for ratification in Jamaica.³¹ The treaty entered into force one year after the sixtieth ratification, or accession, to the agreement.³² It became the primary international authority for oceanic matters. UNCLOS contains over 300 articles that serve as a comprehensive framework, detailing the corresponding rights and duties of member states with regard to their oceanic resources.³³

UNCLOS defines the rights and jurisdiction of coastal states by extending the territorial bounds of coastal states to a maximum of twelve miles off-shore.³⁴ Coastal states have economic sovereignty over their Exclusive Economic Zone (EEZ), which extends up to 200 nautical miles off-shore.³⁵ Coastal states have sovereign rights to the natural resources

the Sea at its fifth meeting, at 12, U.N. Doc. A/59/122 (July 1, 2004), available at <http://daccessdds.un.org/doc/UNDOC/GEN/NO4/412/21/PDF/NO441221.pdf>.

29. Vukas & Vidas, *supra* note 11, at 57.

30. IPOA-IUU, *supra* note 24. The IPOA-IUU is intended to supplement the Code of Conduct for Responsible Fisheries created by the FAO in 1995.

The Code of Conduct was a major development in that it comprehensively addressed all aspects of fisheries. In addition to considering subjects traditionally within the scope of fisheries documents, such as conservation, management and development, the Code focused on the roles of excess fishing capacity and overcapitalization, aquaculture, trade, research, and integration of fisheries into coastal area management. . . . The Code has been referred to as “the ‘perfect’ agenda for attaining sustainable fishing practices.”

Christie, *infra* note 36, at 27. Both the Code of Conduct and the IPOA-IUU are voluntary agreements; however, in principal, their provisions apply to all fisheries actors. *Id.* at 28–29.

31. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397, 21 I.L.M. 1261 [hereinafter UNCLOS], available at http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

32. *Id.* The Convention was the product of more than a decade of work by more than 150 countries. The treaty entered into force on November 16, 1994. *Id.*

33. *Id.*

34. *Id.* art. 3. Articles 61 and 62 of UNCLOS identify additional duties imposed on coastal states. Article 61(1) requires that “coastal State[s] shall determine the allowable catch of the living resources in its exclusive economic zone.” *Id.* art. 61(1). However, a number of commentators criticize these provisions as overly vague and ambiguous. See Christie, *infra* note 36, at 7–11 (arguing that terms such as “best scientific evidence” and “maximum sustainable yield” afford states too much flexibility in managing fisheries resources).

35. UNCLOS, *supra* note 31, art. 57.

and economic activity within their EEZ, as well as “jurisdiction over marine science research and environmental protection.”³⁶

This approach to defining the economic rights and duties of party states has been criticized as an ineffective conservation method. Historically, the jurisdictional framework of the EEZ has proven an inappropriate mechanism for resolving fisheries’ conservation and management issues. Within their EEZ, coastal states failed to properly manage their fishery resources, resulting in over-exploitation.³⁷

In addition, UNCLOS re-codified the “genuine link” requirement that was introduced in the 1958 Geneva Convention on the High Seas.³⁸ However, UNCLOS failed to define or set criteria for establishing a “genuine link” between the ship and the flag state.

UNCLOS does address the flag state’s responsibilities to exercise jurisdiction and control over the vessels flying under the state’s flag.³⁹

36. UNCLOS, *supra* note 31, art. 56(1). *See also* 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, 3 (2004). “Coastal states were given virtually complete discretion in interpreting and implementing their duties under the LOS Convention and must take primary responsibility for failure to meet their most fundamental obligation—the prevention of overexploitation of EEZ fish stocks.” *Id.* (citations omitted).

37. Rosemary Rayfuse, *The Interrelationship between the Global Instruments of International Fisheries Law*, in DEVELOPMENTS IN INTERNATIONAL FISHERIES LAW 107, 111 (Ellen Hey ed., Kluwer Law Int’l 1999). Rayfuse identifies two other erroneous assumptions that the Convention relied on in formulating the international approach to fisheries conservation. First, the drafters assumed cooperation among the coastal states to establish fishing and conservation regulations. In light of the “tragedy of the commons,” international cooperation is highly unlikely when states are competing over a dwindling resource. Indeed, cooperation among states has been almost nonexistent. *Id.* Second, the attempt to determine a point of optimum utilization of fisheries resources fell victim to vagueness and insufficient information regarding fish stocks. *Id.* at 111–12.

38. UNCLOS, *supra* note 31. UNCLOS reiterated the requirement that “there must exist a genuine link between the State and the ship.” *Id.* art. 91(1).

39. Article 94 of UNCLOS establishes the duties of flag states:

1. Every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag.

2. In particular every State shall:

(a) maintain a register of ships containing the names and particulars of ships flying its flag, except those which are excluded from generally accepted international regulations on account of their small size; and

(b) assume jurisdiction under its internal law over each ship flying its flag and its master, officers and crew in respect of administrative, technical and social matters concerning the ship.

....

6. A State which has clear grounds to believe that proper jurisdiction and control with respect to a ship have not been exercised may report the facts to the flag State. Upon receiving such a report, the flag State shall investigate the matter and, if appropriate, take any action necessary to remedy the situation.

7. Each State shall cause an inquiry to be held by or before a suitably qualified person or

Among the relevant provisions is a requirement that the flag state “assume jurisdiction under its internal law over each ship flying its flag”⁴⁰ This general charge to flag states provides a framework that later agreements, like the FAO Compliance Agreement, could build upon.⁴¹ However, the provision neither establishes significant remedies for violations nor refuses flag status where the state exercises no control or jurisdiction.⁴² Moreover, article 94(6) of UNCLOS allows investigation by the flag state only.⁴³ Therefore, UNCLOS provides no effective sanction for IUU fishing in cases where a flag state is uninterested in exercising jurisdiction, which is common among states that offer open registries and flags of convenience.⁴⁴ Although subsequent UN agreements limited the discretion of flag states, the presumption that a flag state maintains exclusive jurisdiction remains firmly intact.

