FAO'S GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN: A NEW ROLE, A NEW ROLE MODEL

Jamie K. Murphy[*]

[*] J.D. Drake University Law School, 2007.

I. INTRODUCTION

For thousands of years, fishing and seafaring have lain at the heart of Mediterranean cultures.[1] Today, fishing on the Mediterranean Sea is for the most part unindustrialized and appears as it did in the past.[2] But looks can be deceiving.[3] Due to overfishing in particular, but also to coastal development, urban pollution, agricultural runoff, industry, and capture-based aquaculture, the Mediterranean Sea – and the cultures that are sustained from its fishing traditions – is in the midst of impressive change.[4] At stake are 300,000 full-time fishing jobs and some 900,000 related jobs, revenues which earn Mediterranean countries US$3.8 billion a year, and fish consumption which is higher in the region than the global average.[5] Challenges abound, but Mediterranean countries have started to work more closely together and they offer insight into how cooperation and improved management of shared fishery resources can ensure that fishing and seafaring remain a central role in the cultures molded by them.[6]

Twenty countries border the shores of the Mediterranean Sea, making management of its fisheries particularly complicated.[7] In 1982, the United Nations Law of the Sea permitted bordering countries to establish 200-mile exclusive economic zones; those countries chose however to claim only 12-mile strips.[8] As a result, most of the Sea is effectively not controlled by any one country.[9] Safeguarding fisheries in the shared "high seas" area and coordinating management efforts in coastal waters requires joint action.[10] The vehicle for such

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1. Press Release, Food and Agric. Org. of the U.N., Mediterranean Fisheries*:* At the Crossroads (Sept. 5, 2005), http://www.fao.org/newsroom/en/focus/2005/107379/index.html [hereinafter Crossroads].

2. Press Release, Food and Agric. Org. of the U.N., Employment and Consumption Trends, http://www.fao.org/newsroom/en/focus/2005/107379/article_107384en.html (last visited Aug. 23, 2007) [hereinafter Employment and Consumption].

3. *See* Crossroads, *supra* note 1.

4. *Id.*

5. Employment and Consumption, *supra* note 2; s*ee* IUCN-The World Conservation Union, Sustainable Fisheries: The Mediterranean Context, http://www.iucn.org/places/ medoffice/en/en_fishery.html (last visited Aug. 23, 2007).

6. Crossroads, *supra* note 1.

7. Press Release, Food and Agric. Org. of the U.N., New Role for Mediterranean Fishing Commission, http://www.fao.org/newsroom/en/focus/2005/107379/article_107392en.html (last visited Aug. 23, 2007) [hereinafter New Role].

8. *Id.*

9. *Id.*

10. *Id.* Deep-sea fisheries are generally considered to be fisheries conducted for bottom dwelling species below 400 meters on the continental slope, seamounts (isolated islands or island chains beneath the sea's surface), deep-sea ridges, and plateaus. MATTHEW GIANNI, HIGH SEAS BOTTOM FISHERIES AND THEIR IMPACT ON THE BIODIVERSITY OF VULNERABLE DEEP-SEA

joint, multi-lateral action is the Food and Agriculture Organization's (FAO) General Fisheries Commission for the Mediterranean (GFCM).[11] This Regional Fisheries Management Organization (RFMO), like other Regional Fisheries Bodies (RFBs), allows Mediterranean governments to closely monitor fisheries at the local level.[12]

Though started in 1949, the GFCM reshaped its structure and operating rules in recent years and has "emerge[d] as a highly proactive intergovernmental regional fisheries management body"[13] playing a significant role in stimulating cooperation among the various and diverse countries that take part.[14] Such cooperation is no small feat.[15] As Alain Bonzon, GFCM's Executive Secretary, has explained:

> Sitting at the same table you have poor and rich countries; a country like Italy, with 18,000 fishing boats and nearly half of all Mediterranean fisheries production to its credit, and then you have a country like Slovenia, with just 40 boats; you have countries with well established mariculture activities and other [sic] in which this industry is in a stage of infancy.[16]

As the GFCM continues to successfully work at fostering a cohesive and cooperative unit, the question that remains, and that will be explored in this note, is how this particular RFMO has proposed to meet the tremendous challenges facing the region today and what, if anything, other nations, particularly those in "crowded" situations like the Mediterranean, can learn from the Commission in building sustainable fisheries and in protecting their own seafaring cultures.[17]

ECOSYSTEMS: SUMMARY FINDINGS 4 (2004), *available at* http://www.iucn.org/themes/marine/pdf/MattGianni-CBDCOP7-Impact-HS-BottomFisheries-Complete.pdf (report prepared for the NRDC, IUCN-The World Conservation Union and the WWF).