B. 1993 FAO Compliance Agreement

The drafters of the 1993 FAO Agreement to Promote Compliance with International Conservation and Management measures by Fishing Vessels on the High Seas (FAO Compliance Agreement) originally intended to

persons into every marine casualty or incident of navigation on the high seas involving a ship flying its flag and causing loss of life or serious injury to nationals of another State or serious damage to ships or installations of another State or to the marine environment. The flag State and the other State shall cooperate in the conduct of any inquiry held by that other State into any such marine casualty or incident of navigation.

UNCLOS, *supra* note 31, art. 94.

40. *Id.* art. 94(2)(b).

41. Some critics point out that several problems arise regarding the interrelationship between the Convention on Law of the Sea and subsequent UN agreements insofar as the obligations on the parties differ depending on the agreement. Rayfuse, *supra* note 37, at 114.

The potential therefore exists for conflict between parties and non-parties, between members of regional or subregional fisheries organizations or arrangements and between members and non-members of these organizations and arrangements, who have undertaken different legal obligations. Such conflict is likely to have adverse consequences for the effective operation of regional organizations and arrangements and for the conservation and management efforts as a whole.

Id.

42. Vukas & Vidas, *supra* note 11, at 61.

43. Article 94(6) provides:

[a] State which has clear grounds to believe that proper jurisdiction and control with respect to a ship have not been exercised may report the facts to the flag State. Upon receiving such a report, the flag State shall investigate the matter and, if appropriate, take any action necessary to remedy the situation.

UNCLOS, *supra* note 31, art. 94(6).

44. UNCLOS, *supra* note 31. This is very significant in light of microeconomic principles that rely on sanctions as a deterrent of criminal behavior.

clarify the “genuine link” requirement to deter reflagging.⁴⁵ Instead, the ensuing controversy over the criteria required to establish a “genuine link” led the drafters to focus on the flag state’s responsibility and facilitating the exchange of information among party states.⁴⁶

Article III of the FAO Compliance Agreement introduced flag state responsibility by requiring that “[e]ach Party shall take such measures as may be necessary to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of international conservation and management measures.”⁴⁷ Paragraph 8 of article III outlines the appropriate response to vessels caught engaging in IUU fishing.⁴⁸ Contemplated sanctions include “refusal, suspension or withdrawal of the authorization to fish on the High Seas.”⁴⁹ This provision leaves enforcement to the flag state.⁵⁰ Where flag state enforcement is lax, or the flag state benefits economically from IUU fishing, it is unlikely the enforcement provision will have the desired deterrent effect.

45. Vukas & Vidas, *supra* note 11, at 65.

46. *Id.* at 66. Article VI of the FAO Compliance Agreement introduces requirements designed to facilitate information exchange among party states. Article VI (1) states:

Each Party shall make readily available to FAO the following information with respect to each fishing vessel entered in the record required to be maintained under Article IV:

- a) name of fishing vessel, registration number, previous names (if known), and port of registry;
- b) previous flag (if any);
- c) International Radio Call Sign (if any);
- d) name and address of owner or owners;
- e) where and when built;
- f) type of vessel; and
- g) length.

FAO Compliance Agreement, *supra* note 20, art. VI.

47. *Id.* art. III(1)(a). Other provisions of article III refuse to allow fishing without proper authorization from a flag state, refuse authorization in cases where no links exist between the flag state and the vessel, and establish certain enforcement measures in cases of noncompliance. *Id.* arts. III(2), (3), (8).

48. *Id.* art. III(8).

Each Party shall take enforcement measures in respect of fishing vessels entitled to fly its flag which act in contravention of the provisions of this Agreement, including, where appropriate, making the contravention of such provisions an offence under national legislation. Sanctions applicable in respect of such contraventions shall be of sufficient gravity as to be effective in securing compliance with the requirements of this Agreement and to deprive offenders of the benefits accruing from their illegal activities. Such sanctions shall, for serious offences, include refusal, suspension or withdrawal of the authorization to fish on the high seas.

Id.

49. *Id.*

50. *Id.*

Although article III preserves the exclusivity of flag state jurisdiction and control, article V provides a more prominent role for port states⁵¹ by requiring a greater degree of cooperation between port and flag states.⁵² However, despite the obligation to report illicit activities imposed by article V, subsection 2 only permits notification to the flag state.⁵³ In states with lax enforcement or mild sanctions, notification is not effective in preventing future instances of IUU fishing.⁵⁴

The apparent defects in the UNCLOS agreement reappear in the FAO Compliance Agreement.⁵⁵ A comparison of UNCLOS article 94(6) and FAO Compliance Agreement article III reveals that neither provision imposes adequate sanctions on commercial vessels engaged in IUU fishing. While article V of the FAO Compliance Agreement enhances the obligations of a port or coastal state, the flag state retains control over enforcing violations.

51. *Id.* art. V.

52. *Id.* art. V.

1. The Parties shall cooperate as appropriate in the implementation of this Agreement, and shall, in particular, exchange information, including evidentiary material, relating to activities of fishing vessels in order to assist the flag State in identifying those fishing vessels flying its flag reported to have engaged in activities undermining international conservation and management measures, so as to fulfill its obligations under Article III.

2. When a fishing vessel is voluntarily in the port of a Party other than its flag State, that Party, where it has reasonable grounds for believing that the fishing vessel has been used for an activity that undermines the effectiveness of international conservation and management measures, shall promptly notify the flag State accordingly. Parties may make arrangements regarding the undertaking by port States of such investigatory measures as may be considered necessary to establish whether the fishing vessel has indeed been used contrary to the provisions of the Agreement.

Id.

53. *Id.* art. V(2). This is a problem which persists in the International Plan of Action to Prevent, Deter, and Eliminate IUU fishing. Paragraph 59 of the *IPOA-IUU* states:

If, in the course of an inspection, it is found that there are reasonable grounds to suspect that the vessel has engaged in or supported IUU fishing in areas beyond the jurisdiction of the port State, the port State should, in addition to any other actions it may take consistent with international law, immediately report the matter to the flag State of the vessel and, where appropriate, the relevant coastal States and regional fisheries management organization. The port State may take other action with the consent of, or upon the request of, the flag State.

IPOA-IUU, *supra* note 24, ¶ 59.

54. Warner-Kramer, *supra* note 9, at 506 (stating that port states are left with little recourse where flag states are unwilling to pursue reports of activities that undermine the effectiveness of conservation measures). *See also* Vukas & Vidas, *supra* note 11, at 68–69 (arguing that the FAO Compliance Agreement contains a number of subjective standards which limit the Agreement's effectiveness).

55. *See supra* note 41 and accompanying text.

C. 1995 UN Straddling and Highly Migratory Fish Stocks Agreement

On December 11, 2001, the “United Nations 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” (1995 Fish Stocks Agreement) entered into force.⁵⁶ The primary purpose of the 1995 Fish Stocks Agreement was to expand upon UNCLOS notions of cooperation and conservation.⁵⁷

The 1995 Fish Stocks Agreement is a marked departure from the jurisdictional exclusivity of the flag state, codified in UNCLOS and reinforced in the FAO Compliance Agreement.⁵⁸ Article V of the 1995 Fish Stocks Agreement is a general charge to signatories: “[i]n order to conserve and manage straddling fish stocks and highly migratory fish stocks, coastal States and States fishing on the high seas shall, [give] effect to their duty to cooperate in accordance with the Convention”⁵⁹ Article V details several obligations, including: the duty of coastal and party states to adopt conservation measures;⁶⁰ “apply the precautionary approach”;⁶¹ collect and share information on fishing activities;⁶² and “implement and enforce conservation and management measures through effective monitoring, control and surveillance.”⁶³ This final requirement of

56. 1995 Fish Stocks Agreement, *supra* note 21; Div. for Ocean Affairs and the Law of the Sea, United Nations, The United Nations 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 Overview, http://www.un.org/Depts/los/convention_agreements/convention_overview_fish_stocks.htm [hereinafter 1995 Fish Stocks Agreement Overview]. The Agreement was first proposed in 1995, pursuant to the United Nations Conference on Straddling Fish Stocks and Highly Migratory fish Stocks. *Id.* Malta’s accession in November 2001 marked the thirtieth ratification, making the Agreement effective after a thirty-day interval. *Id.*

57. 1995 Fish Stocks Agreement Overview, *supra* note 56.

58. Vukas & Vidas, *supra* note 11, at 73. “The 1995 UN Fish Stocks Agreement makes a significant step forward in explicating the way in which fishing states and coastal states shall give effect to their duty to cooperate in conservation and management of high seas living resources” *Id.*

59. 1995 Fish Stocks Agreement, *supra* note 21, art. 5.

60. *Id.* art. 5(a).

61. *Id.* art. 5(c). The “precautionary approach” is a conservation strategy that relies on obtaining the best scientific information available, employing caution where scientific information is scarce or unavailable. *Id.* art. 6.

62. *Id.* art. 5(j).

63. *Id.* art. 5(1). Similarly, article 33(2) requires that parties “deter the activities of vessels flying the flag of non-parties which undermine the effective implementation of this Agreement.” *Id.* art. 33(2). See also Christie, *supra* note 36, at 24–26. “[T]he Agreement heightens the degree of obligation on the coastal state imposed by article 61 of [UNCLOS]. Terms used in article 61, such as ‘take into account’ and ‘consider’ are generally replaced in the Agreement with ‘shall’ adopt, ensure and

the Agreement broadens the obligations owed by coastal states, port states, and signatories. Further provisions elaborate on the duties owed by each party allowing, *inter alia*, inspection of vessels,⁶⁴ catches, and equipment, both at port and on the high seas⁶⁵ of signatories to the Agreement.⁶⁶

A number of limitations exist that might allow IUU fishers flying FOCs to circumvent international conservation measures. First, port states are authorized to prohibit port access to vessels under article 21 of the 1995 Fish Stocks Agreement only where it has been “*established* that the catch has been taken in a manner which undermines . . . conservation and management measures”⁶⁷ Whether port states can “*establish*” illicit activities before denying port access or transshipments appears doubtful. Second, nothing prevents vessels from docking at the nearest non-party port.⁶⁸ For example, in the case of the Patagonian toothfish, “there are still

protect.” *Id.* at 24.

64. 1995 Fish Stocks Agreement, *supra* note 21, art. 20.

Where there are reasonable grounds for believing that a vessel on the high seas has been engaged in unauthorized fishing within an area under the jurisdiction of a coastal State, the flag State of that vessel, at the request of the coastal State concerned, shall immediately and fully investigate the matter. The flag State shall cooperate with the coastal State in taking appropriate enforcement action in such cases and may authorize the relevant authorities of the coastal State to board and inspect the vessel on the high seas.

Id. art. 20(6). Although this expands the rights of the coastal state, inspection is still contingent upon authorization from the flag state. *Id.* art. 20.