11. New Role, *supra* note 7.

12. As of January 16, 2007, the GFCM includes 24 Member countries - Albania, Algeria, Bulgaria, Croatia, Cyprus, the European Community, Egypt, France, Greece, Israel, Italy, Japan, Lebanon, Libya, Malta, Monaco, Morocco, Romania, Slovenia, Serbia and Montenegro, Spain, Syria, Tunisia, Turkey. Press Release, Food and Agric. Org. of the U.N., New Measures to Protect Mediterranean Fish Stocks, (Jan. 16, 2007), http://www.fao.org/newsroom/en/news/2007/1000479/index.html [hereinafter New Measures].

13. New Role, *supra* note 7.

14. *Id.*

15. *Id.*

16. *Id.*

17. *Id.*

II. DECLINING CATCHES

Although it covers only one percent of the world's marine area, the Mediterranean Sea contains about nine percent of the world's marine species.[18] Nevertheless, an increasing amount of seafood is imported from other waters.[19] Again, consumption of fish is high in the region compared to the global average of 16.2 kilograms per capita, per year (kg/pc).[20] For example, in Italy, France, and Greece the average annual consumption is 20 kg/pc; in Spain, it is even higher at 40 kg/pc.[21] However, the Mediterranean Sea only provides 6.25 kg of that total consumption.[22] Due to the several factors discussed below, fish stocks are declining, which in the case of some species (e.g. bluefin tuna, hake, octopus, swordfish, sardines) are considerably less today than they were twenty years ago.[23] Catches of hake, for example, peaked at over 52,000 tons in the early 1990s and then dropped by half in the last several years.[24] This constitutes a major problem in a region where the preference is for fresh, local products.[25] In its recent *Review of the State of World Marine Fishery Resources*, the FAO reported that Mediterranean fisheries, "despite these challenges . . . have shown a surprising resilience."[26] With international cooperation on better management improving, the hope is that this trend continues.[27]

A. *Overfishing*

Overfishing in the Mediterranean is the leading problem, though not the only one, contributing to the weakening of Mediterranean fish stocks.[28] Overfishing refers to the practice of "catching so many adult fish that not enough re-

18. Crossroads, *supra* note 1.
19. Employment and Consumption, *supra* note 2.
20. *Id.*
21. *Id.*
22. *Id.*
23. Press Release, Food and Agric. Org. of the U.N., Mediterranean Fisheries: As Stocks Decline, Management Improves, http://www.fao.org/newsroom/en/news/2005/105722/index.html (last visited Aug. 23, 2007) [hereinafter Stocks Decline]; *see* Jordi Lleonart, FAO, Mediterranean and Black Sea: FAO Statistical Area 37 (2005), *available at* ftp://ftp.fao.org/docrep/fao/007/y5852e/Y5852E05.pdf (Jordi Lleonart is a researcher for the FAO, Marine Resources Service, Fishery Resources Division).
24. Stocks Decline, *supra* note 23.
25. Employment and Consumption, *supra* note 2.
26. Crossroads, *supra* note 1; *see* Lleonart, *supra* note 23, at 50.
27. *Id.*
28. Press Release, Food and Agric. Org. of the U.N., Humankind's Heavy Hand, http://www.fao.org/newsroom/en/focus/2005/107379/article_107388en.html (last visited Aug. 23, 2007) [hereinafter Heavy Hand].

main to breed and replenish the population."[29] Overfishing results in part from the replacement of small-scale fishers with bigger commercial enterprises.[30] In addition, the onslaught of new deep-sea fishing technologies and markets for deep sea wares has helped facilitate the exploitation of the diverse but poorly understood ecosystems that exist on the ocean bottom.[31] Research over the last decade has revealed that the number of species populating the ocean floor ranges between 500,000 and 100 million, representing "a major reservoir of the earth's biodiversity."[32] Fishing practices that are of particular concern and increasing focus are "indiscriminate trawl fishing and high levels of by-catch."[33]

1. *Bottom Trawl Fishing*

Roughly 80 percent of the catch of bottom dwelling species is seized by bottom trawl fishing vessels.[34] According to the World Wildlife Fund (WWF), IUCN-The World Conservation Union, and the Natural Resources Defense Council (NRDC),[35] "bottom trawl fishing on the high seas — which consists of dragging heavy chains, nets, and steel plates across the ocean floor — is the single greatest threat to highly vulnerable deep sea environments and the biodiversity they shelter."[36] In fact, the practice "has been compared to catching squirrels by cutting down forests. Bottom trawl nets scour and destroy an estimated global area of fish habitat the equivalent of 150 times the area of forests cut annually worldwide . . . ."[37] Studies have concluded that the greatest threat that this practice poses is species extinction.[38]

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29. Udy Bell, *Overfishing: A Threat to Marine Biology*, U.N. CHRONICLE ONLINE, http://www.un.org/Pubs/chronicle/2004/issue2/0204p17.asp (last visited Aug. 23, 2007).

30. Employment and Consumption, *supra* note 2.

31. GIANNI, *supra* note 10, at 1.

32. *Id.* at 4.

33. WWF, Mediterranean Sea – A Global Ecoregion, http://www.panda.org/about_wwf/where_we_work/ecoregions/mediterranean_sea.cfm (last updated Aug. 23, 2007).

34. GIANNI, *supra* note 10, at 2.

35. *Id.* at 5 (The NRDC is a non-profit U.S. based organization with roughly one million members and online activists. It focuses on maintaining and restoring the rich diversity of ocean life through its staff of lawyers, policy analysts, and scientists. The IUCN – The World Conservation Union consists of 72 states, 107 government agencies, and 980 national and international non-governmental organizations. Its focus is on influencing, encouraging, and assisting global societies to ensure that all uses of natural resources are ecologically sustainable).

36. WWF, Sea Bed Trawling, The Greatest Threat to Deep-Sea Biodiversity, Feb. 10, 2004, http://www.panda.org/news_facts/newsroom/index.cfm?uNewsID=11081 [hereinafter Sea Bed Trawling]; GIANNI, *supra* note 10, at 4.

37. John C. Ogden, *Maintaining Diversity in the Oceans: Issues for the New U.S. Administration*, 43 ENV'T 28, 33 (April 2001).

38. GIANNI, *supra* note 10, at 4.

The negative impact of bottom trawling is two-fold.[39] First, large amounts of fish populations are withdrawn from the food chain of "food poor" populations.[40] Second, trawling physically impacts the ocean bottom ecosystems, comprised mainly of coral, sponge, and other filter feeding species that are known to sustain a rich and diverse collection of ocean life.[41] What is particularly alarming, as independent oceans advisor Matthew Gianni has noted, "[d]eep sea ecosystems like cold-water coral reefs can be destroyed by a single trawl."[42]

2. *By-Catch*

High levels of by-catch are another serious issue, inextricably linked with trawl fishing, thought to contribute to species endangerment.[43] In fisheries science, by-catch refers to marine life caught in a fishery that are not the targeted species.[44] Because it is not the desired species, the by-catch is usually discarded or returned to the sea dead or dying.[45] This includes marine life that other fish species rely on as their main source of food,[46] reproductively-immature juveniles of the targeted species,[47] and species that fishers do not want or cannot sell.[48] For example, shrimp trawl nets have been identified as sources of mortality for many species of concern.[49] Unintentional catches of the white shark are also of great concern, for this species has been in general decline in the Mediterranean

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39. *Id.* at 5.

40. *Id.* (including non-targeted species or by-catch that will be discussed infra).

41. *Id.*; *see also* Sea Bed Trawling, *supra* note 36 (stating that corals and sponges are particularly vulnerable to overfishing because they are slow-growing and long-lived; also vulnerable are such deep sea species as orange roughy and the Patagonian toothfish which can live upwards of 150 years and not reach reproductive maturity until age 30).

42. Sea Bed Trawling, *supra* note 36.

43. Greenpeace, Defending Our Oceans: Oceans in Crisis, http://oceans.greenpeace.org /en/our-oceans (last visited Aug. 23, 2007).

44. Committee on Fisheries, FAO, *Fisheries Bycatch and Discards*, U.N. Doc. COFI/97/Inf.7, ¶ 4 (Dec. 1996), *available at* http://www.fao.org/docrep/meeting/w3862e.htm [hereinafter Committee of Fisheries]; s*ee also* Humane Society of the U.S., *Project Reveals Threat to Marine Life by Continued Use of Illegal Driftnets*, June 2, 2005, http://www.hsus.org/marine_ mammals/marine_mammals_news/italian_driftnetting_report.html [hereinafter Human Society].

45. *See* Kate Wing, NRDC, KEEPING OCEANS WILD: HOW MARINE RESERVES PROTECT OUR LIVING SEAS 3 (2001), *available at* http://www.nrdc.org/water/oceans /kow/kow.pdf.

46. Bell, *supra* note 29.

47. Humane Society, supra note 44.

48. *See* WING, *supra* note 45, at 3.

49. Greenpeace, *Defending Our Oceans: Bycatch*, http://oceans.greenpeace.org/en/our-oceans/bycatch (last visited Aug. 23, 2007).