65. Jon Van Steenis, *Pirates as Poachers: International Fisheries Law and the Bluefin Tuna*, 29 CAP. U. L. REV. 659, 670 (2002). Expansion of the scope to include the “high seas” is another divergence from previous Agreements.

Compared to prior fisheries conventions, the scope of the Straddling Stocks Agreement is revolutionary. Many prior conservation-minded fisheries treaties were limited to a particular species of fish or certain areas of oceans, but the Straddling Stocks Agreement encompasses the entire ocean, including the high seas.

Id. (citations omitted).

66. 1995 Fish Stocks Agreement, *supra* note 21, art. 21(1). Under article 21(1), parties to the Agreement can board and inspect fishing vessels of other parties to the Agreement, regardless of whether those States are parties to the governing regional authority.

Under article 23, a port state has significant authority.

(2) A port State may, *inter alia*, inspect documents, fishing gear and catch on board fishing vessels, when such vessels are voluntarily in its ports or at its offshore terminals.

(3) States may adopt regulations empowering the relevant national authorities to prohibit landings and transshipments where it has been established that the catch has been taken in a manner which undermines the effectiveness of subregional, regional or global conservation and management measures on the high seas.

Id. arts. 23(2)–(3). See Rayfuse, *supra* note 37, at 147. “Article 21 establishes an exception to the exclusivity of flag state enforcement jurisdiction. Members of regional and subregional organizations may inspect vessels of non-members . . . non-flag coastal state members may board and inspect such vessels if they enter an area under their national jurisdiction” *Id.*

67. 1995 Fish Stocks Agreement, *supra* note 21, art. 23(3) (emphasis added).

68. Rayfuse, *supra* note 37, at 151. Alternatively, a vessel can engage in IUU fishing prior to entering the territorial sea of a coastal state; thus, the coastal state has no right to board or inspect the

third [party] states such as Mauritius and Namibia that also provide port or landing facilities for toothfish catches [T]he illegal catch will, of course, be mainly channeled to the nearest accessible ports of non-parties.”⁶⁹ Third, although fifty-two states conform to the 1995 Fish Stocks Agreement,⁷⁰ notably absent from the Agreement were major commercial fishing nations such as Japan and China.⁷¹ Fourth, certain disputes relating to the economic rights of countries over their EEZs are exempt from the binding dispute settlement mechanisms⁷² contemplated in the 1995 Fish Stocks Agreement.⁷³ These exemptions restrict “the ability to require a coastal state to adopt specific measures compatible with an adjacent high seas regime.”⁷⁴ Finally, the rights of port and coastal states to board and inspect remain contingent on authorization from the flag state.⁷⁵

The 1995 Fish Stocks Agreement left numerous issues unresolved. These questions include how to regulate the fishing vessels registered to nations that refuse to join Regional Fisheries Management Organizations (RFMOs) and become parties to the 1995 Fish Stocks Agreement, how to ensure that RFMO members adopt appropriate fishery conservation measures within their EEZs, and the extent to which RFMO enforcement actions are consistent with the World Trade Organization rules concerning the import and export of fish products.⁷⁶

UNLCOS, the FAO Compliance Agreement, and the 1995 Fish Stocks Agreement are insufficient to effectively deter IUU or FOC fishing. All three agreements demand that the flag state impose enforcement measures

vessel because the vessel has a right of innocent passage. *Id.*

69. Vukas & Vidas, *supra* note 11, at 80 (discussing the need for concerted efforts among port states).

70. Div. for Ocean Affairs and the Law of the Sea, United Nations, Chronological List of the Ratifications of the Agreement for the Implementation of the Provisions of the Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm.

71. SOFIA, *supra* note 3, at 3 (including figures for aquaculture and commercial fisheries activity). According to a report from SOFIA, “China remains by far the largest producer, with reported fishery production of 41.6 million tonnes in 2000.” *Id.*

72. 1995 Fish Stocks Agreement, *supra* note 21, arts. 27–32. Article 27 outlines a number of the peaceful settlement options available to party States. “States have the obligation to settle their disputes by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.” *Id.*

73. Christie, *supra* note 36, at 26 (characterizing the dispute resolutions as a “somewhat limited ‘stick’ to enforce coastal states’ obligations under the [1995 Fish Stocks] Agreement.”).

74. *Id.*

75. See *supra* note 66 and accompanying text.

76. Paul Stanton Kibel, *The High Seas Lowdown: An Introduction to the Issue*, 34 GOLDEN GATE U.L. REV. 453, 455 (2004).

upon discovery of illegal, unreported, and unregulated fishing. While the 1995 Fish Stocks Agreement approaches a heightened level of international cooperation among party states, a number of issues regarding its effectiveness in deterring IUU fishing remain unresolved. The problem stems from an inability to force flag states that are ambivalent to or benefit from IUU fishing, to internalize the social costs which arise from IUU fishing.

II. MICROECONOMIC ANALYSIS

The following is an analysis of relevant microeconomic principles that examine the relationship between criminal behavior and the corresponding state response. To date, the various “global measures” implemented by the UN are ineffective at forcing the internalization of negative social costs imposed on society by IUU or FOC fishing practices.⁷⁷ Examination of microeconomic principles governing law and economics identifies a number of models that dictate criminal behavior.⁷⁸ Two microeconomic formulas adequately detail both the criminal’s thought process and the state response required to achieve optimal deterrence.

IUU fishing is a type of criminal behavior;⁷⁹ thus, it is instructive to conduct an economic cost-benefit analysis of the crime. The fundamental choice of whether to commit a crime requires balancing the benefit or utility of the act against the potential cost of imprisonment or fines.⁸⁰

77. IPOA-IUU IMPLEMENTATION, *supra* note 10 and accompanying text.

Available information nevertheless indicates that, for some important fisheries, IUU fishing accounts for up to 30 percent of total catches. . . . For example, the Indian Ocean Tuna Commission (IOTC) recently indicated that at least 70,000 tons of tuna catches by large longline vessels go unreported each year in the Indian Ocean. The International Commission for the Conservation of Atlantic Tuna (ICCAT) estimated in 1999 that unreported catches represent about 10 percent of the overall catches of the major Atlantic tuna species.

Id. at 1–2 (citations omitted). These unreported catches have severe negative social costs as they “can lead to the collapse of a fishery or seriously impair efforts to rebuild depleted fish stocks. This, in turn, may result in lost economic and social opportunities, both short-term and long-term, and may diminish food security.” *Id.* at 1.

78. HAL R. VARIAN, INTERMEDIATE MICROECONOMICS: A MODERN APPROACH 590 (W.W. Norton & Company 1999) (1987). “It is easy to see the natural affinity between these two subjects: both have the goal of understanding social institutions. Furthermore, each subject has a strong normative component: both law and economics are concerned not only with how social institutions function but how to improve their operation.” *Id.*

79. IPOA-IUU IMPLEMENTATION, *supra* note 10, at 2. “By definition, IUU fishing is either an expressly illegal activity or, at minimum, an activity undertaken with little regard for applicable standards.” *Id.*

80. VARIAN, *supra* note 78, at 591. For the purposes of illustration, (B) is the benefit or utility that a criminal actor gets from some item (x). (C) is the cost, such as imprisonment or fine, that is associated with item (x). Thus, the basic cost/benefit inquiry is an attempt to maximize $B(x) - C(x)$. *Id.*

Additional factors exist when evaluating the costs associated with criminal behavior. The “probability of apprehension” must be evaluated because not all criminals are caught.⁸¹

The probability of apprehension is a function of the resources devoted to detecting the crime, or the “level of enforcement” multiplied by the probability of capture or discovery, multiplied by the fine.⁸² The modified equation, therefore, expresses the problem as the maximization of the benefit derived from the item stolen versus the amount of the fine, multiplied by the level of enforcement discounted by the probability of discovery.⁸³

The resulting equation encourages criminals to maximize the benefit derived by stealing more valuable items.⁸⁴ The solution for the state requires imposing fines proportional to the magnitude of the crime.⁸⁵ Where the costs to the criminal are analogous to the value of the items stolen, the criminal must weigh the expected benefit against the proportional punishment.⁸⁶ Therefore, the state must set appropriate levels of enforcement and sufficiently high fines to deter criminal behavior.⁸⁷

The state’s goal in setting the proper levels of enforcement and sanctions does not necessarily eliminate criminal activity.⁸⁸ Rather, the state attempts to minimize the net costs of the criminal activity. Such costs result from the harm caused by the theft, the expected cost to the criminal, and the cost of enforcement.⁸⁹ The lower the cost of enforcement, and the higher the expected cost to the criminal, the lower the aggregate harm

81. *Id.*

82. *Id.* Probability of apprehension, insofar as it is a function of the level of enforcement, can be expressed as (e) . The probability of capture or discovery is (n) . And the corresponding fine is (F) .

83. *Id.* $B(x) - [(e)F]$. *Id.* Thus, a criminal will have to either increase the amount of “ x ” stolen to maximize the benefits so as to overcome the costs, or opt not to commit the crime. *Id.*

84. *Id.* at 592.

85. “Marginal costs” effectively match the level of punishment with the degree of the crime. *Id.* “Increasing the level of enforcement, e , is costly to the state, but increasing the size of the fine imposes no costs. Indeed, increasing the fine is beneficial to the state since the fines can be used to cover the costs of enforcement and apprehension.” *Id.* at 593.

86. *Id.* Thus, the equation becomes $B(x) - [(e)Fx]$. The criminal chooses to commit the crime only where the benefit (B) of the item (x) stolen exceeds the probability of discovery (n) multiplied by the level of enforcement (e) multiplied by a fine (F) that is proportionately related to the item (x) stolen, or (Fx) . *Id.*

87. “[T]he state should set the lowest possible value of e [level of enforcement] that results in positive probability of apprehension, and the highest possible value of F [fine] . . .” *Id.* at 593.

88. Eliminating crime would be virtually impossible, or at least be prohibitively expensive to a state. *Id.*

89. *Id.* at 592. Where the harm to the state from the theft of the item (x) is expressed as (H) , the expected costs to the criminal are $[(e)Fx]$, and the cost of enforcement is $c(e)$, the resulting equation is: $H(x) - [(e)Fx + c(e)]$. *Id.*

imposed on the state resulting from the theft.⁹⁰

Unfortunately, the measures implemented by the United Nations via UNCLOS, the FAO Compliance Agreement, and the 1995 Fish Stocks Agreement contrast starkly with these economic models, resulting in minimal deterrence and high costs to the state.

III. APPLICATION

Communal Property results in great externalities. The full costs of the activities of an owner of a communal property right are not borne directly by him The state, the courts, or leaders of the community could attempt to internalize⁹¹ the external costs resulting from communal property by allowing private parcels⁹²

The UNCLOS Convention defined the territorial boundaries of coastal states to force internalization of the costs related to overfishing.⁹³ These measures were unsuccessful for a number of reasons.

A. Failure to Impose Adequate Sanctions

Numerous actions contemplated by the three aforementioned UN agreements have the effect of increasing the probability of apprehension, or alternatively, reducing the benefit to the criminal.⁹⁴ However, the effect of such a preventative approach increases the enforcement cost without a significant reduction in criminal costs, essentially ignoring an economic approach to deterrence.⁹⁵

90. *Id.*

91. Internalization is a process by which property rights are altered in such a way that the persons interacting without regard to the consequences of their actions are forced to bear the effects (or a portion of the effects) of their actions. *See supra* note 77 and accompanying text.