Sea for the last forty years.[50] By-catch, quite astonishingly, represents 27 million tons of non-targeted, discarded biodiversity every year.[51]

3. *Illegal Fishing*

Also contributing to overfishing in the Mediterranean is illegal, unregulated, and underreported (IUU) fishing.[52] Examples of illegal fishing practices are "fishing without permission, catching protected species, using outlawed types of gear or disregarding catch quotas . . . ."[53] The FAO has stated that IUU fishing is increasing throughout the world and appears to be the result of fishermen seeking to avoid the stringent rules that are emerging in response to decreasing catches and weakening fish stocks.[54] IUU fishing is a major concern because it greatly impacts the marine environment and the species within it, while putting the business of legal fishers at risk.[55]

Illegal driftnet fishing is of particular concern.[56] Beginning in the 1970s, instead of floating small nets on the water to catch schools of fish as they had done for centuries, fishermen began employing nets of astounding sizes, ten to thirty miles in length, to catch whatever swam into them (targeted or not).[57] Although driftnet fishing has been banned by the European Union (EU), the practice continues and "still regularly threatens marine life in the Mediterranean."[58] As recent as the summer of 2004, a joint monitoring project by Humane Society International, the Royal Society for the Cruelty of Animals, and the DELPHIS Cetacean Group reported observance of illegal driftnet fishing by Italy over a 67-day period.[59] Not only are many unintended victims (by-catch) caught in these nets, but the nets are often abandoned or cut loose to avoid

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50. SERGI TUDELA, FOOD AND AGRIC. ORG. OF THE U.N., ECOSYSTEM EFFECTS OF FISHING IN THE MEDITERRANEAN: AN ANALYSIS OF THE MAJOR THREATS OF FISHING GEAR AND PRACTICES TO BIODIVERSITY AND MARINE HABITS (2004), *available at* http://www.fao.org/ documents/show_cdr.asp?url_file=/docrep/007/y5594e/y5594e04.htm.

51. Peter M. Vitousek et al., *Human Domination of Earth's Ecosystems*, 277 SCI. 494, 495, July 25, 1997.

52. Press Release, Food and Agric. Org. of the U.N., Stronger Port Security Key to Fight Against Illegal Fishing (Aug. 28, 2006), http://www.fao.org/newsroom/en/ news/2006/ 1000380/index.html [hereinafter Stronger Port Security]; *see* New Role, *supra* note 7.

53. Stronger Port Security, *supra* note 52.

54. Bell, *supra* note 29.

55. *See* Global Marine Program, WWF, Fishing Problem: Illegal Fishing, *available at* http://www.panda.org/about_wwf/what_we_do/marine/problems/problems_fishing/illegal_fishing/index.cfm (last visited Aug. 23, 2007).

56. *See* Humane Society, *supra* note 47.

57. *Id.*

58. *Id.*

59. *See id.*

detection, floating sometimes for months until they sink to the sea bottom, "weighted down with tons of sea life."[60] Other countries that are not EU members are also using driftnets in the Mediterranean, contributing to the high loss of sea life.[61]

4. *The Bluefin Tuna*

a. *High Overseas Demand*

One species that has garnered a great deal of attention of late is the bluefin tuna, a "high-profile, high-value" species that is "overexploited regionally."[62] Though the bluefin only constitutes around three percent of catches in the Mediterranean Sea, its economic importance is very high.[63] There is great demand for the bluefin from overseas, primarily driven by the Japanese market for sushi and sashimi.[64] In Japan, one adult bluefin can sell for US$50,000 or more.[65] The demand from the U.S. is substantial as well, around 24,000 tons a year.[66] To put this in perspective, the yearly catch of the bluefin in the Mediterranean today is only 22,000 tons.[67] Research shows that "[t]una in the western Atlantic migrate to feeding grounds in Europe and the Mediterranean."[68] Because limits on tuna catches are less restrictive in Europe than in the

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60. *Id.*

61. *Id.*; *see also* Press Release, WWF, Illegal Driftnets Continue to Kill Thousands of Dolphins, http://www.panda.org/news_facts/newsroom/index.cfm?uNewsID=9844 (last visited Aug 23, 2007) (citing Paolo Guglielmi, Head of Marine Unit at the WWF Mediterranean Programme, who said "[nearly 2,500 miles] of illegal nets from the Moroccan, French, Turkish and Italian driftnet fleets are ensnaring all that gets in their way").

62. Stocks Decline, *supra* note 23.

63. *Id.*

64. *Id.; see also* Press Release, Food and Agric. Org. of the U.N., Bluefin Tuna in the Spotlight, http://www.fao.org/newsroom/en/focus/2005/107379/article_107386en.html (last visited Aug. 23, 2007) [hereinafter Bluefin Tuna].

65. Stocks Decline, *supra* note 23; s*ee also* Robin Kundis Craig, *Protecting International Marine Biodiversity: International Treaties and National Systems of Marine Protected Areas*, 20 FLA. ST. U. J. LAND USE & ENVTL. L. 333, 333 (2005) (discussing that buyers in Japan will pay upwards of US$80 per pound for bluefin tuna and that the tuna can weigh up to 1500 pounds).