92. Harold Dempsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 355 (1967).

93. *See supra* notes 34, 35 and accompanying text. The migratory nature of most commercial fish makes the definition of explicit property boundaries irrelevant. Moreover, preserving the concept of freedom of the High Seas effectively nullifies the 200 mile EEZs as measures forcing internalization among coastal states. *Id.*

94. The probability of apprehension can be expressed as $P(e)$, and the benefit to the criminal is a function of the benefit derived (B) and the amount of the item stolen (x). Therefore, total benefit is expressed as $B(x)$. It should be noted at the outset that the benefit (B) of the items stolen (x, in this case fish) is steadily increasing with the rising price of commercial fish in world markets. VARIAN, *supra* note 78, at 59.

95. The result is that IUU or FOC fishermen never internalize the costs of the depleting natural resources. Conversely, as the scarcity of the resource wains, the prices paid for the fish increase, which results in a proportionate increase in the benefit to the IUU or FOC fishermen. Thus, for the state to deter the illicit activity, the state must incur greater enforcement costs. *See VARIAN, supra* note 78 and accompanying text.

Increasing the marginal fine is a more cost-effective approach to increasing the deterrent effect without creating a corresponding increase in enforcement costs.⁹⁶ Increasing the level of fines forces a greater degree of internalization than the impractical division of property rights among the world's oceans.⁹⁷

A recent circular to UN FAO members examined enforcement levels among open registry states and RFMOs.⁹⁸ It stated that "where fines were imposed, they ranged from [\$10,000] to [\$30,000], which may be relatively modest in relation to the value of the resource fished."⁹⁹ This illustrates a breakdown in implementing sanctions that increase proportionally with the level of fish caught.¹⁰⁰ This results in IUU or FOC fishermen maximizing their net benefit by increasing the quantity stolen.

96. VARIAN, *supra* note 78 and accompanying text. Some economic models contemplate that the fines collected are used towards enforcement, further reducing the costs incurred by the state in ensuring compliance. *Id.* at 592.

97. "If externalities are present, the market will not result in Pareto efficient provision of resources As long as we have well-defined property rights in the good involving the externality . . . the agents can trade from their initial endowment to a Pareto efficient allocation." *Id.* at 570–73. The current landscape of oceanic property rights creates a minimal degree of internalization, in part because the developing countries are willing to bargain their access to the fisheries resources in their EEZs to commercial fisheries from other countries. The resulting allocation of property rights results in maximum production levels but does not force the internalization of the exploitation of the resource. Thus, commercial fisheries paying to access the EEZs of developing countries do not bear the effects of the exploited resource. The migratory nature of many commercial fish species and the economic disparity of most developing coastal states means these countries do not fully internalize the negative social costs associated with overfishing. Rather, the externalities that result from the exploitation of this resource fall on future generations and on present consumers who encounter higher prices for the commercial good as supply decreases.

The premise that coastal state jurisdiction over marine living resources to 200 miles offshore would prevent the overexploitation of marine fisheries has proved to be flawed [T]he EEZ as a management area has not been an adequate zone for ecosystem management, either from the perspective of straddling stocks and highly migratory species or from the perspective of integrating coastal and marine management. Simply changing jurisdictional zones did not substantially benefit the resources.

Christie, *supra* note 36, at 34.

98. See Judith Swan, *Fishing Vessels Operating Under Open Registries and the Exercise of Flag State Responsibilities: Information and Options*, in FOOD AND AGRIC. ORG. OF THE UNITED NATIONS, REPORT OF THE EXPERT CONSULTATION ON FISHING VESSELS OPERATING UNDER OPEN REGISTRIES AND THEIR IMPACT ON ILLEGAL, UNREPORTED AND UNREGULATED FISHING, MIAMI, SEPT. 23–25, 2003, FAO FISHERIES REPORT NO. 722, FIP/R722(EN), app. F, at 71 (2004), available at <ftp://ftp.fao.org/docrep/fao/006/y5244e/y5244e00.pdf>.

99. *Id.* at 95. It is worth noting here that not all of the open registry states are members of the regional fisheries management organizations (RFMOs) from which this enforcement data was obtained. Also, less than half of the open registry states responded to the questionnaire used to prepare the information in the report. *Id.* at 85.

100. The open registry states often set a maximum fine. For Belize, the maximum fine is only \$50,000, which further illustrates the failure of the open registry states to impose a penalty that effectively deters IUU fishing. *Id.* at 88.

Therefore, sanctions disproportionate with marginal increases in the quantity stolen make it worth the moderate risk and result in greater exploitation of the resource.

B. The Microeconomic Effects of the UN Agreements

Neither UNCLOS nor the FAO Compliance Agreement provides effective remedies. Both agreements preserve the exclusivity of the flag state jurisdiction. Coastal, port, and member states have only limited authority to report violations of conservation measures to flag states. Thus, the probability of apprehension remains low.¹⁰¹ Article 21 of the 1995 Fish Stocks Agreement provides port and coastal states greater authority, allowing the port state to prohibit landings where it is established that the vessel engaged in illegal activity.¹⁰² Irrespective of the difficulty of establishing illegal activity, in light of the allowance of innocent passage,¹⁰³ the prohibition against landings and transshipments simply leads a vessel to a more lenient port.¹⁰⁴ The result is a reduction in benefit to the IUU or FOC fisherman that only equals the amount of inconvenience experienced.