66. Stocks Decline, *supra* note 23.

67. *Id.*

68. *See Morning Edition: Tracking Bluefin Tuna* (NPR radio broadcast Aug. 17, 2001), *available at* http://www.npr.org/programs/morning/features/2001/aug/bluefintuna/010817.bluefintuna.html (last visited Aug. 24, 2007) (discussing Stanford University researcher Barbara Block's work on bluefin tuna tracking).

western Atlantic, fishery managers are concerned that overfishing in the Mediterranean is depleting the bluefin stocks.[69]

b. *Capture-based Aquaculture*

Adding to this pressure on bluefin tuna is capture-based aquaculture (CBA), or sea-ranching.[70] Aquaculture refers to "the controlled rearing of fish or shellfish by people or corporations who own the harvestable product, often involving the capture of the eggs or young of a species from wild sources, followed by rearing more intensively than possible in nature."[71] According to the FAO, CBA is the "practice of collecting 'seed' material – from early life stages to adults – from the wild, and its subsequent on-growing to marketable size in captivity . . . ."[72] To put it more simply, CBA involves the practice of catching small fish (tuna) in the wild, and then penning and fattening them prior to harvesting.[73] Aquaculture is the quickest growing animal based food-producing sector, producing around one third of the world's supply of marine products.[74] Unlike land-based farming, where most of the production is based on a small number of species, aquaculture produces more than 200 species.[75]

The fattening of wild-caught tuna is a growing activity in aquaculture science.[76] The FAO estimates that the production of the bluefin using CBA is about 25,000 tons a year.[77] Just five years ago, production was at around 10,000 tons.[78] The concern is that CBA puts increased pressure on an already fragile population.[79] As well, some observers are warning that because large amounts of fish are recruited from outside waters in order to feed the penned tuna, CBA could be introducing harmful alien aquatic diseases to the Mediterranean.[80]

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69. *Id.*
70. Bluefin Tuna, *supra* note 64.
71. Natural Resources Defense Council (NRDC), Glossary of Environmental Terms, www.nrdc.org/reference/glossary/a.asp (last visited Aug. 24, 2007).
72. FOOD AND AGRIC. ORG. OF THE U.N., THE STATE OF WORLD FISHERIES AND AQUACULTURE, PART 2 (2004), *available at* http://www.fao.org//docrep/007/y5600e/y5600e06.htm.
73. Press Release, Food and Agric. Org. of the U.N., New Regulations for Mediterranean Fishing Take Force (Sept. 5, 2005), http://www.fao.org/newsroom/en/news/2005/107452/index.html [hereinafter New Regulations].
74. GreenFacts.org, Scientific Facts on Fisheries: What is the Overall Fisheries Production, http://www.greenfacts.org/en/fisheries/index.htm (last visited Aug. 24, 2007).
75. *Id.*
76. *Id.*
77. Stocks Decline, *supra* note 23.
78. *Id.*
79. *Id.*
80. Heavy Hand, *supra* note 28.

B. *Pollution*

Pollution is another key contributor to the weakening of Mediterranean fish stocks.[81] Land-based activities – urban sewage, agricultural runoff, industrial outflow – constitute the main sources of pollution in the Mediterranean, but sea- based activities, maritime shipping in particular, have contributed their fair share of the Sea's pollution as well.[82]

1. *Urban Sewage and Solid Waste*

According to the United Nations Environmental Programme (UNEP), there are 150 million people populating the coastal Mediterranean region.[83] Forty-eight percent of the urban centers in which these people inhabit are void of sewage treatment facilities.[84] As a result, 6.3 billion cubic meters of wastewater is produced each year (including sewage produced by tourists to the region).[85] Eighty percent of the wastewater that is released into the Mediterranean is untreated.[86] Moreover, solid waste and litter discharged into the Mediterranean Sea, including household trash, food, paper, and plastic packaging, also contributes to the degeneration of the ocean bottom and its associated ecosystems.[87] Marine creatures might mistake trash for food or "become physically entangled in marine trash [which] for creatures that need to breathe, like whales, birds, seals, and turtles, . . . can often lead to drowning or strangulation."[88] Marine debris can also damage or destroy coral reefs and other habitats necessary for the life sustenance of many marine species.[89]

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81. *See id.*
82. *See id.*
83. *Id.*
84. *See id.*
85. Press Release, World Business Council for Sustainable Development, *The Mediterranean Sea is Sick*, Oct. 7, 2005, *available at* http://www.wbcsd.org/plugins/DocSearch/details.asp?MenuId=MjIx&ClickMenu=LeftMenu&doOpen=1&type=DocDet&ObjectId=MTY3NjQ (last visited Aug. 25, 2007) [hereinafter World Business Council].
86. *Id.*
87. *See id.* (stating that The Programme for the Assessment and Control of Pollution in the Mediterranean region (Med Pol) says that "plastic alone accounts for 75 percent of the waste on the sea surface and the seabed").
88. Craig, *supra* note 65, at 348.
89. *Id.*

2. *Agricultural Runoff*

Besides urban and industrial sewage, water pollution from agriculture (from fertilizers and solid or liquid manure) carries excess nutrients, including nitrates and phosphates, into the Mediterranean.[90] The result is algal blooms, which are "relatively quick explosions in the concentrations of various kinds of algae."[91] Sometimes, Harmful Algal Blooms (HABs) result, which can produce neurotoxins that contaminate fish and lead to red tides.[92] Moreover, once these algae die, their decomposition consumes much of the oxygen then existing in the seawater, which can lead to "dead-zones, void of all animal life."[93] In April, 1994, the UNEP identified 150 such zones in the world's oceans – a result of the excess of nutrients being deposited into the seas.[94] Particularly alarming is that "the number of oxygen-starved areas in oceans and bays around the world ha[s] doubled" from 1990 to 2003.[95]

3. *Industry*

Industrial enterprises are another leading source of pollution in the Mediterranean Sea.[96] Industrial pollution in the region results primarily from the chemical, petrochemical, and metallurgy sectors.[97] Each year, a significant amount of waste from "large commercial harbours and [big] industrial complexes" is released into the Sea.[98] UNEP estimates that "129,000 tons of mineral oil, 60,000 tons of mercury, 3,800 tons of lead, and 36,000 tons of phosphates are dumped into the Mediterranean each year."[99] Much of this waste is carried from inland by the eighty some rivers that abound in the region.[100] According to the World Business Council for Sustainable Development

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90. *See generally* UNEP/MAP & MIO-ECSDE, Mediterranean Multi-Stakeholder Forum on "The Protection of the Mediterranean Sea From Land-Based Pollution: Prospects and Partnerships" (2005), http://unepmap-multistakeholderforum.mio-ecsde.org/.

91. Craig, *supra* note 65, at 346.

92. *Id.*

93. *Id.*

94. *Id.* at 347 (citing UN Sounds the Alarm on Dead Zones in Ocean, UTILITY WEEK, Apr. 23, 2004, at 12).

95. *Id.* at 346-47 (citing Zo Chafe, Ocean Dead Zones Multiplying, 17:4 World Watch 10 (July/Aug. 2004)).

96. World Business Council, *supra* note 85.

97. *Id.*

98. *Id.*

99. Explore Crete, *Pollution in the Mediterranean Sea*, http://www.explorecrete.com/nature/mediterranean.html (last visited Aug. 24, 2007) [hereinafter Explore Crete].

100. World Business Council, *supra* note 85.

(WBCSD), the result is that the Mediterranean basin is in "an advanced state of deterioration."[101]

4. *Maritime Shipping Activities*

According to the FAO, "the Mediterranean is also under pressure from intense maritime shipping activities . . . ."[102] UNEP has reported that a staggering "30% of international sea-borne trade volume originates [there] or is directed through it, [and] 28% of the world's sea-borne oil traffic transits the Sea."[103] In fact, up to one million tons of crude oil is expelled into the Mediterranean annually.[104] The impact of maritime traffic goes beyond pollution; the dumping of ballast waters from maritime vessels has resulted in the invasion of alien aquatic species into the Sea,[105] the introduction of which seems to accompany loss of species and normal ecosystem function.[106]

III. NEW REGULATIONS FOR MEDITERRANEAN FISHING

In February 2005, the twenty-four member states of the FAO's GFCM agreed upon new fishing regulations focused on safeguarding the fishery resources of the Mediterranean Sea.[107] This "sweeping array" of management measures entered into effect on September 5, 2005, and from that date forward was supposed to be enforced at the national level by all GFCM member-states.[108] Since 2005, the GFCM has met annually and will continue to do so to discuss and implement new measures aimed at sustaining the Sea's valuable fish stocks.[109]

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101. *Id.*
102. Heavy Hand, *supra* note 28.
103. *Id.*
104. Explore Crete, *supra* note 99; s*ee also* Craig, *supra* note 65, at 345 (citing Thomas E. Svarney & Patricia Barnes-Svarney, The Handy Ocean Answer Book 371 (2000) (who finds that much of the oil in the oceans come from street runoff as well as accidental oil spills during shipping)).
105. Heavy Hand, *supra* note 28.
106. *See generally* Jeremy B.C. Jackson, *What was Natural in the Coastal Oceans*?, 98 PROC. NAT'L ACAD. OF SCI. 5411, 5416 (2001), *available at* http://www.pnas.org/cgi/content/full/98/10/5411.
107. New Regulations, *supra* note 73; New Role, *supra* note 7.
108. *Id.*
109. New Measures, *supra* note 12.