However, the corresponding costs of enforcement, such as those contemplated by the FAO in the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing,¹⁰⁵

101. Additional complexities emerge when considering the nature of the vessels that conduct IUU fishing. They are “highly mobile platforms that often operate in marine areas far from land and in places where effective monitoring, control, and surveillance (MCS) are lacking.” IPOA-IUU IMPLEMENTATION, *supra* note 10, at 4.

102. 1995 Fish Stocks Agreement, *supra* note 21, art. 21.

103. *See supra* note 68 and accompanying text.

104. *Id.*

105. A number of provisions suggested in the IPOA-IUU require states and RFMOs to make considerable expenditures to ensure compliance. Paragraph 33 of the IPOA-IUU suggests that states establish special funds to finance the technological advances called for in the Agreement. IPOA-IUU, *supra* note 24, ¶ 33; IPOA-IUU IMPLEMENTATION, *supra* note 10, at 91. The IPOA-IUU anticipates that party states to the Agreement will conform to, *inter alia*, the following provisions:

24. States should undertake comprehensive and effective monitoring, control and surveillance (MCS) of fishing from its commencement, through the point of landing, to final destination, including by:

.....

24.3 implementing, where appropriate, a vessel monitoring system (VMS), in accordance with the relevant national, regional or international standards, including the requirement for vessels under their jurisdiction to carry VMS on board;

24.4 implementing, where appropriate, observer programmes in accordance with relevant national, regional or international standards, including the requirement for vessels under their jurisdiction to carry observers on board;

24.5 providing training and education to all persons involved in MCS operations;

nullify any reduction of benefit to the fisherman. The IPOA-IUU does not incorporate sanctions that match the respective increase in enforcement costs. Paragraph 21 of the IPOA-IUU provides that “[s]tates should ensure that sanctions for IUU fishing by vessels and, to the greatest extent possible, nationals under its jurisdiction, are of sufficient severity to effectively prevent, deter and eliminate IUU fishing and to deprive offenders of the benefits accruing from such fishing.”¹⁰⁶ However, the remainder of the provision allows states to enact sanctions in accordance with administrative penalties.¹⁰⁷ Thus, where an open registry state has set a maximum fine,¹⁰⁸ the sanctions may not correspond with the level of the offense.¹⁰⁹

These models also highlight the ineffectiveness of the genuine link concept as a means of deterring IUU fishing.¹¹⁰ The genuine link requirement is irrelevant where the flag state is unwilling to exercise jurisdiction or only loosely enforces conservation measures. Requiring a genuine link only marginally affects the criminal’s decision to engage in IUU fishing.¹¹¹ Effective deterrence turns on the willingness of the flag state to enforce conservation and management measures.

Moreover, the EEZs are ineffective means of forcing the internalization of social costs.¹¹² The absence of property rights and the pelagic nature of the fish mean that no individual state feels the harm from the abuse of the oceanic resources.¹¹³ When states legislate (or exercise jurisdiction over

24.6 planning, funding and undertaking MCS operations in a manner that will maximize their ability to prevent, deter and eliminate IUU fishing;

....

IPOA-IUU, *supra* note 24, ¶¶ 24, 24.3–24.6; IPOA-IUU IMPLEMENTATION, *supra* note 10, at 89. Such provisions require considerable expenditures by party states and are aimed primarily at increasing the probability of apprehension.

106. IPOA-IUU, *supra* note 24, ¶ 21.

107. *Id.*

108. *See supra* note 87 and accompanying text.

109. *Id.*

110. Despite its futility, the IPOA-IUU preserves the “genuine link” concept.

Although the functions of registration of a vessel and issuing of an authorization to fish are separate, flag States should consider conducting these functions in a manner which ensures each gives appropriate consideration to the other. Flag States should ensure appropriate links between the operation of their vessel registers and the record those States keep of their fishing vessels.

IPOA-IUU, *supra* note 24, ¶ 40.

111. Where the beneficial owner of the vessel engaged in IUU or FOC fishing cannot be readily identified, the “genuine link” is only marginally beneficial in aiding identification and increasing the probability of apprehension. *See* IPOA-IUU IMPLEMENTATION, *supra* note 10, at 20–24.

112. Christie, *supra* note 36.

113. Often, states with large fishing fleets will purchase the right to fish the coastal waters of developing countries. While these developing countries suffer with greater competition for valuable

their flag vessels), the level of contemplated harm or externalities does not reflect the actual harms experienced by future generations.¹¹⁴

Ultimately, the contemplated harm is low when setting enforcement levels and fines while the benefit to the IUU fishermen is steadily increasing. The probability of apprehension may marginally increase with additional surveillance and recording requirements as contemplated by the UN agreements.¹¹⁵ However, they do so with a corresponding increase in enforcement costs, which further increase the level of harm experienced by a state from IUU fishing. More aggressive enforcement measures have minimal effects, to the benefit of the IUU fishermen. Meanwhile, the inadequacies of imposed sanctions further reduce the costs contemplated by the criminal when deciding to commit IUU fishing. In setting higher fines, states could more effectively deter IUU fishing without increasing enforcement costs. The result would be a greater deterrent effect, minimizing the harm experienced by the state, and effectively forcing IUU fishermen and open registry states to internalize the negative social externalities resulting from their illicit fishing activities or lax enforcement.