A. *Precautionary Measures*

Because the sea below 1000 meters "is a poorly known ecosystem," the GFCM, in response to a comprehensive study conducted by the IUCN and WWF, adopted a ban on deep water fishing operations beyond that depth.[110] According to Francois Simard, IUCN Global Marine Coordinator, "[t]his is an important measure, the first of its kind in the world. It is a significant step towards a more sustainable fishery in the Mediterranean . . . . [C]ommunities, conservationists and the fishery industry, will benefit from this measure . . . ."[111] Sergi Tudela, who headed the WWF delegation at the 29th GFCM session – where these measures were adopted – said, "GFCM's decision to exclude trawling beyond 1000 meters has moved the Mediterranean considerably towards sustainable fisheries . . . mak[ing] the region a leader in fisheries management . . . ."[112] Such a precautionary approach will inevitably protect many sensitive species of concern, including juvenile shrimps, as the deep-sea is one of their essential nursery areas.[113]

In addition to the prohibition on trawl nets and dredges below 1,000 meters, the GFCM also requires that all "trawlers use a minimum mesh-size opening of 40mm in the 'cod end' section of their nets . . . allow[ing] smaller, juvenile fish to escape, thereby conserving breeding stocks."[114] The hope is that by-catch and its incidental effects will be significantly reduced.[115]

B. *Improved Monitoring of Fishing Activities*

In an effort to eliminate IUU fishing and its damaging consequences, every boat over fifteen meters long must have authorization to fish in GFCM waters, to be listed in a centralized registry.[116] By July 1, 2006, each member

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110. Press Release, IUCN-The World Conservation Union, Mediterranean Conservationists and Fishermen Work Together to Protect Deep Seas (March 2, 2005), *available at* http://www.iucn.org/places/medoffice/documentos/deepsea_en.pdf.

111. *Id.*

112. *Id.*

113. *Id.*

114. New Regulations, *supra* note 73.

115. *Id.*; *see also* New Role, *supra* note 7.

116. New Regulations, *supra* note 73; General Fisheries Commission for the Mediterranean, FAO, GFCM Recommendations on Fisheries Management, GFCM/2005/2 (2005), *available at* http://www.iucn.org/places/medoffice/documentos/GFCM29.pdf [hereinafter General Fisheries]; s*ee also* Claude Martin, *Time to Tackle the Pirates*, WWF INTERNATIONAL, Aug. 1, 2005, http://www.panda.org/about_wwf/what_we_do/marine/news/index.cfm?uNewsID=22377 (stating that IUU fishing can account for up to 30 percent of total catches in some important fisheries and that catches of some species may be 300 percent more than the permitted level due to its practice).

state was required to submit to the GFCM Executive Secretary a list of those vessels that are "authorized [by that member state] to fish for, retain on board, transship or land species covered by the Commission."[117] Thus, it is up to each GFCM country to determine if their vessels are able to fulfill the requirements and responsibilities under the Agreement.[118] Upon authorization of a vessel, the member state has a duty to ensure that the vessel continues to comply.[119] Once the centralized registry is created, each member state has a duty to notify the Secretary of any modification to the GFCM record.[120] Any boat that is not on the registry will be deemed unauthorized to operate in the waters and will be subject to penalties determined by the applicable legislation of the individual member-states.[121]

Communication between the GFCM and its Contracting Parties is necessary for the successful implementation of this measure.[122] But also stressed by the Commission at the 29th session was the importance of working together with other fishery management bodies and the FAO to establish similar records "so as to avoid [the] adverse effects [IUU fishing has] upon fisheries resources in other [waters]."[123] A particular concern is that vessels not authorized to operate in the Sea will go elsewhere, shifting the excessive pressure that IUU fishing has on the Mediterranean to other seas and oceans.[124]

C. *Closer Oversight of "Tuna Fattening" Operations*

In cooperation with the International Commission for the Conservation of Atlantic Tuna (ICCAT), GFCM countries have also agreed to take detailed measures to more closely monitor and report "sea-ranching" of the over-exploited bluefin tuna.[125]

1. *Bluefin Tuna-Fishing and Farming Measures*

GFCM member-states whose vessels either fish for bluefin tuna or transport tuna to cages for farming must adhere to strict new guidelines.[126] For

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117. General Fisheries, *supra* note 116.
118. *Id.*
119. *Id.*
120. *Id.*
121. *Id.*; *see also* New Regulations, *supra* note 73.
122. *See* General Fisheries, *supra* note 116.
123. *Id.*
124. *Id.*
125. New Regulations, *supra* note 73.
126. General Fisheries, *supra* note 116.

example, captains of transport vessels are to maintain logs that report, the number of fish collected, date, and place of harvest.[127] Each member state must then report to the Commission the total amount of transfers that take place by their vessels for tuna fattening and farming.[128] In addition, they must set up and maintain a list or registry of those vessels that transport tuna for farming purposes.[129]

Member states in whose jurisdictions the farms are located have additional responsibilities.[130] These include annual transmission to the Executive Secretary of the Commission the quantities of bluefin caged during the previous year and the amount marketed.[131] In addition, GFCM countries are to "verify the information [they] receive and . . . cooperate to ensure that [the] quantities caged are consistent with the reported catches [or] (logbook) amount of each fishing vessel."[132]

2. *Size Controls of the Harvested Bluefin*

Out of concern regarding the continuously high levels of undersized catches and the pressure that harvesting immature fish puts on wild stocks, the GFCM and ICCAT now command more stringent controls over the minimum size of harvested bluefin tuna.[133] Contracting Parties are currently required to "take the [steps] necessary . . . to prohibit the catch, the retaining on board, [the] landing, [the] transshipment [and the sale] of any bluefin tuna . . . weighing less than 10 kg in the Mediterranean Sea."[134] According to this adopted recommendation, "no tolerance [will] be granted."[135]

3. *2007 Recovery Plan*

At the 2007 annual meeting of the GFCM, measures were adopted that include a 15- year recovery plan for the bluefin, running through 2022.[136] The plan requires "6-month off seasons for specific types of boats, bans the use of

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127. General Fisheries Commission for the Mediterranean, FAO, GFCM Recommendations on Fisheries Management, GFCM/2005/3(C) (2005), *available at* http://www.iucn.org/places/medoffice/documentos/GFCM29.pdf.

128. *Id.*

129. *Id.*

130. *Id.*

131. *Id.*

132. *Id.*

133. New Regulations, *supra* note 73.

134. General Fisheries, *supra* note 116.

135. *Id.*

136. New Measures, *supra* note 12.

aircraft in spotting tuna, forbids the capture of tuna under 30 kg except in certain specific circumstances, and requires better reporting of tuna catches."[137] GFCM's Executive Secretary, Alan Bonzon, urges that the plan will "substantially decrease" IUU fishing.[138]

IV. GFCM – A ROLE MODEL

Alan Bonzon has stated that coordinating management efforts and "getting 24 different Members to agree" is often difficult.[139] Nevertheless, as Bonzon explains, "[t]he evolution and tranjectory of GFCM in recent years demonstrates that regional fisheries bodies can [assume] a key role in building sustainable fisheries, even in 'crowded' situations like the Mediterranean, or on the high seas where governance calls for intensive coordination and cooperation among the many stakeholders."[140]

At the New Partnership for Africa's Development's (NEPAD) Fish for All Summit, held in Abuja, Nigeria in late August 2005, the FAO addressed this issue in the African context.[141] Ichiro Nomuro, Assistant Director-General of the Fisheries Department of the FAO, discussed the current development of the fisheries sector on that continent and the positive social and economic consequences they are bringing.[142] Among these are "food self sufficiency and food security, improvement of nutrition, growth and diversification of exports."[143] Moreover, these fisheries currently provide jobs and revenue to 2.6 million fishermen and fish farmers.[144] However, on the other side of the coin, Africa faces obstacles similar to those facing the Mediterranean region; obstacles that the GFCM is successfully working to constrain.[145] Brought about by "[a] failure of sector governance and illegal fishing," the African region faces "unsustainable levels of exploitation of fish resources and the destruction of [its] aquatic ecosystems."[146] Without proactive, intergovernmental organization and action, fisheries in Africa will be unable to respond to the pressures of a growing

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137. *Id.*
138. *Id.*
139. New Role, *supra* note 7.
140. *Id.*
141. Ichiro Nomura, Assistant Director-General, FAO, UN, Address at the NEPAD Fish for All Summit (2005), *available at* http://www.fao.org/newsroom/common/ecg/107373/en/speech.pdf.
142. *Id.*
143. *Id.*
144. *Id.*
145. *Id.*
146. *Id.*

population and of an increasing demand for fish.[147] The FAO's GFCM will certainly provide a model for such organization and action.

V. CONCLUSION

Securing the future of fishing in the Mediterranean, as well as in other areas of the world, requires two steps.[148] First, individual countries must ensure the adoption and application of measures to maintain sustainable fisheries in their waters.[149] Then, more importantly, they must develop a dialogue with their neighbors and partners to coordinate cohesive fisheries management measures.[150] The FAO's GFCM provides "[t]he sole multilateral mechanism by which the different countries of the Mediterranean can undertake [such] joint action to safeguard fisheries in high-seas areas [and] work to harmonize management efforts in coastal waters . . . ."[151] The GFCM has found success in recent years in achieving its aims, and it provides a framework to follow for other regions, like coastal Africa, which face dramatic changes to their rich fishing and seafaring cultures.

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147. *Id.*

148. Press Release, Fisheries and Maritime Affairs, The European Commission, Joe Borg in Italy: Working Together Towards Sustainable Fisheries in the Mediterranean http://ec.europa.eu/fisheries/press_corner/press_releases/archives/com05/com05_07_en.htm (last visited Aug. 24, 2007).

149. *Id.*

150. *Id.*

151. New Role, *supra* note 7.