III. CONCLUSION

The United Nations acknowledged that previous agreements did not effectively address the issue of illegal, unreported, and unregulated fishing. “Existing international instruments addressing IUU fishing have not been effective due to a lack of political will, priority, capacity, and resources to ratify or accede to and implement them.”¹¹⁶ In 2001, the United Nations responded to the ineffectiveness of UNCLOS and its progeny by enacting the International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing.¹¹⁷ The IPOA-IUU was envisaged as a “kind of comprehensive ‘toolbox’ that includes a full range of tools to prevent, deter and eliminate IUU fishing.”¹¹⁸

Among the themes incorporated in the IPOA-IUU is that flag, port, and coastal states have to exercise more rigorous control over vessels believed

resources, the large fishing fleets can fish the area to the point of exhaustion without suffering the repercussions. *See generally* Salopek, *supra* note 8.

114. This is called the tragedy of the commons. Garrett Harden, *The Tragedy of the Commons*, SCIENCE, Dec. 13, 1968, at 1244.

115. *See* IPOA-IUU, *supra* note 105.

116. IPOA-IUU, *supra* note 24, ¶ 1.

117. *Id.* ¶ 2.

118. IPOA-IUU IMPLEMENTATION, *supra* note 10, at 4–8.

to be engaged in IUU fishing. Flag state responsibilities outlined in the IPOA-IUU include, *inter alia*, monitoring and surveillance of vessels flagged to the flag state;¹¹⁹ deterring reflagging to avoid compliance with conservation methods;¹²⁰ refusing authorization to fish where the vessel does not comport with international conservation measures;¹²¹ and establishing a thorough reporting system.¹²²

The IPOA-IUU contains promising provisions that address imposing trade-related sanctions by party states against IUU vessels.¹²³ These measures encourage states to reduce access of illicitly captured fish to international markets.¹²⁴ In theory, such measures would reduce the market for IUU fish. This would in turn reduce the value of the stolen goods for the criminal and thus reduce the overall benefit derived from the criminal behavior.

However, several self-imposed restrictions may hamper the effectiveness of such a provision. First, these measures are only to be used in “exceptional circumstances.”¹²⁵ Second, trade sanctions may be used only after “prior consultation with interested States.”¹²⁶ Finally, the trade measures cannot conflict with import or export rights of states as outlined by the World Trade Organization.¹²⁷ Given these hurdles to implementation, it is unlikely these trade sanctions will serve as an effective deterrent internationally.

119. IPOA-IUU, *supra* note 24, ¶¶ 24.1–24.10.

120. *Id.* ¶ 38. “Flag States should deter vessels from reflagging for the purposes of non-compliance with conservation and management measures or provisions adopted at a national, regional or global level.” *Id.*

121. *Id.* ¶ 44.

States should adopt measures to ensure that no vessel be allowed to fish unless so authorized, in a manner consistent with international law for the high seas, in particular the rights and duties set out in articles 116 and 117 of the 1982 UN Convention, or in conformity with national legislation within areas of national jurisdiction.

Id.

122. *Id.* ¶ 42.

Each flag State should maintain a record of fishing vessels entitled to fly its flag. Each flag State’s record of fishing vessels should include, for vessels authorized to fish on the high seas, all the information set out in paragraphs 1 and 2 of Article VI of the 1993 FAO Compliance Agreement.

Id.

123. IPOA-IUU, *supra* note 24, ¶¶ 65–76.

124. *Id.* ¶ 66.

125. *Id.*

126. *Id.* One wonders whether a state would voluntarily accede to trade sanctions against its country if it is given a choice.

127. *Id.*

The success of the IPOA-IUU as a means of deterring IUU fishing remains to be seen. While the plan contemplates increased international involvement and inter-state cooperation to effectuate the provisions of the agreement, numerous concerns remain. It is questionable whether countries will voluntarily accede to such a rigorous regulatory scheme.¹²⁸ Moreover, the IPOA-IUU requires that nations themselves legislate to effectuate the plan, or alternatively, act through a regional fisheries management board. The IPOA-IUU attempts to increase the probability of apprehension to create a deterrent effect. However, this approach ignores fundamental microeconomic principles. Developing countries are unwilling to expend large sums of money on establishing an elaborate vessel monitoring system or infrastructure to extensively monitor flagged vessels for the sake of reducing a harm that they have not yet internalized.

Perhaps a better approach involves increasing the sanctions and penalties imposed against those who engage in IUU or FOC fishing. Closing markets to vessels that engage in IUU fishing would reduce the benefit derived from the illegal activity with no additional cost imposed on the state, other than the opportunity costs of the foregone fish products. Moreover, where a coastal, port, flag, or party state discovers a vessel engaged in IUU fishing, that state should be allowed to act unilaterally without notification to the flagged state. Sanctions should be sufficiently punitive to serve as a deterrent. Sanctions should increase proportionally with the degree of IUU fishing. Measures such as these pose no additional costs of enforcement on the state and simultaneously reduce the benefit derived. Increasing the fine and making it proportionate to the degree of the offense ensures that criminals will not engage in more IUU fishing to make the benefit worth the risk.

*Ryan Cantrell**

128. Commentators raised similar doubts in the context of the FAO Code of Conduct, the parent agreement to the IPOA-IUU, which was also voluntary. “A fundamental concept underlying the implementation of the Code is the assumption that governments want better managed fisheries, and that they are prepared to take difficult decisions, in the short-term, as a means of attaining longer-term sustainability gains.’ This is often not the case.” Christie, *supra*, note 36, at 30 (quoting DAVID J. DOULMAN, CODE OF CONDUCT FOR RESPONSIBLE FISHERIES: DEVELOPMENT AND IMPLEMENTATION CONSIDERATIONS (2000), available at <http://www.tao.org>).

* J.D. (2006), Washington University School of Law; B.A. (2003), B.B.A. (2003) Southern Methodist University. Ryan Cantrell is admitted to the Bar in the State of Texas and currently practices commercial and business litigation for the Houston-based firm Chamberlain, Hrdlicka, White, Williams, & Martin.

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